Washington County All Hazards Mitigation Plan Update

Volume I

Prepared for:

Washington County Department of Public Safety
383 Broadway | Fort Edward, New York

FINAL

August 2018

Prepared by:

TETRA TECH
complex world | CLEAR SOLUTIONS™

6 Century Drive, Suite 300 | Parsippany, NJ

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6 Century Drive, Suite 300
Parsippany, NJ 07054

Project 103S4554

SECTION 1. INTRODUCTION

1.1 BACKGROUND

In response to the requirements of the Disaster Mitigation Act of 2000 (DMA 2000), Washington County, and the municipalities located therein, have developed this Hazard Mitigation Plan (HMP), which represent a regulatory update to the April 2010 "Washington County All-Hazards Mitigation Plan". The DMA 2000 amends the Robert T. Stafford Disaster Relief and Emergency Assistance Act (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 HMPs. The New York State Division of Homeland Security and Emergency Services (NYS DHSES), formerly the NYS Office of Emergency Management (NYSOEM), also supports plan development for jurisdictions in New York State and issued NYS DHSES Hazard Mitigation Planning Standards for HMPs developed with NYS DHSES-administered funds.

Hazard Mitigation is 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*** as the documentation of a state or local government evaluation of natural hazards and the strategies to mitigate such hazards.

Specifically, the DMA 2000 requires that States, with support from local governmental agencies, develop and update HMPs on a five-year basis to prepare for and reduce the potential impacts of natural hazards. The 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

A recent study by the Multihazard Mitigation Council shows that each dollar spent on mitigation saves an average of $4.00. FEMA Fact Sheet *'Mitigation's Value to Society"*

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, consequently, 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

The planning process will help prepare citizens and government agencies to better respond when disasters occur. Also, mitigation planning allows Washington County as well as the participating Washington County municipalities, 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 include:

- An increased understanding of hazards faced by Washington County and their inclusive municipalities
- 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 and reduced repair costs

1.1.3 Organizations Involved in the Mitigation Planning Effort

Washington County and the participating jurisdictions intend to implement this HMP with full coordination and participation of County and local departments, organizations and groups, as well as by coordinating with relevant State and Federal entities. Coordination helps to ensure that stakeholders have established communication channels and relationships necessary to support mitigation planning and mitigation actions included in Section 6 (Mitigation Strategy) and in the jurisdictional annexes in Section 9 (Annexes). In addition to Washington County, 23 out of 25 municipal governments in the County participated in the 2016-2018 planning process as indicated in Table 1-1 below.

Table 1-1. Washington County Jurisdictions

Jurisdictions	
Washington County	Town of Greenwich
Town of Argyle	Village of Greenwich
Village of Argyle	Town of Hampton
Town of Cambridge	Town of Hartford
Village of Cambridge	Town of Hebron
Town of Dresden	Village of Hudson Falls (not participating)
Town of Easton	Town of Jackson
Town of Fort Ann	Town of Kingsbury
Village of Fort Ann (not participating)	Town of Putnam
Town of Fort Edward	Town of Salem (incl. former Village)
Village of Fort Edward	Town of White Creek
Town of Granville	Town of Whitehall
Village of Granville	Village of Whitehall

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. NYS DHSES provides guidance to support mitigation planning. 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 [Planning Process]). Project management and oversight of the planning process was provided by the Washington County Department of Public Safety (WCDPS) and the Washington County Hazard Mitigation Steering Committee. While participating municipalities were asked to identify a primary and alternate local Point of Contact (POC), broad participation by municipal representatives was encouraged and supported throughout the planning process. A list of Steering Committee and municipal POCs is provided in Section 3 (Planning Process), while Appendix D (Participation Matrix) provides further documentation of the broader level of municipal involvement.

This HMP 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 Review Guide, October 1, 2011
- 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. 2004. "How-To Guide for Using HAZUS-MH for Risk Assessment." FEMA Document No. 433. February.
- 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, June 2014

Figure 1-1. Washington County, New York Mitigation Plan Area

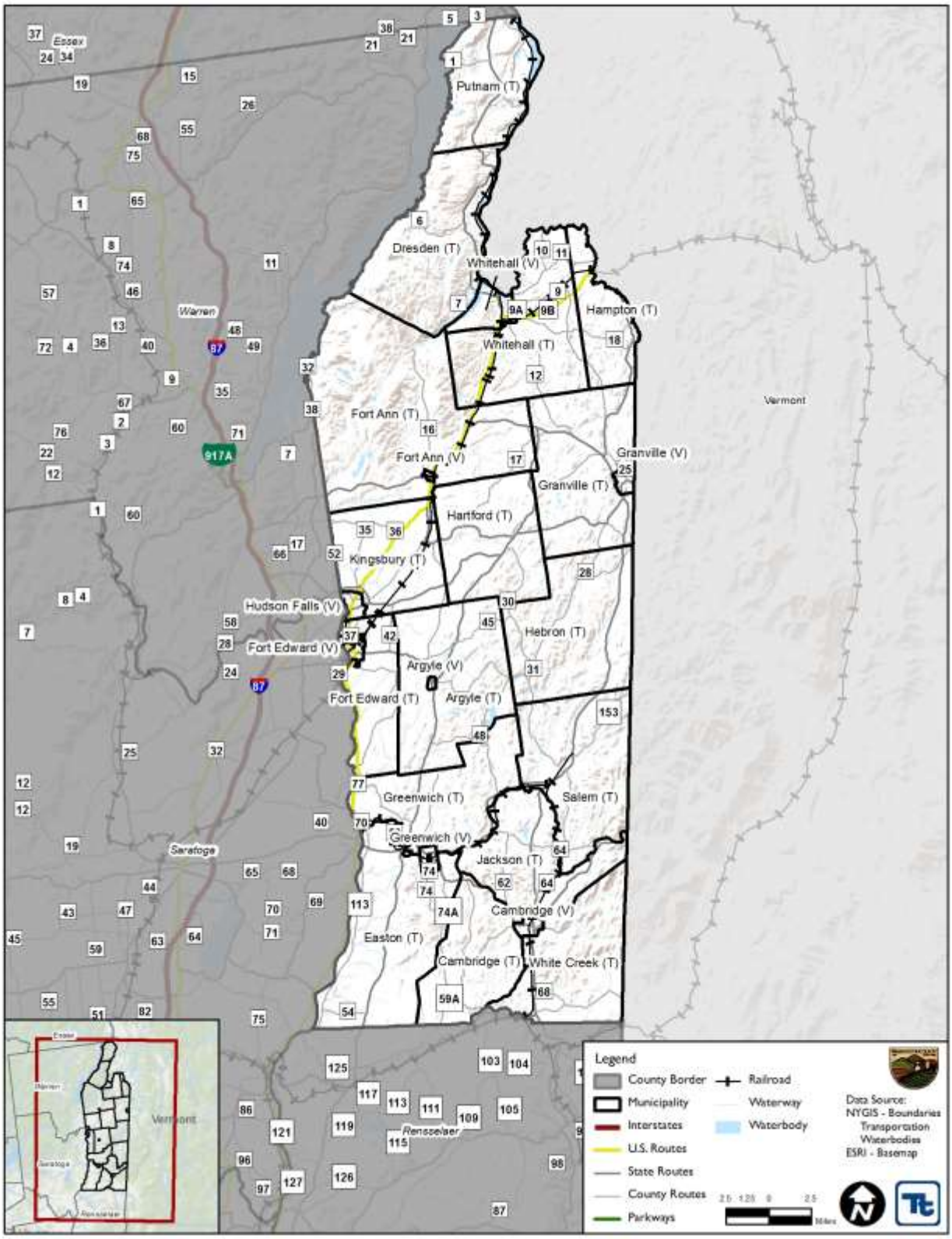


Table 1-2 summarizes the requirements outlined in the DMA 2000 Interim Final Rule and where each of these requirements is addressed in this HMP.

Table 1-2. FEMA Local Mitigation Plan Review Crosswalk

Plan Criteria	Primary Location in Plan
Prerequisites	
Adoption by the Local Governing Body: §201.6(c)(5)	Section 2.0 (Plan Adoption); Appendix A (Sample Adoption Resolution)
Planning Process	
Documentation of the Planning Process: §201.6(b) and §201.6(c)(1)	Section 3.0 (Planning Process)
Risk Assessment	
Identifying Hazards: §201.6(c)(2)(i)	Sections 5.2 (Hazard of Concern ID)
Profiling Hazards: §201.6(c)(2)(i)	Section 5.4 (Hazard Profiles)
Assessing Vulnerability: Overview: §201.6(c)(2)(ii)	Section 5.4 (Hazard Profiles)
Assessing Vulnerability: Identifying Structures: §201.6(c)(2)(ii)(A)	Section 4.0 (County Profile) Section 5.4 (Hazard Profiles)
Assessing Vulnerability: Estimating Potential Losses: §201.6(c)(2)(ii)(B)	Section 5.4 (Hazard Profiles)
Assessing Vulnerability: Analyzing Development Trends: §201.6(c)(2)(ii)(C)	Section 4.0 (County Profile); Section 9 (Annexes)
Mitigation Strategy	
Local Hazard Mitigation Goals: §201.6(c)(3)(i)	Section 6.0 (Mitigation Strategy); Section 9 (Annexes)
Identification and Analysis of Mitigation Actions: §201.6(c)(3)(ii)	Section 6.0 (Mitigation Strategy); Section 9 (Annexes)
Implementation of Mitigation Actions: §201.6(c)(3)(iii)	Section 6.0 (Mitigation Strategy); Section 9 (Annexes)
Multi-Jurisdictional Mitigation Actions: §201.6(c)(3)(iv)	Section 6.0 (Mitigation Strategy); Section 9 (Annexes)
Plan Maintenance Process	
Monitoring, Evaluating, and Updating the Plan: §201.6(c)(4)(i)	Section 7.0 (Plan Maintenance)
Incorporation into Existing Planning Mechanisms: §201.6(c)(4)(ii)	Section 7.0 (Plan Maintenance); Section 9 (Annexes)
Continued Public Involvement: §201.6(c)(4)(iii)	Section 7.0 (Plan Maintenance)

Organization

The Washington County HMP Update has been organized into a two-volume plan to facilitate use of this plan as a resource for each participant. Volume I provides information on the overall planning process, and the natural hazard profiling and vulnerability assessments which served as a basis for the understanding of risk and identification of appropriate mitigation actions. As such, Volume I is intended for use as a resource for on-going mitigation analysis. Volume II consists of an annex dedicated to each participating jurisdiction. Each annex summarizes the jurisdiction's vulnerabilities to natural hazards; legal, regulatory, and fiscal capabilities; status of past mitigation actions; and provides an individualized mitigation strategy. The annexes are intended to provide an expedient resource for each jurisdiction for implementation of mitigation projects and future grant opportunities, as well as place for each jurisdiction to record and maintain their local aspect of the countywide plan.

Hazards of Concern

Washington County and participating jurisdictions reviewed the natural hazards that caused measurable impacts based on events, losses and information available since the development of the original Washington County HMP (2010), and the New York State Hazard Mitigation Plan - 2014 Update. Washington 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 Washington County and are indicated in each jurisdictional annex. The hazard risk rankings were used to focus and prioritize individual jurisdictional mitigation strategies.

Goals and Objectives

The plan reviewed and updated the prior mitigation goals and objectives as a basis for the planning process and to guide the selection of appropriate mitigation actions addressing all hazards of concern. Further, 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 within Section 6 – Mitigation Strategy.

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 and coordinate with, and complement, those mechanisms.

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 (Annexes), 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 (Plan Maintenance).

1.1.4 Implementation of Prior Hazard Mitigation Plan

The status of the mitigation projects identified in the 2010 Washington County HMP are provided in Section 6 (Mitigation Strategy) and Section 9 (Annexes of the plan). Projects and programs have been implemented that have reduced hazard vulnerability to assets in the planning area. The County and municipal annexes, and plan maintenance procedures (Section 7 (Plan Maintenance)), have been developed to encourage specific activities such as review of the HMP during update of codes, ordinances, zoning, and development to ensure that a more thorough integration, with its related benefits, will be completed within the upcoming five-year planning period.

1.1.5 Implementation of the Planning Process

The planning process and findings are to be documented in local HMPs. To support the planning process in developing this HMP, Washington County and the participating jurisdictions have accomplished the following:

- Developed a Steering Committee and countywide planning partnership with municipalities and stakeholders,
- Reviewed the April 2010 "Washington County All-Hazard Mitigation Plan", and determined what content and Sections needed to be updated,
- Identified/reviewed those hazards that are of greatest concern to the community (hazards of concern) to be included in the plan,
- Profiled these hazards,
- Estimated the inventory at risk and potential losses associated with these hazards,
- Reviewed and updated the hazard mitigation goals and objectives,
- Reviewed mitigation strategies identified in the 2010 County HMP,
- 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 process, and
- Developed mitigation plan maintenance procedures to be executed after obtaining approval of the plan from NYS DHSES and FEMA.

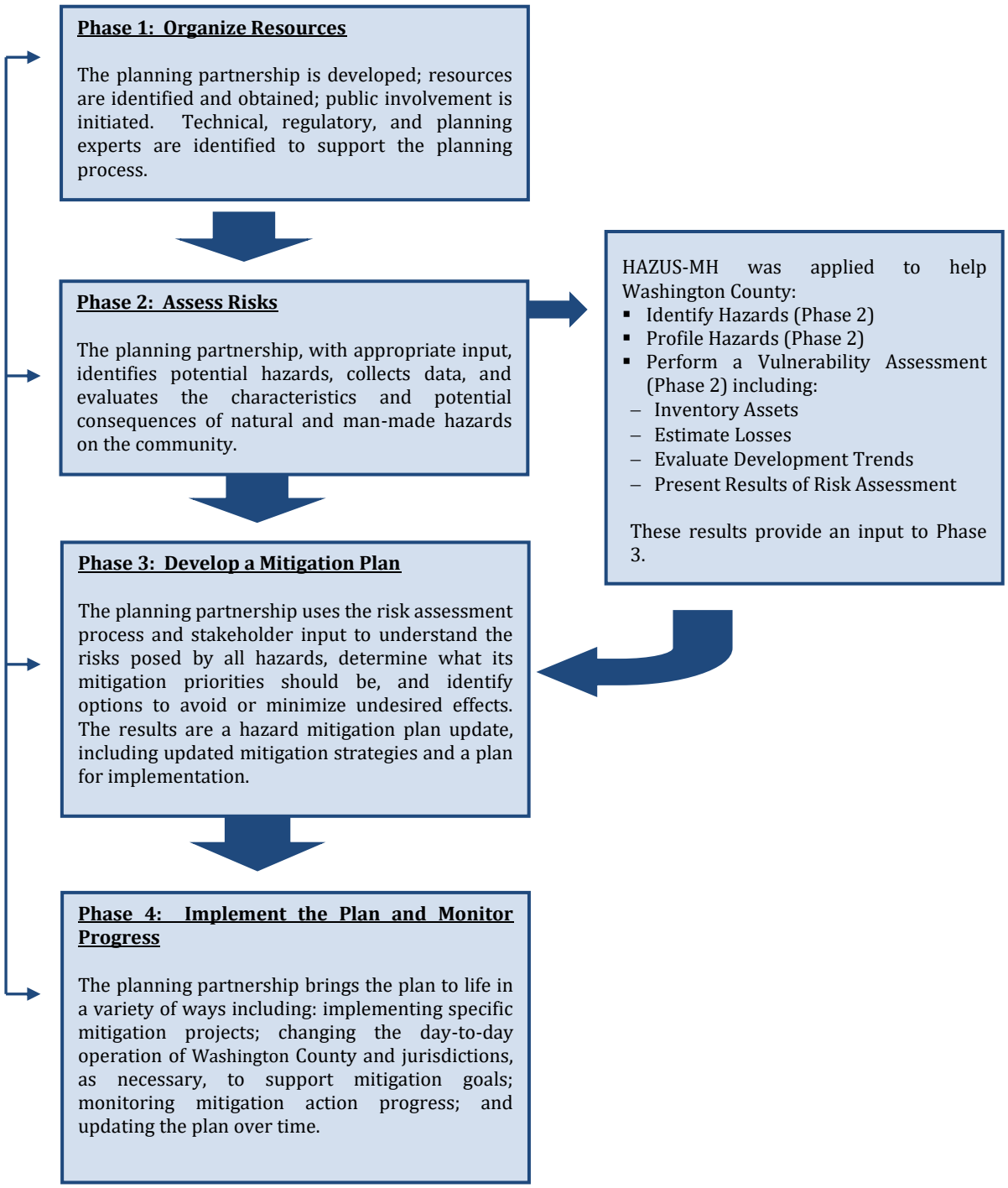
As required by DMA 2000, Washington County and participating jurisdictions have informed the public and provided opportunities for public comment and input. In addition, numerous agencies and stakeholders have participated as core or support members, providing input and expertise throughout the planning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

This Hazard Mitigation Plan documents the process and outcomes of Washington County and the jurisdictions' efforts. Additional information on the plan 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

This Plan was organized in accordance with FEMA and NYS DHSES guidance. The structure of this Plan follows the four-phase planning process recommended by FEMA and summarized in Figure 1-2.

Figure 1-2. Washington County Hazard Mitigation Planning Process



The Plan is organized into two volumes: Volume I includes all information that applies to the entire planning area (Washington County); and Volume II includes participating jurisdiction-specific information.

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 Washington County and each participating jurisdiction.

Section 3: Planning Process: A description of the Plan methodology and development process, Planning Committee and stakeholder involvement efforts, and a description of how this Plan will be incorporated into existing programs.

Section 4: County Profile: An overview of Washington County, including: (1) general information, (2) economy, (3) land use 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: The system established by the Steering Committee 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 each participating jurisdiction and Washington County containing their hazards of concern, hazard risk ranking, capability assessments, mitigation actions, action prioritization specific only to Washington County or that jurisdiction, progress on prior mitigation activities (as applicable), and a discussion 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 – Plan Adoption 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 process.

Appendix D: Participation Matrix: A matrix is presented to give a broad overview of who attended meetings and when input was provided to the HMP update.

Appendix E: Action Worksheet Template and Instructions

Appendix F: FEMA Plan Review Tools: Examples of plan review templates available to support annual plan review

Appendix G: Municipal Letters of Intent to Participate

Appendix H: Critical Facilities

SECTION 2. PLAN ADOPTION

2.1 Overview

This section contains information regarding adoption of the plan by Washington County and each participating jurisdiction.

2.1.1 Plan Adoption by Local Governing Bodies

Adoption by the local governing bodies demonstrates the commitment of Washington County and each participating jurisdiction to fulfill the mitigation goals and strategies outlined in the plan. Adoption legitimizes the Hazard Mitigation Plan (HMP) 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 HMP update, known as Approval Pending Adoption (APA).

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 the Washington County HMP Coordinator. Washington County will then forward the adoption resolutions to New York State Division of Homeland Security & Emergency Services (NYS DHSES) after which they will be forwarded to FEMA for record. The jurisdictions understand that the Federal Emergency Management Agency (FEMA) will transmit acknowledgement of verification of formal plan adoption and the official approval of the plan to the Washington County HMP Coordinator.

The resolutions issued by each jurisdiction to support adoption of the plan will be included in Appendix A (Sample Adoption Resolution).

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 April 2010 "Washington County All-Hazards Mitigation Plan" (HMP, 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 requirements of the DMA 2000, as well as to assure that the planning process would have the broad and effective support of the participating jurisdictions, regional and local stakeholders and the public, 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. Washington County invited all jurisdictions in the county to join with them in the planning process. To date, 23 out of 25 municipal governments in the County participated in the 2016-2018 planning process as indicated in Table 3-1.

Table 3-1. Participating Washington County Jurisdictions

Jurisdictions	
Washington County	Town of Greenwich
Town of Argyle	Village of Greenwich
Village of Argyle	Town of Hampton
Town of Cambridge	Town of Hartford
Village of Cambridge	Town of Hebron
Town of Dresden	Village of Hudson Falls (not participating)
Town of Easton	Town of Jackson
Town of Fort Ann	Town of Kingsbury
Village of Fort Ann (not participating)	Town of Putnam
Town of Fort Edward	Town of Salem (incl. former Village)
Village of Fort Edward	Town of White Creek
Town of Granville	Town of Whitehall
Village of Granville	Village of Whitehall

- The plan will consider all natural hazards facing the area, thereby satisfying the natural hazards mitigation planning requirements specified in DMA 2000.
- The plan will be developed following the process outlined by DMA 2000, FEMA regulations, and prevailing Federal Emergency Management Agency (FEMA) and New York State Division of Homeland Security and Emergency Services (NYS DHSES) guidance. Following this process ensures that all the requirements are met and support Plan review. In addition, this Plan will meet criteria for the National Flood Insurance Program (NFIP) Community Rating System (CRS) and the Flood Mitigation Assistance (FMA) programs.

The Washington 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 update 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 update.

3.2.1 Organization of Planning Partnership

Washington County applied for and was awarded a multi-jurisdictional planning grant under the 2014 Pre-Disaster Mitigation Grant Program (PDMC-PL-02-NY-2014-001), which has supported the development of this HMP. Project management and grant administration has been the responsibility of the Washington County Department of Public Safety.

A contract planning consultant (Tetra Tech, Inc.) 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, 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 May 2016, 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 to Participate) and to identify planning points of contact to facilitate municipal participation and represent the interests of their respective communities. Twenty-two out of the 25 municipalities returned a Letter of Intent to Participate. The Towns of Putnam and Whitehall and the Village of Greenwich did not return their Letters of Intent to Participate. While these municipalities did not provide a Letter of Intent to Participate, they actively participated in the planning process and provided the required documentation to complete their municipal annex. See Appendix G for municipal Letters of Intent as available.

To facilitate plan development, Washington 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; and
- 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 lists the current members of the planning partnership as of the time of publication of this plan update.

Table 3-2. Washington County Hazard Mitigation Planning Partnership Members

Organization	Name	Title / Position	Planning Partnership	Steering Committee
Washington County Department of Public Safety	Jonathan Pease	Emergency Management and Hazard Mitigation Planning Coordinator		X
	Glen Gosnell	Director of Public Safety		X
	Timothy Hardy	Deputy Director of Public Safety	X	X
Washington County Administration	Chris DeBolt	County Administrator (former County Director of Planning)	X	X
Washington County Department of Public Works	Steve Haskins	Superintendent	X	X
	Todd Konifka	Deputy Superintendent	X	X
Washington County Code Enforcement	Steven Smith	Code Enforcement Officer	X	X
Washington County Soil and Water Conservation District	Corrina Aldrich	District Manager	X	X
Washington County Planning Department	Layne Darfler	Planner	X	X
Washington County Real Property Tax Service	Heather Weller	GIS Specialist	X	X
Washington County Board Of Supervisors	Robert A. Henke	Chairman	BOS Liaison	
Town of Argyle	Robert (Bob) Humiston	Highway Superintendent	X	
	Robert A. Henke	Town Supervisor	X	
Village of Argyle	Wesley Clark	Mayor	X	
	Joyann Stimpson	Clerk/Treasurer	X	
	Robert A. Henke	Town Supervisor (Town of Argyle)	X	
Town of Cambridge	Jim Buckley	Highway Superintendent	X	
	Catherine (Cassie) Fedler	Town Supervisor	X	
Village of Cambridge	Matt Toleman	Public Works/DPW Superintendent	X	
	Carman Bogle	Village Mayor	X	
Town of Dresden	Richard Hobus	Highway Superintendent	X	
	George Gang	Town Supervisor	X	
Town of Easton	Daniel Shaw	Town Supervisor	X	
	Randy Moy	Councilman	X	
Town of Fort Ann	Richard Moore	Supervisor	X	
	Paul Winchell	Highway Superintendent	X	
	Mark A. Miller	Code Enforcement Officer, NFIP FPA	X	
Village of Fort Ann	Richard Foran	Mayor	X	
Town of Fort Edward	Mitchell Suprenant	Town Supervisor	X	
	Brian Brockway	Highway Superintendent	X	
Village of Fort Edward	Matthew Traver	Mayor	X	

Organization	Name	Title / Position	Planning Partnership	Steering Committee
	Bryan Etu	Highway Superintendent	X	
Town of Granville	Eric Towne	Highway Superintendent; NFIP FPA	X	
	Mark Kretzer	Water Superintendent	X	
Village of Granville	Dan Williams	Superintendent Public Works	X	
	George Johnson	Assistant Superintendent	X	
Town of Greenwich	Kellie Blake	Clerk to the Supervisor/ Bookkeeper	X	
	Sara S. Idleman	Supervisor	X	
	Dan O'Connor	Code Enforcement	X	
Village of Greenwich	Pam Fuller	Mayor	X	
Town of Hampton	Herb Sady	Highway Superintendent	X	
	Dave O'Brien	Supervisor	X	
Town of Hartford	Dan Haff	Town Supervisor	X	
	Greg Brown	Highway Superintendent	X	
	Mark A. Miller	Code Enforcement Officer	X	
Town of Hebron	Floyd Pratt	Highway Superintendent	X	
	Brian R. Campbell	Town Supervisor	X	
Village of Hudson Falls	Michael Fiorillo	Highway Superintendent	X	
	Randy Diamond	Chief of Police	X	
	John Barton	Mayor	X	
Town of Jackson	Sean Carney	Highway Superintendent	X	
	Jay B. Skellie	Town Supervisor; NFIP FPA	X	
Town of Kingsbury	Dana Hogan	Supervisor	X	
	Ross Cortese	Code Enforcement Officer	X	
Town of Putnam	John R. LaPointe	Town Supervisor	X	
	Darlene Kerr	Town Clerk	X	
Town of Salem (incl. former Village)	Seth M. Pitts	Town Supervisor	X	
	Gerald Boisclair	Highway Superintendent	X	
	Alton Knapp	NFIP FPA	X	
Town of White Creek	Robert Shay	Town Supervisor	X	
	Chris Rieben	Highway Superintendent	X	
Town of Whitehall	George Armstrong	Town Supervisor	X	
	Louis Pratt	Highway Superintendent	X	
Village of Whitehall	Kenneth Bartholomew	Mayor	X	
	Steven Brock	DPW Foreman	X	
	Peter Telisky	Compliance, NFIP FPA	X	

BOS *Board of Supervisors*

FPA *Floodplain Administrator*
NFIP *National Flood Insurance Program*

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. It is recognized that the jurisdictions in Washington 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 Washington 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 municipal annex to the HMP (Section 9 - Annexes) 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.

Appendix D - Participation Matrix identifies those individuals who represented the municipalities during this planning effort, and indicates how they contributed to the planning process.

It is noted that all municipalities in the county actively participate in the National Flood Insurance Program, and have a designated NFIP Floodplain Administrator (FPA). All FPAs of the participating municipalities 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 D – Participation Matrix.

3.2.2 Planning Activities

Members of the planning partnership (individually and as a whole), as well as key stakeholders, convened and/or communicated regularly 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, for those municipalities that participated, 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. It also identifies which DMA 2000 requirements the activities satisfy. Documentation of meetings (agendas, sign-in sheets, minutes, etc.) may be found in Appendix B – Meeting Documentation. 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 – Plan Maintenance. 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. Summary of Mitigation Planning Activities / Efforts

Date	DMA 2000 Requirement	Description of Activity	Participants
August 2015	1b, 2	County awarded Post Disaster Mitigation (PDM) Planning grant	WCDPS; FEMA; NYS DHSES
March 2016		Grant Extension request submitted to NYS DHSES	County, NYS DHSES
March – May 2016	1b, 2	County conducts procurement process for contract planning support	WCDPS
May 16, 2016	1b, 1c, 2, 3a, 3b, 3c, 4a, 5c	Steering Committee Meeting #1: Discuss proposed planning process and scope of work, review project schedule; review municipal participation and formalizing via Letter of Intent to Participate (LOIP), 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.	WC Project Management Team and Steering Committee; Contract Planner. See Appendix B – Meeting Documentation
May 2016	2	All municipalities invited to participate in the planning process and requested to document via a Letter of Intent to Participate.	WCDPS, all municipal governments
June 15, 2016	1b, 1c, 2, 3a, 3b, 3c, 4a	Municipal Kick-Off 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	WCDPS; Municipal Representatives and stakeholders. See Appendix B - Meeting Documentation
June 2016	2	Public project website (www.washingtoncountyhmp.com), Citizen and Stakeholders surveys made available for Steering Committee review and subsequent public announcement	Steering Committee; Contract Planner; Public and Stakeholders
June 30, 2016	1b, 1c, 2, 3a-c, 3e	Local Data Collection Meeting – Towns of Cambridge, Jackson and White Creek; Village of Cambridge	See Appendix B - Meeting Documentation
July 15, 2016	1b, 1c, 2, 3a-c, 3e	County Annex Data Collection Conference Call	See Appendix B - Meeting Documentation
July 28, 2016	1b, 2, 3 (all), 4a, 4b, 5c	SC Meeting #2 - Review/finalize hazards of concern; review/update goals and objectives; review public and stakeholder outreach efforts; set date for Mitigation Strategy Workshop; review municipal progress and schedule	Steering Committee (See Appendix B - Meeting Documentation)
July – August, 2016	2	County and municipalities promote public project website, and citizen and stakeholder surveys	Steering Committee; County; municipalities and stakeholders
August 10, 2016	1b	Article in Post-Star – "Washington County Seeks Public Input on "Hazard Mitigation" Plan", notifying the public of the project website and Citizen Survey	Public and stakeholders
August 19, 2016		Board of Supervisors Meeting: Presented project to Board of Supervisors, encouraging local participation and further public and stakeholder outreach	Washington County Board of Supervisors; Steering Committee See Appendix B - Meeting Documentation
August 20, 2016	1b	Article in Post-Star – "FEMA May Pay for Flood Prevention in Washington County", summarizing the August 19 BOS project presentation	Public and stakeholders
Sept. 14, 2016	4b, 4c, 5b	FEMA Mitigation Workshop for all planning partners	Paul Hoole, FEMA Region II; all plan participants (see

Date	DMA 2000 Requirement	Description of Activity	Participants
			Appendix B - Meeting Documentation)
Sept. 2016 – Feb. 2017	4b, 4c, 5b	All jurisdictions update mitigation strategy, including project prioritization; and work to complete jurisdictional annexes	All plan participants with the support of the Washington County SC and contract consultant
January 2017	1b, 2	Municipalities provided summary of citizen and stakeholder survey responses, organized by community, for possible inclusion into municipal annexes	All municipalities; public and stakeholders
February 2017	1b, 2	Draft Plan sections posted to public project website as available. Communities requested to use available outreach to notify the public of the draft plan for review. Online survey provided to support draft plan review comments from the public and stakeholders - https://www.surveymonkey.com/r/WashingtonCountyPlanReview	Public and Stakeholders
July, 2017	1b, 2	Full Draft Plan sections posted to public project website as available. Communities requested to use available outreach to notify the public of the draft plan for review. Online survey provided to support draft plan review comments from the public and stakeholders - https://www.surveymonkey.com/r/WashingtonCountyPlanReviewSurrounding counties advised of the draft plan for their review and input.	Public and Stakeholders
August, 2017	2	Final Draft Plan submitted to NYS DHSES / FEMA Region II	NYS DHSES/FEMA Region II
Upon plan approval by FEMA	1a	HMP adoption by resolution by the governing bodies of the County and all participating municipalities	All plan participants

FEMA *Federal Emergency Management Agency*
NYS DHSES *New York State Division of Homeland Security and Emergency Services*
SC *Steering Committee*
TBD *to be determined*
WC *Washington County*
WCDPS *Washington County Department of Public Safety*
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 (e.g. social media, websites), identified stakeholders were invited to attend the kick-off meeting, while key stakeholders were requested to participate on the Steering Committee. 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; conducted a Mitigation Strategy Workshop; conducted plan review.

State Agencies

New York State Department of Homeland Security and Emergency Services (NYS DHSES: Headquarters and Region I): Administered planning grant and facilitated FEMA review; provided updated planning guidance; provided information on grant applications from County and municipalities; provided review of Draft and Final Plan.

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

New York State Department of Transportation (NYSDOT): Provided data and information, identified mitigation projects on state-owned infrastructure within the county.

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

Washington County Department of Public Safety (WCDPS): Provided overall project and planning grant 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.

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

Washington County Soil and Water Conservation District (WC SWCD): Served on Steering Committee, provided data and information, supported local data collection meetings; facilitated and supported public and stakeholder outreach, identified ongoing and potential mitigation projects and initiatives, reviewed draft and final plan sections.

Washington County Planning Department: Served on Steering Committee, provided critical data and information, identified new projects/initiatives, assisted communities with data collection and annex completion, reviewed and provided input on draft and final plan sections.

Washington County Sewer District: Identified vulnerabilities to critical infrastructure, and possible mitigation actions.

Washington County Real Property Tax Service: Provided critical property information to update general building stock for the vulnerability assessment.

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

Washington County Code Enforcement Department: Served on Steering Committee, provided data and information, particularly in the area of county-wide code enforcement and NFIP floodplain administration; identified new projects/initiatives, reviewed and provided input on draft and final plan sections.

Washington County Sheriff's Office: Responded to stakeholder surveys; provided information for hazard profiles; identified possible mitigation actions.

Regional and Local Stakeholders

Please see Appendix D - Participation Matrix for further details regarding regional and local stakeholder agencies. The stakeholders listed below were directly contacted by Washington County to take a stakeholder survey which included the identification of specific mitigation actions/projects. Results of the surveys can be found in Appendix C - Public and Stakeholder Outreach Documents.

Academia (School districts and other academic institutions): Municipalities directly involved school district representatives in the planning process, as identified in Table 3-3 and Appendix C – Public and Stakeholder Outreach Documents. All school districts were provided the Academic 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:

- Nothing to date

Law Enforcement: Many municipalities directly involved police and other law enforcement representatives in the planning process, as identified in Table 3-3 and Appendix C - Public and Stakeholder Outreach Documents. Further, through the Washington County Department of Public Safety, all police departments and law enforcement agencies in the County were notified of the Law Enforcement 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:

- Whitehall Police - Completed survey (multiple responses)
- Washington County Sherriff's Office - Completed survey (multiple responses)
- Granville Police Department – Completed survey
- Washington County Department of Public Safety
- Cambridge-Greenwich Police Department - Completed survey
- New York State Police – Completed Survey

Fire Districts and Fire Departments: Many municipalities directly involved fire district/department representatives in the planning process, as identified in Table 3-3 and Appendix C - Public and Stakeholder Outreach Documents. Further the Washington County Department of Public Safety advised all Fire Districts and Fire Departments of the Fire Fighting survey and invited them to provide input. The following have provided input to the planning process:

- Hartford Volunteer Fire Company – Completed Survey
- Kingsbury Volunteer Hose Company #1 – Completed survey
- Salem Fire Department – Completed survey, multiple responses

- Granville Fire Department– Completed survey
- Wells Vol. Fire Department – Completed survey
- Easton Volunteer Fire Company – Completed survey
- Washington County Department of Public Safety – Completed survey
- Putnam Volunteer Fire Department - Completed survey
- Middle Falls Fire Department – Completed survey

Hospitals and Health-Care Facilities: The following hospitals and health-care facilities in the county were provided the Hospitals and Health-Care 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:

- Nothing to date

Ambulance/Emergency Medical Services: All ambulance and emergency medical service providers in the County were provided the Ambulance/Emergency Medical Services 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:

- Washington County Department of Public Safety – Completed survey
- Fort Ann Rescue Squad – Completed Survey

Business and Commercial Interests: Businesses and commercial interests in the county were provided the Business and Commerce Stakeholder survey and invited to provide input, however to date no responses have been received.

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

- Nothing to date

Adirondack / Glens Falls Transportation Council: Supported the "White Creek Watershed Infrastructure Flood Vulnerability and Mitigation Assessment" study (June 2016 Draft), which identified flood vulnerabilities in the Town of Salem, and mitigation alternatives that have been incorporated into the Town's updated mitigation strategy.

Adjacent Counties:

The County has made an effort to keep surrounding counties and municipalities appraised of the project, and allowed the opportunity to provide input to this planning process. In addition to outreach and publicity of the effort performed de-facto at regional meetings and events, the following adjacent County representatives were contacted in February 2017 to inform them about the availability of the project website, draft plan documents and surveys, and invited to provide input to the planning process. No formal comments were received from adjacent counties.

- Essex County (NY)
  - Don Janquish; Director, Essex County Emergency Services
  - Michael Blaise; Deputy Director, Essex County Emergency Services
- Warren County (NY)
  - Amy Hirsch, Deputy Director; Warren County Office of Emergency Services

  - Jim Lieberum, Director; Warren County Soil and Water Conservation District
- Saratoga County (NY)
  - Carl Zeilman, Director; Saratoga County Office of Emergency Services
  - Ed Trembley, Deputy Director/Fire Coordinator; Saratoga County Office of Emergency Services
- Rensselaer County (NY)
  - Kelly Paslow; Director, Rensselaer County Bureau of Emergency Services
  - Wayne Bonesteel; Rensselaer County Engineer

3.3.1 Public Outreach

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

- A public project website was developed and is being maintained to facilitate communication between the Steering Committee, planning partnership, public and stakeholders (http://www.washingtoncountyhmp.com). The public website contains a project overview, County and local contact information, access to the citizen's survey and various stakeholder surveys, and sections of the HMP for public review and comment (see Figure 3-1).
- Visibility for the project website has been facilitated through announcements and/or links on the following:
  - Washington County Department of Public Safety website, as well as through their social media Facebook and Twitter accounts
  - Washington County Soil and Water Conservation District homepage
  - Washington County Civic Plus New Flash page
  - Participating municipalities requested to post on municipal homepages
- An on-line natural hazards preparedness citizen survey was developed to gauge household preparedness that may impact Washington County and to assess the level of knowledge of tools and techniques to assist in reducing risk and loss of those hazards (https://www.surveymonkey.com/r/WCCitizen). 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 questionnaire has been available on the public website since June 2016. A summary of survey results is provided in Appendix C - Public and Stakeholder Outreach Documents of this plan.
- Starting in August 2016, draft sections of the plan (as available) were posted on the project website for public review and comment. The County Communications Director distributed a press release advertising the project website and the availability of the draft plan for review and comment (see Figure 3-3). An online comment form (survey) was provided along with the draft plan sections to support the receipt and processing of public comment.
- Washington County Department of Public Safety posted regular monthly announcements about the project through their Facebook and Twitter accounts, as well as through their downloadable smartphone application.
- Washington County Department of Public Safety continued to present the project process, requests for information, and status at Public Safety meetings (September 28, Oct 25, Nov 29, Jan 24 and 30, February 9 and 28), which involve all municipalities.
- The project was presented at the August 19, 2016 Washington County Board of Supervisors meeting, which included representation from all Towns in the County, as well as local media (Post-Star).
- All participating municipalities have been encouraged to distribute press releases on the project, including links to the project webpage and citizen and stakeholder surveys. In addition, all participating

municipalities have been requested to advertise the availability of the project website via local homepage links, and other available public announcement methods (e.g. Facebook, Twitter, email blasts, etc.)

- A tri-fold brochure describing the project and providing links to the project website and main project contacts was prepared and provided to municipalities and other stakeholders for distribution. The brochure was distributed from the Washington County Soil and Water Conservation District booth at the Washington County Fair (August 2016).
- 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 3-1. Washington County HMP Webpage

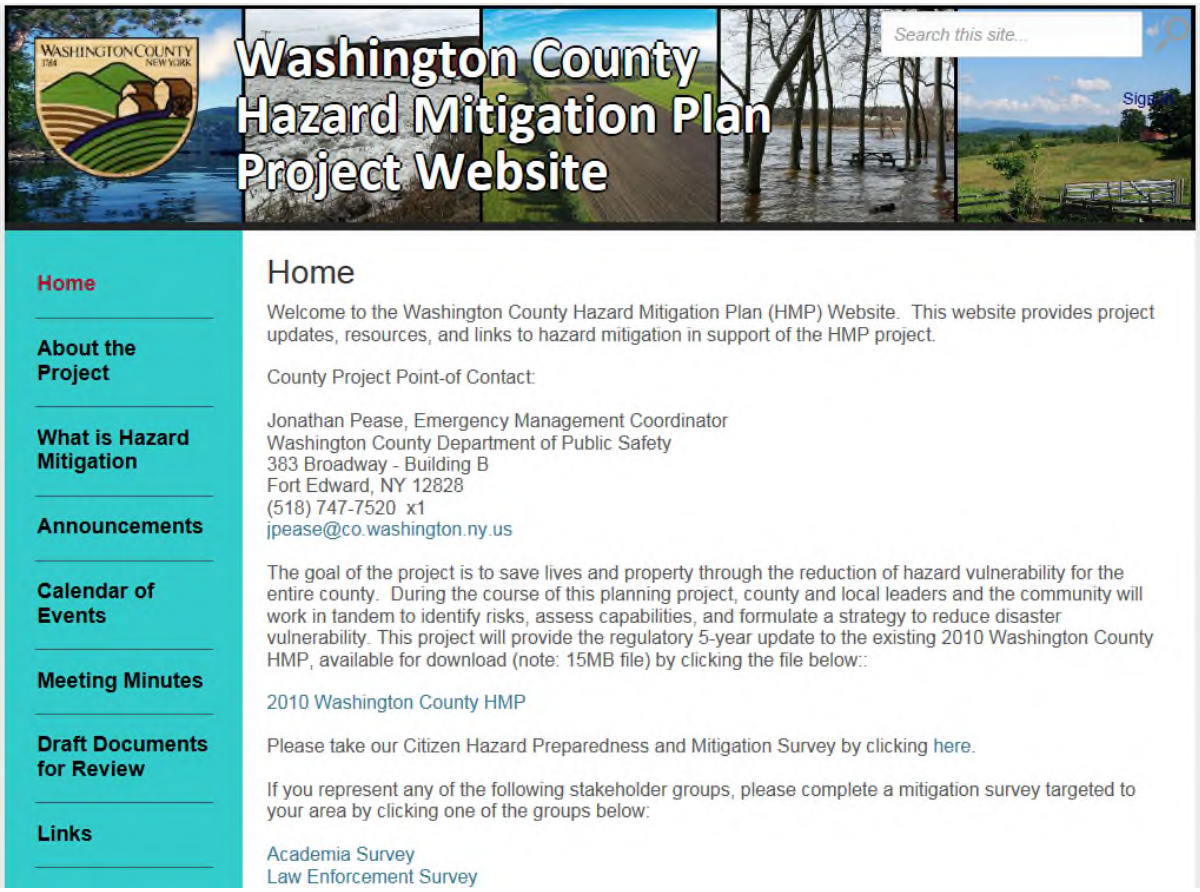


Figure 3-2. County Website Homepage and Public Safety Webpage (news announcement)

Front Page

Posted on: August 2, 2016

Washington County & Municipalities are updating our Hazard Mitigation Plan and need your help!

Washington County and its inclusive municipalities are in the process of developing a Hazard Mitigation Plan (HMP). This plan is required by the Federal Emergency Management Agency (FEMA) in order to be eligible for federal grant funding for public and private mitigation projects.

The HMP provides a "blueprint" by which local governments can make coordinated, cost-effective efforts towards reducing losses from natural hazards such as flooding, severe storms, and severe winter storms. Available funding can support projects such as drainage improvements, structural elevations, and backup power for schools and critical facilities.

To find out more, review the draft plan and have the opportunity to provide input, please visit our project website at http://www.washingtoncountyhmp.com and take our citizen preparedness and mitigation survey at https://www.surveymonkey.com/r/WCCitizen !

Should you have any issues with the sites / links, or questions regarding the program and update, please contact our office at (518)747-7520 or via email at publicsafety@co.washington.ny.us .

Figure 3-3. Washington County Press Release

FOR PUBLIC DISTRIBUTION

Washington County and its inclusive municipalities are in the process of developing a Hazard Mitigation Plan (HMP). This plan is required by the Federal Emergency Management Agency (FEMA) in order to be eligible for federal grant funding for public and private mitigation projects.

The HMP provides a "blueprint" by which local governments can make coordinated, cost-effective efforts towards reducing losses from natural hazards such as flooding, severe storms, and severe winter storms. Available funding can support projects such as drainage improvements, structural elevations, and backup power for schools and critical facilities.

To find out more, review the draft plan and have the opportunity to provide input, please visit our project website at http://www.washingtoncountyhmp.com and take our citizen preparedness and mitigation survey at https://www.surveymonkey.com/r/WCCitizen !

Should you have any issues with the sites / links, or questions regarding the program and update, please contact our office at (518)747-7520 or via email at publicsafety@co.washington.ny.us .

Here is the direct link to the News Flash posted on our website: http://ny-washingtoncounty.civicplus.com/CivicAlerts.aspx?AID=393

Thank you for your assistance!

Regards,
The Public Safety team!

Figure 3-4. Post Star Articles on Project

LOCAL

FEMA may pay for flood prevention in Washington County

KATHLEEN MOORE kmoore@poststar.com Aug 20, 2016

The Federal Emergency Management Agency may pay to make it harder for floods to hurt Washington County.

LOCAL

Washington County seeks public input on 'hazard mitigation' plan

Aug 10, 2016

FORT EDWARD — Washington County public safety leaders are preparing for natural disasters, and they want the public's input on how they are doing.

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

The Washington County HMP update 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 – County Profile). 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 – Risk Assessment), specifically within Section 5.3 – Hazards Ranking, 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 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 – Mitigation Strategy);
- 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
- New York State Standard Multi-Hazard Mitigation Plan, 2014

A partial listing of the plans, reports and technical documents reviewed in the preparation of this plan is included in Table 3-4.

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

Existing plan, program or technical documents	Date	Jurisdictional Applicability
Village of Cambridge, New York Comprehensive Plan	2004	Cambridge (V)
Village of Cambridge, Washington County, New York Comprehensive Emergency Management Plan	March 1, 2004	Cambridge (V)
Flood Resilience in the Lake Champlain Basin and Upper Richelieu River	2013	Countywide
Floodplain Management Area-Wide Compliance Document	October 2013	Countywide
Soil Survey of Washington County, New York	September 1975	Countywide
Washington County All-Hazards Mitigation Plan	April 6, 2010	Countywide
Washington County Comprehensive Emergency Management Plan	April 27, 2016	Countywide
Washington County Empire Zone Development Plan	March 2008	Countywide
Washington County, New York Data Book	2008	Countywide
White Creek Watershed Infrastructure Flood Vulnerability and Mitigation Assessment DRAFT	June 3, 2016	Countywide
Adirondack Park State Land Master Plan	February 2014	Dresden (T), Fort Ann (T), Putman (T)
Village of Fort Edward Master Plan	2006	Fort Edward (V)
Agriculture and Farmland Protection Plan for the Town of Granville	April 2012	Granville (T)
Village of Granville Comprehensive Plan	2003	Granville (V)
Village of Granville Mettowee River Waterfront Revitalization Strategy	December 20, 2010	Granville (V)
Town of Greenwich Comprehensive Plan	December 14, 2004	Greenwich (T)
Village of Greenwich Vision Planning	2009	Greenwich (V)
Village of Greenwich: Vision Planning (Strategic Areas Map)	2009	Greenwich (V)
Agriculture and Farmland Protection Plan for the Town of Hartford	2012	Hartford (T)
Hartford, New York Comprehensive Plan	September 8, 2010	Hartford (T)
Draft of a Comprehensive Plan for the Growth and Preservation of the Town of Jackson, New York	March 4, 2014	Jackson (T)
Project Work Plan for DEC/ESD Grant Application Post-Hurricane Irene, Tropical Storm Lee Restoration White Creek, Salem, NY	April 9, 2012	Salem (T)
Salem, New York Agriculture and Farm Viability Plan	2011	Salem (T)
Town of White Creek Comprehensive Plan	December 2011	White Creek (T)
Village of Whitehall Local Waterfront Revitalization Program	2005	Whitehall (V)
Washington County Hazardous Materials Plan	December 2005	Washington County
Lake Champlain Watershed Water Quality Management Planning – Roadside Erosion Assessment and Inventory	2012	Dresden (T), Fort Ann (T), Granville (T), Hampton (T), Hartford (T), Kingsbury (T), Putnam (T), Whitehall (T)

Notes:
** = this document may or may not include all jurisdictions*

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 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 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 – Plan Maintenance.

3.6 CONTINUED PUBLIC INVOLVEMENT

Washington 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 http://www.washingtoncountyhmp.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 http://www.washingtoncountyhmp.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 (currently Mr. Glen Gosnell of the Washington County Department of Public Safety) 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 – Plan Maintenance.

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.

Mr. Glen Gosnell of the Washington County Department of Public Safety has been identified as the ongoing Washington County Hazard Mitigation Plan Coordinator (see Section 7 – Plan Maintenance), and is responsible for receiving, tracking, and filing public comments regarding this plan. Contact information is:

Mr. Glen Gosnell, ENP, Director of Emergency Management

Washington County Department of Public Safety
383 Broadway - Building B
Fort Edward, NY 12828

ggosnell@co.washington.ny.us

(518) 747-7520, x3

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 Washington County. In Section 5 - Risk Assessment, 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

Washington County is located in northeastern New York State, bordered by Warren and Saratoga Counties to the west, Essex County to the north, and Rensselaer County to the south. The County is bordered to the east by the State of Vermont. Most of the northern part of the County is bordered by either Lake George to the west or Lake Champlain to the east. Washington County, which is part of the Glens Falls Metropolitan Statistical Area, is one of 62 counties in New York State and has 17 towns and eight villages. The County has a total area of 837 square miles and an estimated 2015 population of 62,230. Washington County was formed in 1772.

State and federal government statutes and regulations control how the local governments operate. Local governments include the towns of Argyle, Cambridge, Dresden, Easton, Fort Ann, Fort Edward, Granville, Greenwich, Hampton, Hartford, Hebron, Jackson, Kingsbury, Putnam, Salem, White Creek, and Whitehall; and the villages of Argyle, Cambridge, Fort Ann, Fort Edward, Granville, Greenwich, Hudson Falls, and Whitehall. 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.

4.1.1 Physical Setting

This section presents topography and geology, hydrology and hydrography, climate, land use and land cover.

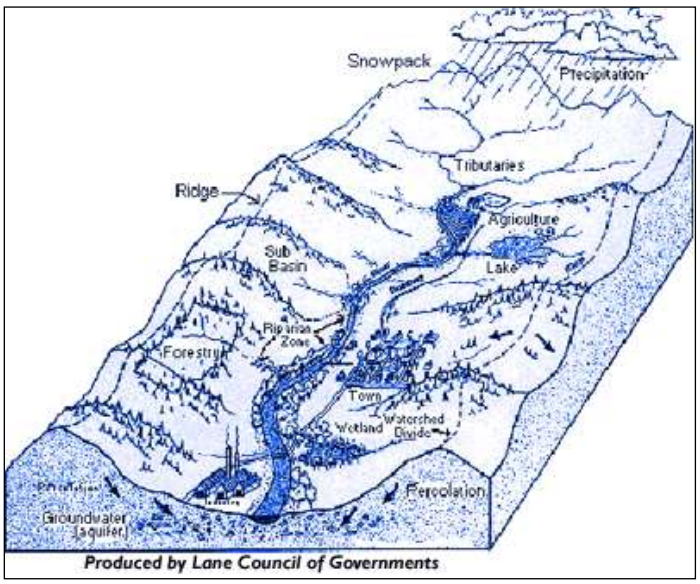
Hydrography and Hydrology

Numerous ponds, lakes, creeks, and rivers make up the waterscape of Washington County. The major waterways within the County include: the Hudson River, Batten Kill, Champlain Canal, Poultney River, Mettawee River, Hoosic River, Lake George, Lake Champlain, Hadlock Pond, Lake Nebo, and Cossayuna Lake. The majority of the County's border is along a waterway or body of water.

Drainage Basins and Watersheds

A watershed is the area of land that drains into a body of water such as a river, lake, stream, or bay. It is separated from other systems by high points in the area such as hills or slopes. It includes not only the waterway itself but also the entire land area that drains to it. For example, the watershed of a lake would include not only the streams entering the lake but also the land area that drains into those streams and eventually the lake. Drainage basins generally refer to large watersheds that encompass the watersheds of many smaller rivers and streams. Figure 4-1 depicts the hydrologic system of a watershed.

Figure 4-1. Watershed

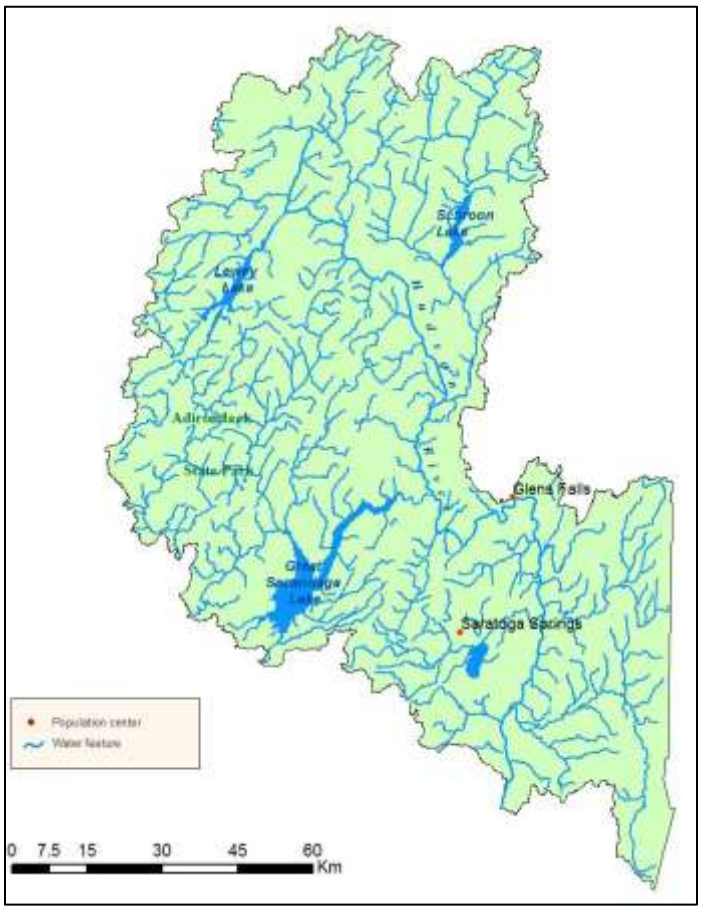


Source: U.S. Environmental Protection Agency (EPA) 2012

Watersheds come in all shapes and sizes and can cross municipal and county boundaries. New York State's waters (lakes, rivers, and streams) fall within one of 17 drainage basins. Washington County lies within the Upper Hudson River and Lake Champlain drainage basins. Refer to https://www.dec.ny.gov/docs/water_pdf/drainagebasins.pdf for a detailed figure of the major drainage basins in New York State and Washington County.

The southern part of Washington County is located in the Upper Hudson Drainage Basin (Figure 4-2). The 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).

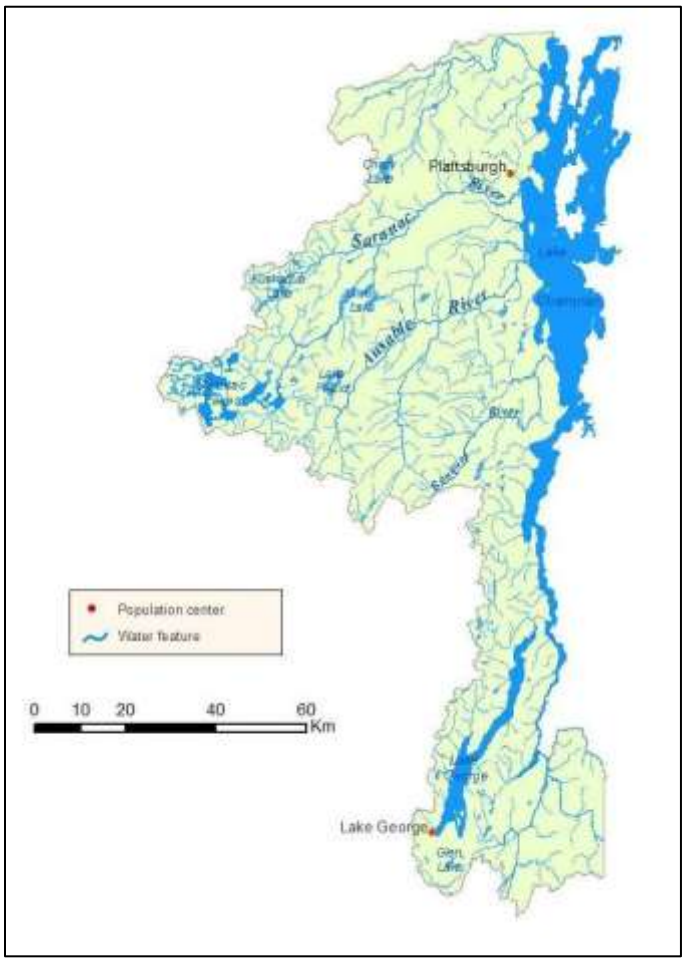
Figure 4-2. Upper Hudson River Drainage Basin



Source: NYSDEC 2015

The northern part of the County is in the Lake Champlain Drainage Basin (Figure 4-3). The 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).

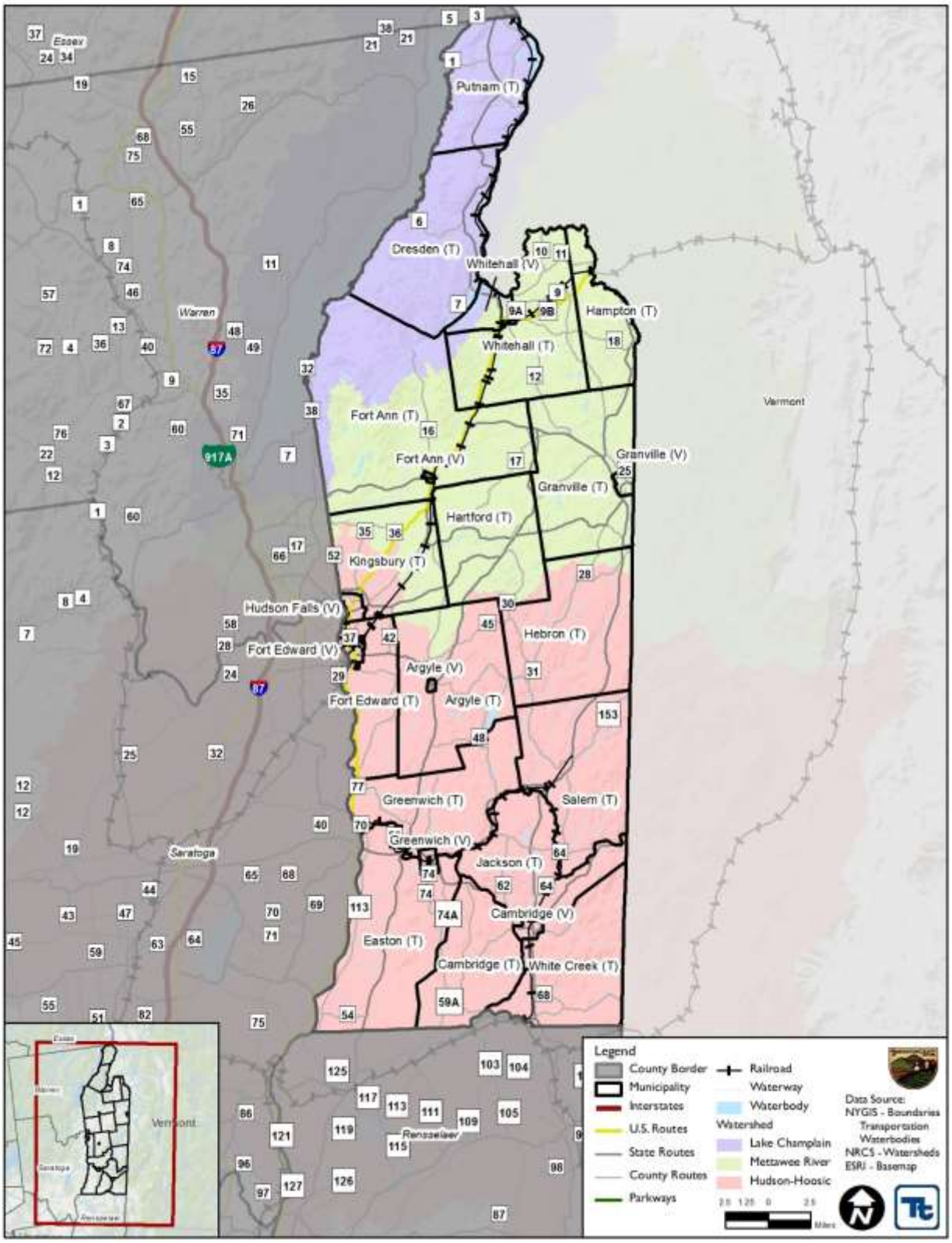
Figure 4-3. Lake Champlain Drainage Basin



Source: NYSDEC 2015

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

Figure 4-4. Washington County Watersheds



Source: NRCS 2012

Topography and Geology

Washington County is located inside the Adirondack Park. The northern most portion of the County is primarily mountainous and forested. The southern and eastern parts of the County are made up of rolling hills and farmland. Much of Washington County is part of the slate valley of the Upper Taconic Mountains. Black Mountain, which is part of the Adirondacks, is the tallest peak in the County at an elevation of 2,640 ft. The County is categorized by three distinct physiographic regions: The Adirondack Mountains, the Hudson-Champlain Lowland, and the Taconic Uplands (U.S. Department of Agriculture Soil Conservation Service [USDA SCS] 1975). Each region can be described as follows:

- The Adirondack Mountains: Located in the northwestern part of the County; categorized as crystalline rocks of the Grenville Series and associated igneous rocks of Precambrian age.
- Hudson-Champlain Lowland: Located towards the south and east of the Adirondack Mountains; categorized as bedrock consisting of sandstone, limestone, and shale of early Paleozoic age.
- Taconic Uplands: Located in the eastern part of the County; categorized by bedrock consisting of a series of metamorphosed grits, slates, shales, and interbedded limestones and lesser amounts of phyllite, quartzite, greywacke, and argillite.

The contrast between the Hudson-Champlain Lowland formations and those of the Adirondack Mountains are separated by major high-angle faults. The separation of the Hudson-Champlain Lowland formations and the Taconic Uplands formations are marked by great thrust faults (USDA SCS 1975).

The topography, soils, and drainage of the County have been significantly influenced by repeated periods of glaciation during the Pleistocene Epoch (USDA SCS 1975). 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.

Climate

Washington 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 United States (Natural Resources Conservation Service [NRCS] 2004). The climate of Washington County is one of long summers and short winters. The average annual temperature is approximately 46°F, with an average temperature of 21°F in January and an average temperature of 70°F in July. The average annual rainfall for the County is approximately 36.5 inches, and the average annual snowfall for the County is approximately 57.5 inches (Washington County, 2008).

Land Use and Land Cover

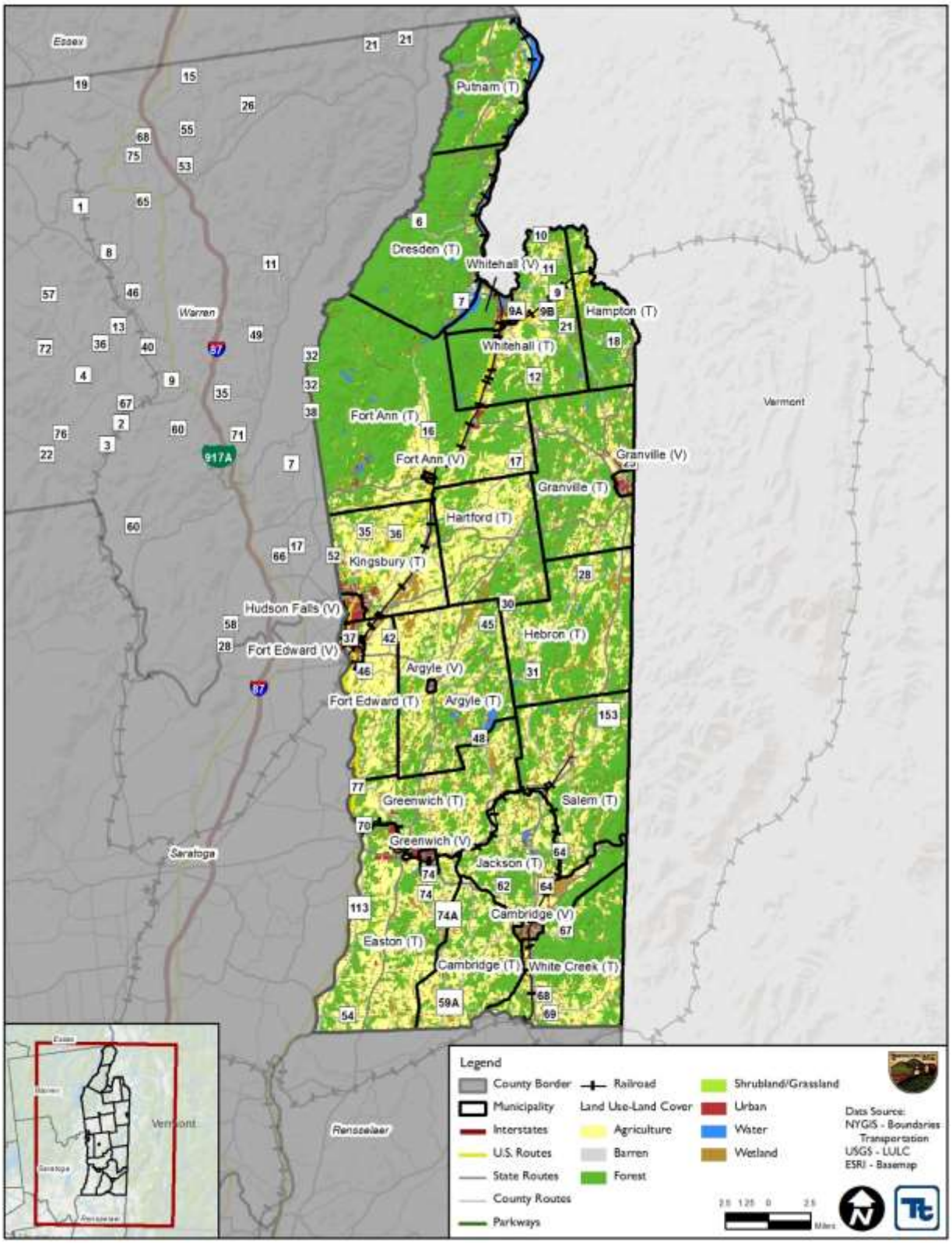
The most dominant land use in Washington County is forested land (over 50% of the County's area). The next highest land use is wetlands, with a little over 6% of the land area. The majority of urbanized areas can be found within the villages throughout the County, with the less urban areas located in the surrounding towns. Industrial uses are scattered throughout the County and include the hospital, government buildings, non-profit affiliated facilities, and schools. Table 4-1 summarizes the land use for Washington County. Figure 4-5 shows the distribution of land use throughout the County.

Table 4-1. Land Use Summary for Washington County, 2006 & 2011

	2006 Data		2011 Data	
Land Use Category	**Acreage**	**Percent of County**	**Acreage**	**Percent of County**
Agriculture	167,004	30.9%	166,734	30.8
Barren	276	<1%	363	<1%
Shrubland/Grassland	24,093	4.5%	24,369	4.5%
Forest	275,520	50.9%	275,101	50.9%
Urban	30,841	5.7%	31,118	5.8%
Wetlands	34,458	6.4%	34,504	6.4%

Source: National Land Cover Database – USGS 2006 and 2011
Note: Open water is excluded from the table above.

Figure 4-5. 2011 Land Use Land Cover for Washington County



Source: USGS National Land Cover Database, 2011

Metropolitan/Urban Area

Washington County is one of the two counties within the Glens Falls Metropolitan Statistical Area (MSA). This MSA covers a land area of 1,698 square miles. As of the 2010 Census (US Census Bureau 2010), there were 128,923 people living in the MSA, with a population density of 75.9 persons per square mile. This metropolitan area is made up of two divisions as indicated in Figure 4-6.

Figure 4-6. Glens Falls Metropolitan Statistical Area

Source: U.S. Census, 2013
Note: Washington County is located in the Glens Falls Metropolitan Statistical Area

4.2 POPULATION AND DEMOGRAPHICS

According to the 2010 U.S. Census, Washington County had a population of 63,216 people which represents a slight increase from the 2000 U.S. Census population of 61,042 people. HAZUS-MH demographic data will be used in the loss estimation analyses in Section 5 - Risk Assessment of this plan. All demographic data in HAZUS corresponds to the 2000 U.S. Census data. Table 4-2 presents the population statistics for Washington County based on the 2000 and 2010 U.S. Census data. Figure 4-7 shows the distribution of the general population density (persons per square mile) in 2010 by Census block. For the purposes of this plan, the 2010 Census was used where the data was available and supplemented with HAZUS-MH data (representing 2000 data).

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. For the purposes of this study, vulnerable populations shall include (1) the elderly (persons aged 65 and over) and (2) those living in low-income households.

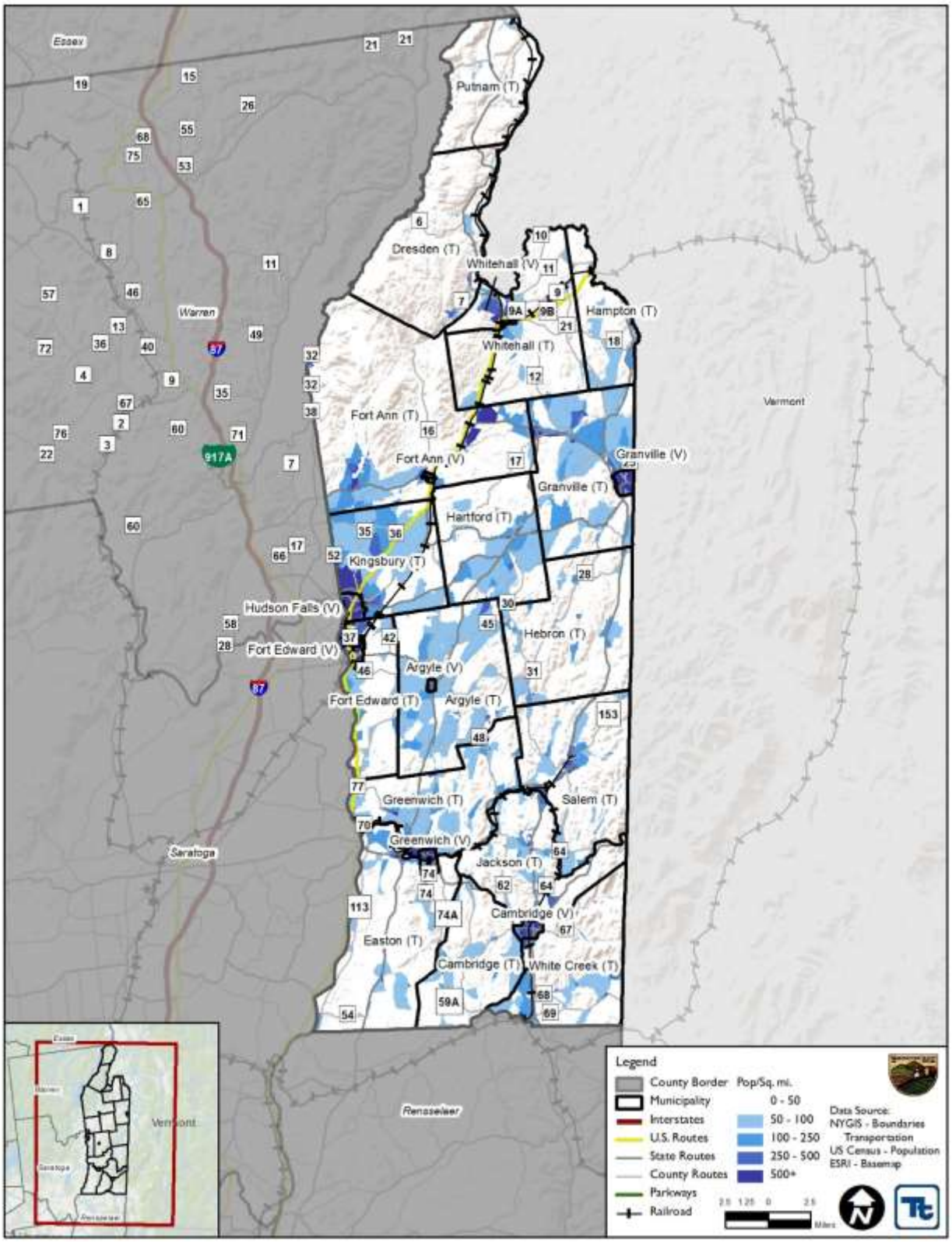
Table 4-2. Washington County Population Statistics

Municipality	2010 U.S. Census							2000 U.S. Census *						
	Total	Pop. 65+	% Pop. 65+	Pop. Under 16	% Pop. Under 16	Low-Income Pop.*	% Low-Income Pop.	Total	Pop. 65+	% Pop. 65+	Pop. Under 16	% Pop Under 16	Low-Income Pop.*	% Low-Income Pop.
Argyle (T)	3,476	594	17.1%	1,427	41.1%	175	5.0%	3,399	422	12.4%	796	23.4%	167	4.9%
Argyle (V)	306	68	22.2%	117	38.2%	21	6.9%	289	52	18.0%	63	21.8%	20	6.9%
Cambridge (T)	1,549	273	17.6%	655	42.3%	57	3.7%	1,611	215	13.3%	391	24.3%	77	4.8%
Cambridge (V)	1,870	348	18.6%	784	41.9%	179	9.6%	1,925	353	18.3%	425	22.1%	194	10.1%
Dresden (T)	652	139	21.3%	236	36.2%	121	18.6%	677	94	13.9%	149	22.0%	60	8.9%
Easton (T)	2,128	343	16.1%	902	42.4%	87	4.1%	2,043	286	14.0%	457	22.4%	109	5.3%
Fort Ann (T)	5,706	509	8.9%	1,381	24.2%	197	3.5%	5,946	419	7.0%	802	13.5%	222	3.7%
Fort Ann (V)	484	77	15.9%	207	42.8%	45	9.3%	471	18	3.8%	40	8.5%	11	2.3%
Fort Edward (T)	2,996	646	21.6%	1,156	38.6%	210	7.0%	2,751	484	17.6%	575	20.9%	226	8.2%
Fort Edward (V)	3,375	400	11.9%	1,498	44.4%	312	9.2%	3,141	464	14.8%	675	21.5%	308	9.8%
Granville (T)	4,126	689	16.7%	1,707	41.4%	208	5.0%	3,812	530	13.9%	922	24.2%	311	8.2%
Granville (V)	2,543	501	19.7%	1,082	42.5%	268	10.5%	2,644	545	20.6%	615	23.3%	338	12.8%
Greenwich (T)	3,373	536	15.9%	1,446	42.9%	165	4.9%	3,210	436	13.6%	766	23.9%	274	8.5%
Greenwich (V)	1,777	253	14.2%	780	43.9%	107	6.0%	1,902	313	16.5%	419	22.0%	175	9.2%
Hampton (T)	938	117	12.5%	401	42.8%	55	5.9%	871	82	9.4%	217	24.9%	48	5.5%
Hartford (T)	2,269	285	12.6%	1,028	45.3%	101	4.5%	2,279	211	9.3%	599	26.3%	149	6.5%
Hebron (T)	1,853	293	15.8%	770	41.6%	163	8.8%	1,773	219	12.4%	414	23.4%	106	6.0%
Hudson Falls (V)	7,281	948	13.0%	3,278	45.0%	729	10.0%	6,927	1,017	14.7%	1,608	23.2%	895	12.9%
Jackson (T)	1,800	329	18.3%	740	41.1%	85	4.7%	1,718	273	15.9%	382	22.2%	120	7.0%
Kingsbury (T)	5,390	760	14.1%	2,296	42.6%	130	2.4%	4,244	575	13.5%	912	21.5%	294	6.9%
Putnam (T)	609	122	20.0%	257	42.2%	18	3.0%	645	93	14.4%	149	23.1%	59	9.1%
Salem (T)	1,769	353	20.0%	731	41.3%	101	5.7%	1,738	263	15.1%	360	20.7%	113	6.5%
Salem (V)**	946	160	16.9%	397	42.0%	69	7.3%	964	145	15.0%	190	19.7%	72	7.5%
White Creek (T)	1,958	336	17.2%	793	40.5%	72	3.7%	2,027	289	14.3%	436	21.5%	168	8.3%
Whitehall (T)	1,428	237	16.6%	586	41.0%	63	4.4%	1,368	164	12.0%	332	24.3%	90	6.6%
Whitehall (V)	2,614	391	15.0%	1,095	41.9%	344	13.2%	2,667	458	17.2%	565	21.2%	327	12.3%
Washington County	**63,216**	**9,707**	**15.4%**	**25,750**	**40.7%**	**4,082**	**6.5%**	**61,042**	**8,420**	**13.8%**	**13,259**	**21.7%**	**4,933**	**8.1%**

Source: Census 2010 (U.S. Census Bureau); HAZUS-MH (for 2000 U.S. Census data)
*Note: Pop. = population; * Individuals below poverty level*
*** The table displays data for the Village of Salem. It should be noted that in 2014, the Village of Salem dissolved and became part of the Town of Salem.*

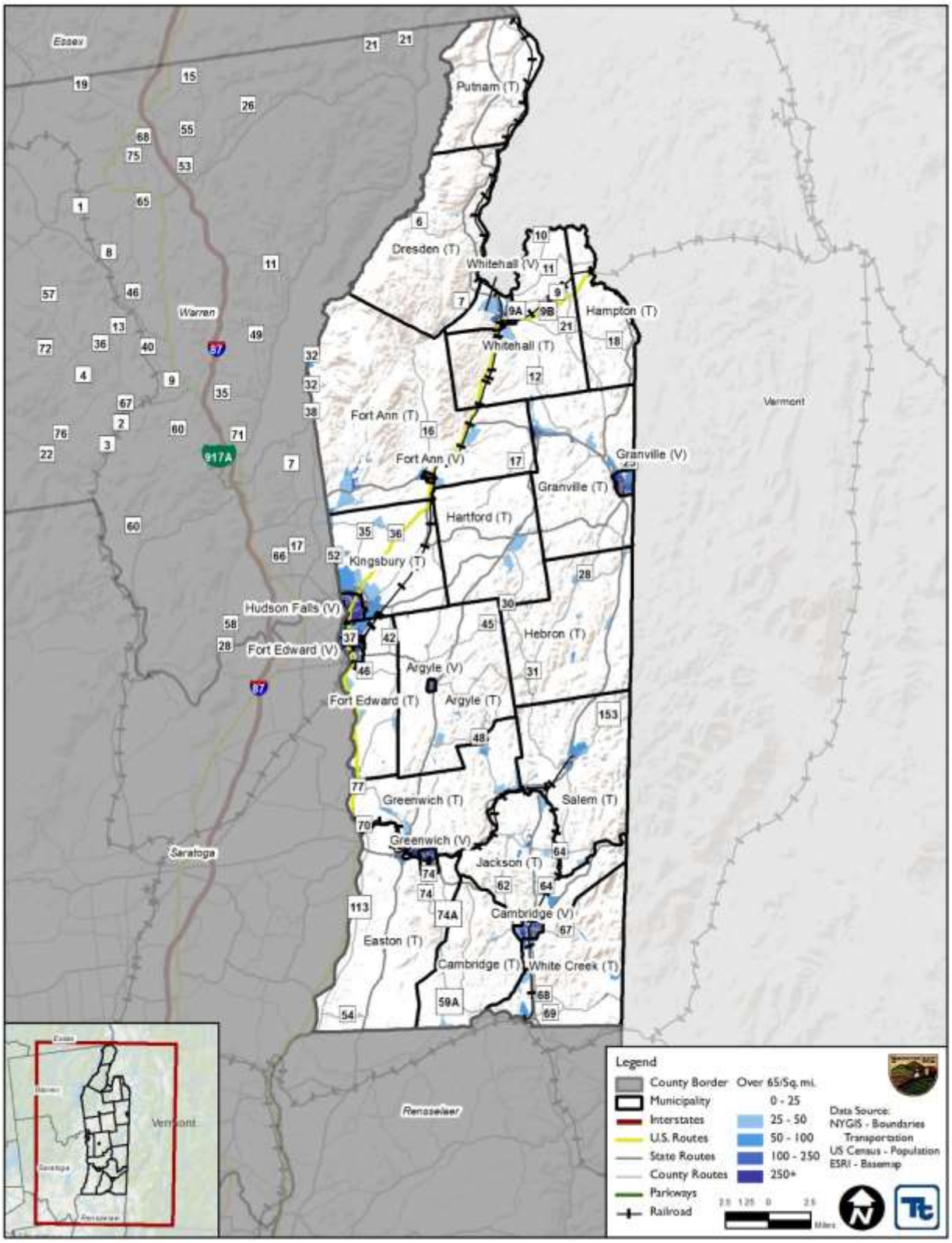
The 2013 U.S. Census American Community Survey data identified approximately 7,060 individuals as having an annual income below the poverty level. Figure 4-8 shows the distribution of persons over age 65 in Washington County, while Figure 4-10 shows the distribution of low income persons. The following maps indicate distribution based on Census Block designations.

Figure 4-7. Distribution of General Population for Washington County, New York



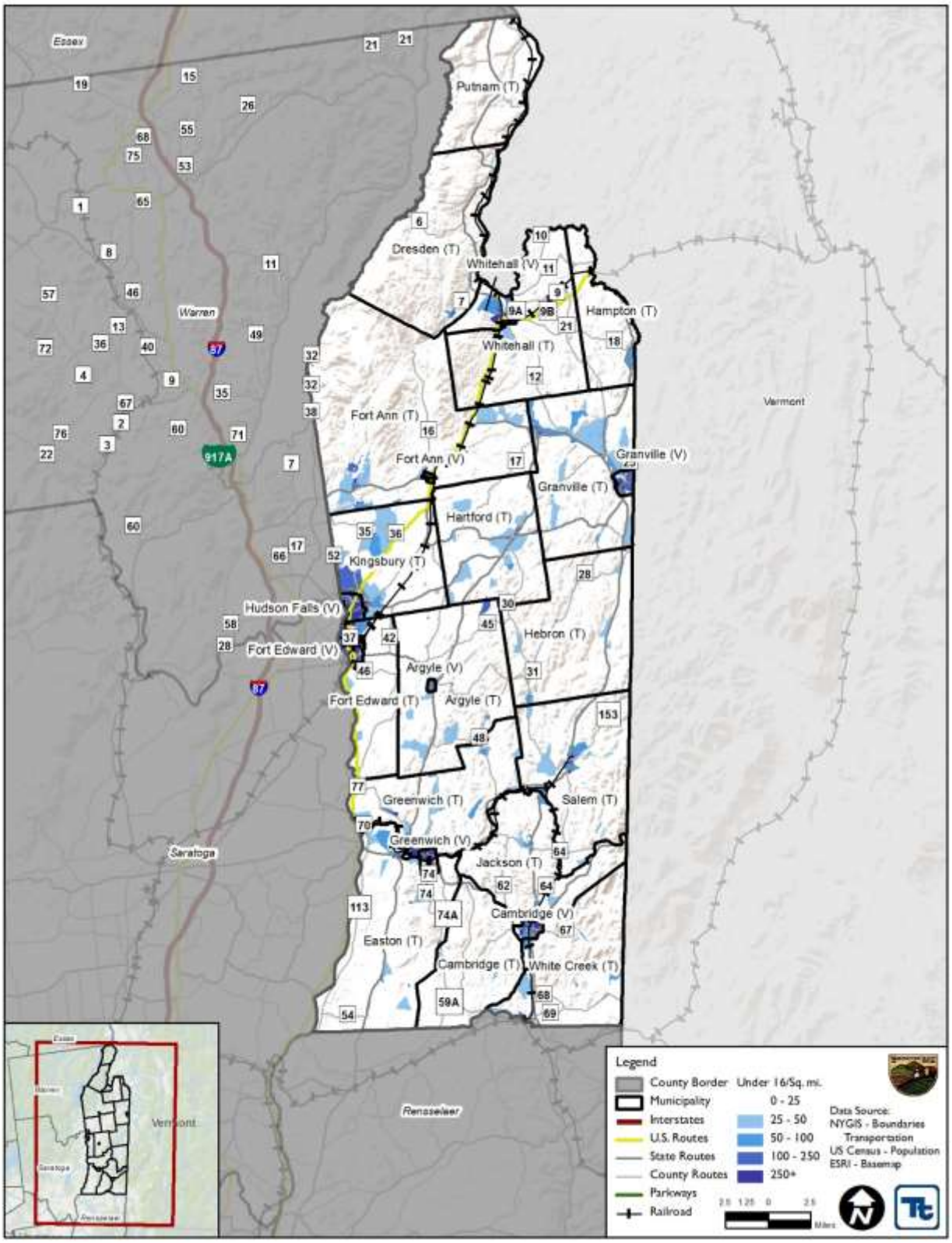
Source: US Census 2010

Figure 4-8. Distribution of Persons over the Age of 65 in Washington County, New York



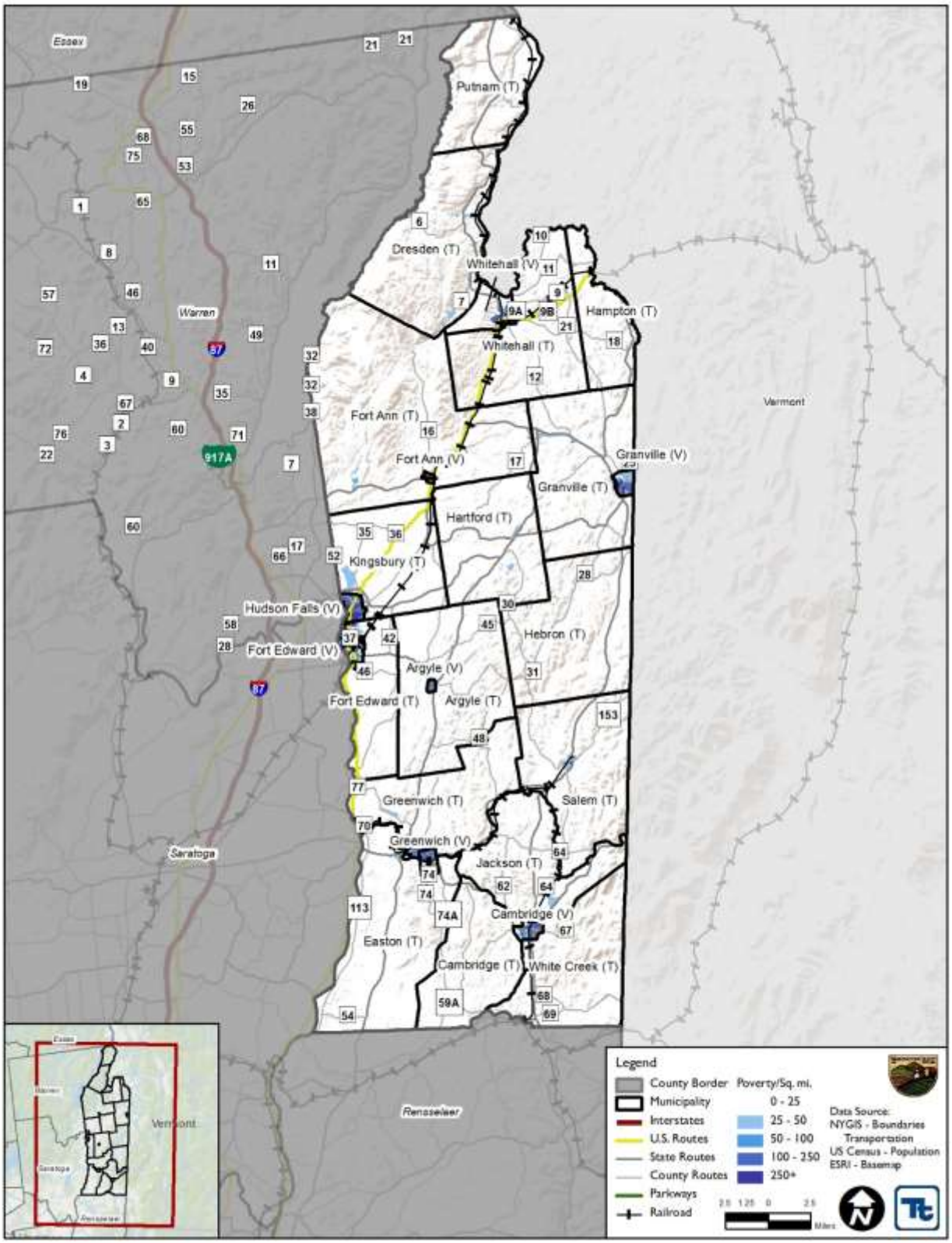
Source: US Census 2010

Figure 4-9. Distribution of Persons under the Age of 16 in Washington County, New York



Source: US Census 2010

Figure 4-10. Distribution of Low-Income Population in Washington County, New York



Source: US Census 2010

Population and Demographic Trends

This section discusses population trends to use as a basis for estimating future changes that could result from the seasonal character of the population and significantly change the character of the area. Population trends can provide a basis for making decisions on the type of mitigation approaches to consider 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.

According to the U.S. Census Bureau, the 2010 population for Washington County was 63,216 persons, which is a 3.6% increase from the 2000 Census population of 61,042. From 1900 to 2010, the County has seen an overall growth in population, with the exception of from 1910 to 1920. The largest increase was seen between 1960 and 1970 when the County experienced an 8.8% increase (4,249 persons). The smallest increase was experienced from 1920 to 1930 when the County saw only a 0.5% increase in population. The largest decrease in population occurred from 1910 to 1920, with the County seeing a 3.6% decrease. A smaller decrease has been estimated from 2010 to 2014 with a 1.56% decrease. Table 4-3 displays the population and change in population from 1900 to 2015 in Washington County.

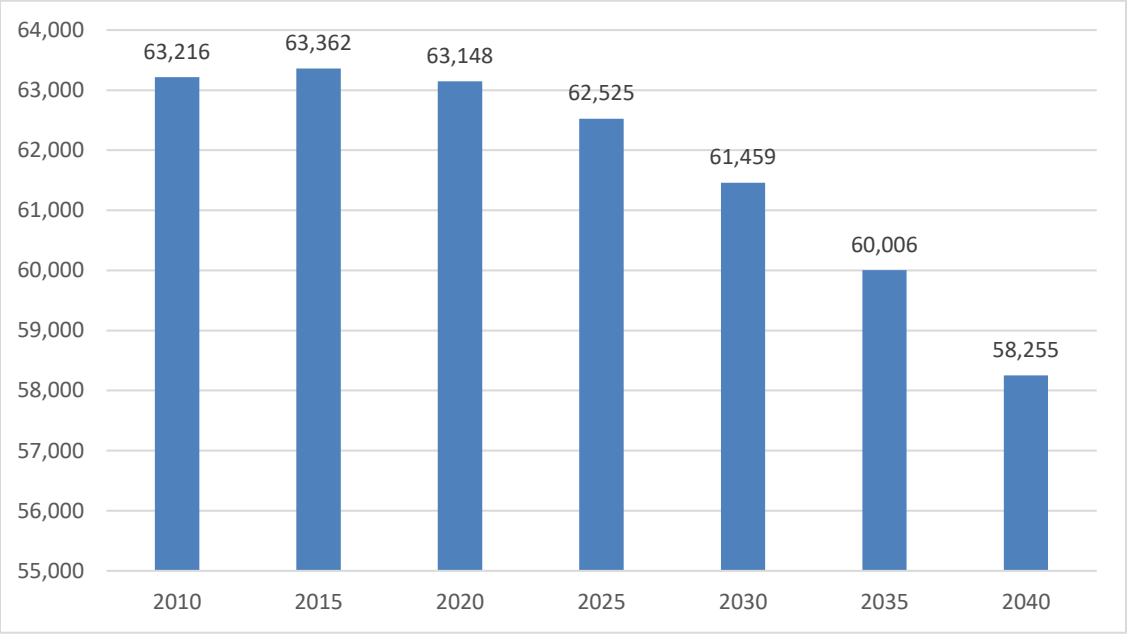
Table **4-3. Washington County Population Trends, 1900 to** 2015

Year	Population	Change in Population	Percent (%) Population Change
1900	45,624	-	-
1910	47,778	2,154	4.70%
1920	44,888	-2,890	−6.0%
1930	46,482	1,594	3.60%
1940	46,726	244	0.50%
1950	47,144	418	0.90%
1960	48,476	1,332	2.80%
1970	52,725	4,249	8.80%
1980	54,795	2,070	3.90%
1990	59,330	4,535	8.30%
2000	61,042	1,712	2.90%
2010	63,216	2,174	3.60%
2015	62,230	-986	-1.56%

Source: U.S. Census 2010; U.S. Census 2015
Note: Change in population and percent in population change were calculated from available data.

Cornell University's Program on Applied Demographics produced population projections by county and by age and sex for New York State. The projections were completed in 2011 and are in five-year intervals up to the year 2040. The projections are based upon rates of change estimated from historic data. According to this data, over the next 25 years, Washington County has a projected population decline of 8.1%. By 2020, the County's total population is projected to steadily decline to 63,148 persons before decreasing to 58,255 by 2040 (Figure 4-11).

Figure 4-11. Washington County Population Projections, 2010 to 2040



Source: Cornell University 2011

The following table provides population trends for the 26 municipalities of Washington County. Please note that the Village of Salem is listed individually. The Village dissolved and became part of the Town of Salem in 2014. The Town of Kingsbury saw the largest growth in population, a 27% increase. The Village of Greenwich saw the greatest decrease- a loss of 18.1%.

Table **4-4. Population Trends in Washington County by Municipality**

Municipality	2000 Census	2010 Census	Change in Population	Percent Change
Argyle (T)	3,399	3,476	77	2.3%
Argyle (V)	289	306	17	5.9%
Cambridge (T)	1,611	1,549	-62	-3.8%
Cambridge (V)	1,925	1,870	-55	-2.9%
Dresden (T)	677	652	-25	-3.7%
Easton (T)	2,043	2,128	85	4.2%
Fort Ann (T)	5,946	5,706	-240	-4.0%
Fort Ann (V)	471	484	13	2.8%
Fort Edward (T)	2,751	2,996	245	8.9%
Fort Edward (V)	3,141	3,375	234	7.4%
Granville (T)	3,812	4,126	314	8.2%
Granville (V)	2,644	2,543	-101	-3.8%
Greenwich (T)	3,210	3,373	163	5.1%
Greenwich (V)	1,902	1,777	-125	-6.6%
Hampton (T)	871	938	67	7.7%
Hartford (T)	2,279	2,269	-10	-0.4%

Table **4-4. Population Trends in Washington County by Municipality**

Municipality	2000 Census	2010 Census	Change in Population	Percent Change
Hebron (T)	1,773	1,853	80	4.5%
Hudson Falls (V)	6,927	7,281	354	5.1%
Jackson (T)	1,718	1,800	82	4.8%
Kingsbury (T)	4,244	5,390	1,146	27.0%
Putnam (T)	645	609	-36	-5.6%
Salem (T)	1,738	1,769	31	1.8%
Salem (V)*	964	946	-18	-1.9%
White Creek (T)	2,027	1,958	-69	-3.4%
Whitehall (T)	1,368	1,428	60	4.4%
Whitehall (V)	2,667	2,614	-53	-2.0%
Washington County	**61,042**	**63,216**	**2,174**	**3.6%**

Source: U.S. Census 2010, 2000
Note: Change in population and population change were calculated from available data.
** The table displays data for the Village of Salem. It should be noted that in 2014, the Village of Salem dissolved and became part of the Town of Salem.*

4.3 GENERAL BUILDING STOCK

The 2000 U.S. Census data identified 22,458 households (26,794 housing units) in Washington County. The 2010 U.S. Census reported 24,142 households (28,884 housing units) in Washington County. The County experienced an increase in both households and housing units from 2000 to 2010. As for households, between 2000 and 2010, the County saw a 7.5% increase. As for housing units, the County experienced an increase of 7.8% between 2000 and 2010. The U.S. Census defines household as all the persons who occupy a housing unit, and a housing unit as a house, an apartment, a mobile home, a group of rooms, or a single room that is occupied (or if vacant, is intended for occupancy) as separate living quarters. Therefore, you may have more than one household per housing unit. The median value of an owner-occupied housing unit in Washington County was estimated at $144,100 (U.S. Census, 2014).

For this update, the default general building stock in HAZUS-MH was updated and replaced with a custom building inventory for Washington County both at the aggregate and structure level. The building stock update was performed using the most current parcel and the Real Property Tax Services assessment data provided by Washington County. The tax assessment data was joined to the spatial layer of address locations also provided by the county. The centroid of the parcel was used for properties where an address location was not present in the file. The replacement cost value was calculated using the square footage value of each building and RS Means 2015 data.

Approximately 90.5% of the total buildings in the County are residential, which make up approximately 73.2% of the building stock structural value associated with residential housing. Table 4-5 presents building stock statistics by occupancy class for Washington County.

Table 4-5. Number of Buildings and Replacement Cost Value by Municipality

	Total		Residential		Commercial		Industrial	
Municipality	Count	RCV	Count	RCV	Count	RCV	Count	RCV
Argyle (T)	1,902	$902,641,904	1,794	$751,124,316	21	$24,910,348	13	$48,649,758
Argyle (V)	147	$105,497,653	126	$73,766,492	14	$20,604,895	1	$286,157
Cambridge (T)	758	$500,184,564	712	$431,102,188	5	$9,016,901	3	$15,073,081
Cambridge (V)	961	$1,474,549,125	825	$777,941,420	87	$485,006,379	6	$15,550,168
Dresden (T)	662	$343,123,687	629	$307,236,218	9	$12,141,948	9	$10,061,682
Easton (T)	1,047	$722,166,767	777	$405,408,303	53	$72,973,678	34	$58,083,653
Fort Ann (T)	2,109	$1,082,086,973	1,958	$856,131,989	75	$139,711,430	22	$26,633,247
Fort Ann (V)	216	$192,253,336	188	$99,655,522	14	$21,024,806	4	$2,890,861
Fort Edward (T)	1,458	$995,655,274	1,234	$552,004,162	117	$288,649,614	33	$61,985,552
Fort Edward (V)	1,853	$1,308,363,331	1,701	$862,957,803	97	$242,717,256	38	$100,173,625
Granville (T)	1,928	$1,185,762,623	1,779	$803,070,655	66	$213,957,403	20	$54,470,829
Granville (V)	1,398	$2,347,300,819	1,226	$1,510,258,746	122	$235,886,639	11	$356,799,515
Greenwich (T)	1,693	$1,161,751,834	1,520	$773,797,400	91	$220,673,217	19	$88,686,891
Greenwich (V)	980	$1,504,098,323	870	$1,235,741,146	75	$168,062,878	15	$9,646,777
Hampton (T)	544	$241,107,314	509	$205,448,146	10	$11,466,098	4	$3,686,993
Hartford (T)	1,092	$1,035,675,130	990	$454,834,804	23	$29,194,774	15	$21,404,076
Hebron (T)	1,174	$582,232,167	1,116	$516,582,946	12	$19,032,620	5	$5,440,361
Hudson Falls (V)	3,792	$7,181,239,900	3,542	$6,384,097,885	203	$371,047,544	18	$141,842,865
Jackson (T)	1,278	$640,798,344	1,180	$528,949,388	29	$45,629,451	10	$9,717,318
Kingsbury (T)	2,688	$1,838,974,710	2,389	$1,246,438,122	186	$336,736,776	36	$71,452,723
Putnam (T)	770	$422,773,863	745	$377,364,929	8	$12,620,534	2	$1,704,173
Salem (T)	1,038	$547,448,888	951	$462,101,108	38	$35,800,375	4	$6,535,306
Salem (V)*	419	$437,181,724	364	$253,501,618	34	$76,596,394	5	$12,453,126
White Creek (T)	969	$804,201,102	866	$388,815,012	23	$30,572,124	7	$15,041,107
Whitehall (T)	757	$446,240,581	664	$279,323,046	35	$47,352,774	14	$61,974,278
Whitehall (V)	1,660	$1,446,746,007	1,484	$1,008,464,609	145	$391,019,150	16	$14,915,084
Washington County	**33,293**	**$29,450,055,943**	**30,139**	**$21,546,117,971**	**1,592**	**$3,562,406,006**	**364**	**$1,215,159,206**

Source: Washington County
Notes: RCV = Replacement cost value.
IND5 includes buildings categorized as public utilities (i.e. electric, water treatment, etc.)
** The table displays data for the Village of Salem. It should be noted that in 2014, the Village of Salem dissolved and became part of the Town of Salem.*

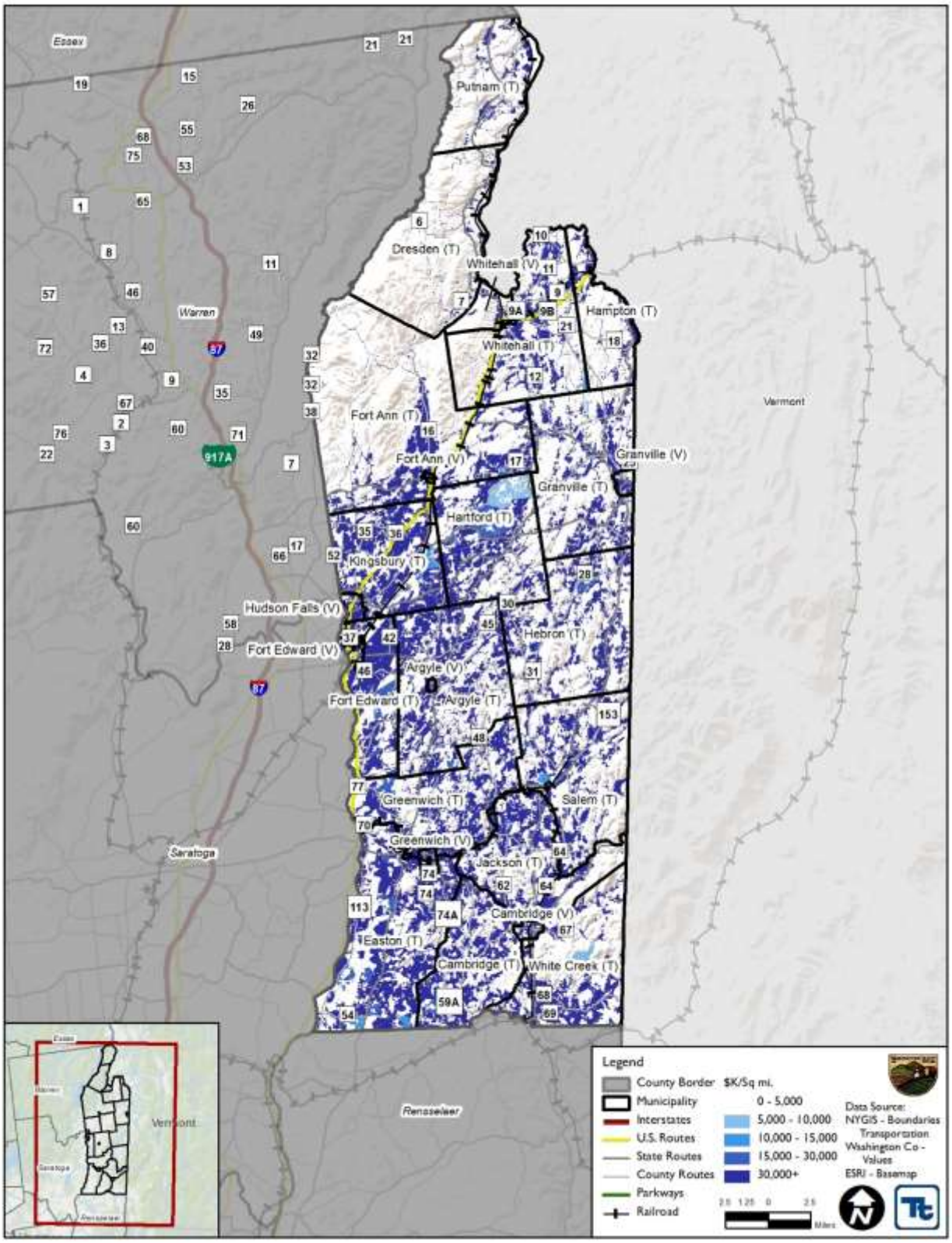
The 2014 American Community Survey data identified that the majority of housing units (74.7% or 21,638 units) in Washington County are single-family detached units. The 2014 U.S. Census Bureau's County Business Patterns data identified 1,049 business establishments employing 10,449 people in Washington County. The retail trade industry has the most number of establishments in the County, with 183 establishments. This is

followed by the construction industry with 144 establishments and other services (except public administration) with 118 establishments (U.S. Census, 2014).

Figure 4-13 and Figure 4-15 show the distribution and exposure density of residential and commercial buildings, respectively, in Washington County based on the New York State Department of Taxation and Finance Property Class Code. Exposure density is the dollar value of structures per unit area, including building content value. Generally, contents for residential structures are valued at about 50 percent of the building's value. For commercial facilities, the value of the content is generally about equal to the building's structural value. Actual content value various widely depending on the usage of the structure. The densities are shown in units of $1,000 ($K) per square mile.

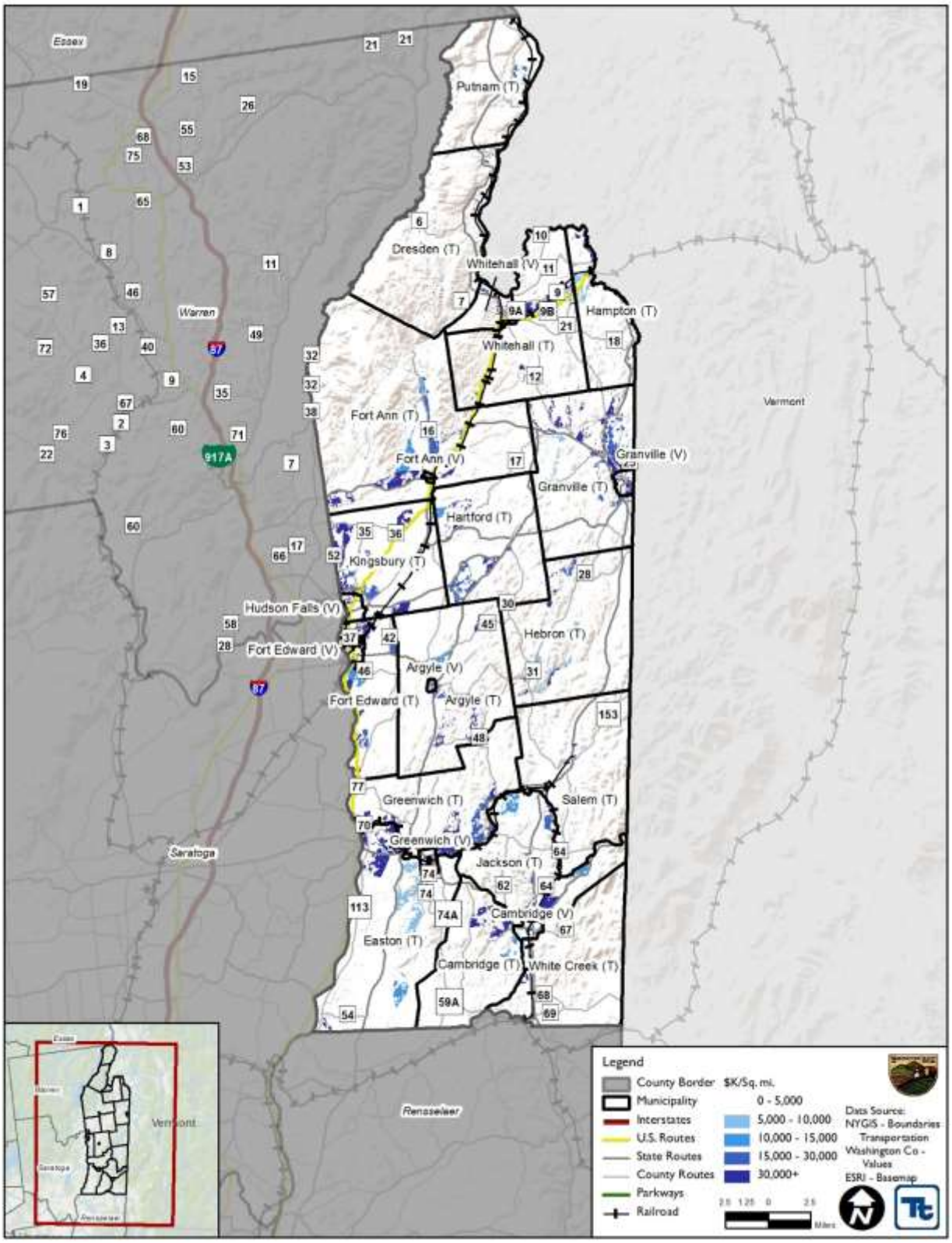
Viewing exposure distribution maps, such as Figure 4-12 through Figure 4-14 can assist communities in visualizing areas of high exposure and in evaluating aspects of the study area in relation to the specific hazard risks.

Figure 4-12. Distribution of Residential Building Stock and Value Density in Washington County



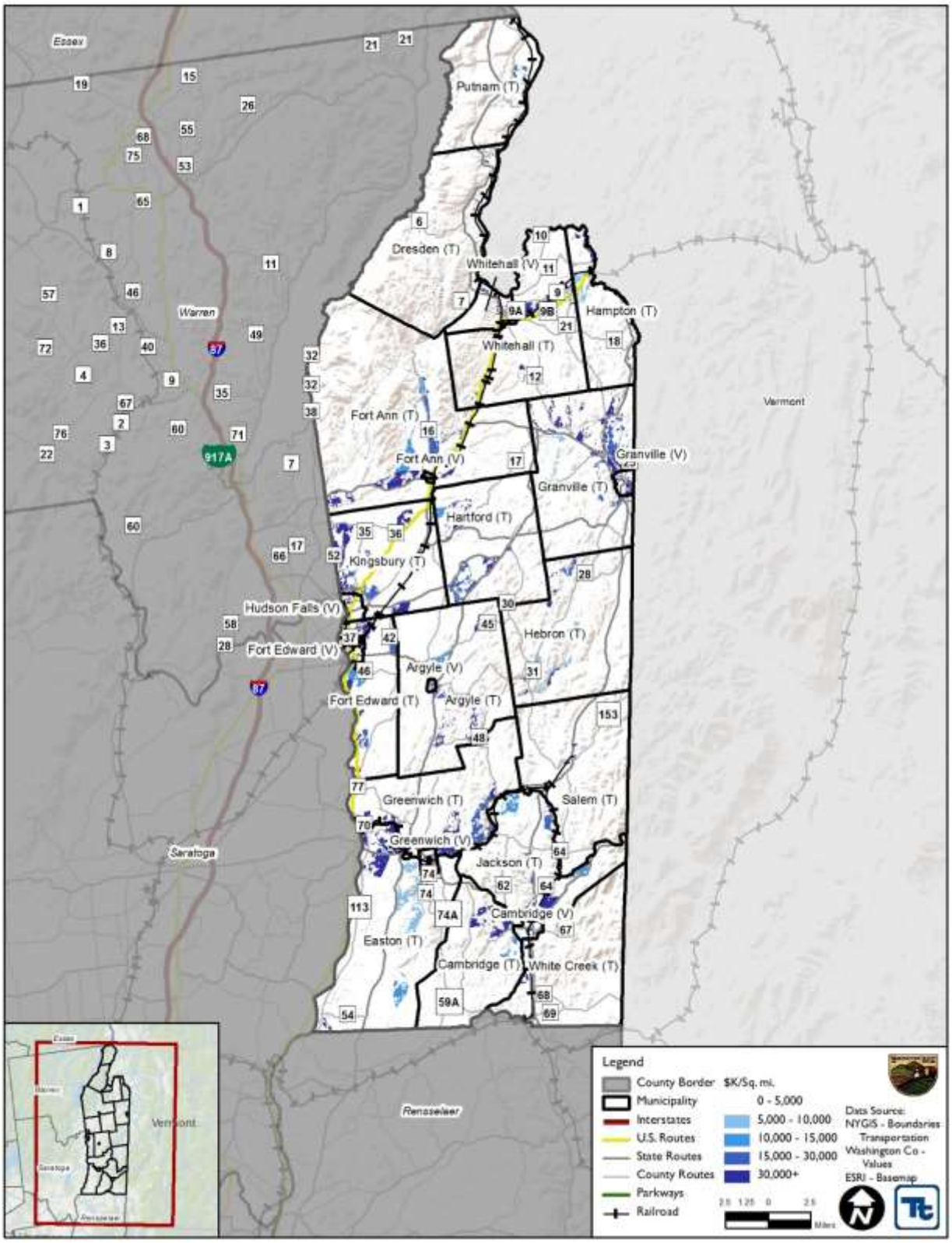
Source: Washington County 2015

Figure 4-13. Distribution of Commercial Building Stock and Exposure Density in Washington County



Source: Washington County 2015

Figure 4-14. Distribution of Industrial Building Stock and Exposure Density in Washington County



Source: Washington County 2015

4.3.1 Development Trends and New Development

In New York State, land use regulatory authority is vested in towns, villages, and cities. However, many development and preservation issues transcend local political boundaries. In Washington County, each town and village is empowered by the Municipal Home Rule Law to plan and zone within its boundaries. DMA 2000 requires that communities consider land use trends, which can impact the need for, and priority of, mitigation options over time. Land use trends can also 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 land use trends 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.

Within the jurisdictional annexes in Section 9 - Jurisdictional Annexes, the County and participating municipalities have identified development that has occurred in the last five years and potential future development in the next five years, along with the development's exposure to natural hazards.

While any development increases the risk of damage and loss to natural hazards, a number of factors indicate that this increase in risk is low and mitigated by existing Federal, State, County and local regulations, policies and programs. In general, development occurring in the County is outside of high hazard areas (e.g. floodplains and steep slopes). All communities have planning and regulatory mechanisms in place that control and limit the increased natural hazard risk of new development and re-development. All communities are supported by planning and/or zoning boards, and have site plan review requirements that include review and appropriate consideration of hazard areas. All development and construction in the County requires conformance with NYS Building Code. Further all Washington County communities participate, and are in good standing, in the National Flood Insurance Program which by State regulation requires two-feet of freeboard above the FEMA 1% chance base flood elevation (BFE+2) for all new residential construction and substantial improvement, and BFE+1 for all other construction types.

Certain communities have adopted ordinances to further protect against natural hazards (e.g. steep slope ordinances) and protect natural resources that provide natural mitigation benefits (e.g. open space, wetlands and wetland buffers, stream courses and stream banks, areas of retention/detention). County and community capabilities to manage development so as to minimize increased natural hazard risk are discussed in the capability assessment subsection of Section 6 - Mitigation Strategy, as well as within each jurisdictional annex in Section 9 - Annexes. Also identified within each annex are actions the community has or will take to further integrate the findings and recommendations of this plan into other planning mechanisms and programs, many of which support land use and development so as to minimize the increase of natural hazard risk.

4.3.2 Potential Sites for Temporary Housing and Relocation

Washington County and municipalities recognize the need to identify potential sites for temporary housing and relocation and ensuring residents are aware of these facilities is critical. The County has supportive housing programs available through the Department of Social Services to assist single adults and/or families. This includes the Temporary Assistance program that provides assistance to cover housing, utilities, and personal needs. Additionally, the Washington County Office for the Aging provides a variety of services for seniors in the county. This includes, but not limited to, housing, financial counseling, home delivered meals, education, and counseling. Lastly, the Department of the District Attorney offers Wellspring, which provides a full range of emergency, shelter, and community services to victims of domestic violence and sexual assault.

With regard to natural hazard events, the Washington County Department of Public Safety identified potential locations to be used as temporary housing for residents displaced by a disaster. The County identified the Washington County Fairgrounds in Greenwich as a potential location for temporary housing, which can be utilized by all municipalities. The site is over 120 acres with buildings suitable to house people in the event of an emergency. All buildings are equipped with electricity, with several buildings that have fully equipped kitchens. There are multiple restroom facilities. Additionally, there is space on the property for the placement of temporary housing (trailers). The Washington County Fairgrounds is not located within a floodplain, as per FEMA flood map panel 3612240005C, effective 11/20/1991.

It is noted that while a community may identify suitable sites, the use (including transfer of ownership) of suitable private property would be at the discretion of the property owner.

Shelters

Due to the variable nature of hazard events and associated sheltering needs within the County, the County relies on real-time outreach methods to inform the public of pending and active evacuations, and available sheltering resources. Outreach methods includes variable message sign boards, media (radio, television, and newspapers), and social media.

As supported by the Washington County Department of Public Safety, the County works directly with the American Red Cross and local jurisdictions (municipal fire departments and EMS) to establish and maintain an inventory of suitable shelter locations, and can assist with the coordination and communication of shelter availability by the execution of the Washington County Comprehensive Emergency Management Plan (CEMP). Washington County Department of Public Safety maintains a list of suitable shelters located throughout the county. This includes those facilities that have American Red Cross sheltering agreements, along with facilities used as back-up, secondary, or temporary shelters in each community.

Depending on the type of event and sheltering needs will determine where the shelters will be located and what facilities will be used. County-wide sheltering policies and procedures are documented in the Washington County CEMP (refer to the Emergency Operations appendix of the 2016 CEMP). The Tri-County CART Team (with Warren and Saratoga counties) works with the emergency operations center (EOC) to identify animal friendly shelter locations and ways of safely evacuating animals when necessary. Additionally, the Washington County Office for the Aging and Emergency Services created a special needs registry to identify residents who require assistance during evacuations and sheltering due to physical or mental disabling conditions.

Please refer to the County Capability Assessment (Section 6) for further information on both evacuation and sheltering provisions within Washington County.

Evacuation Routes

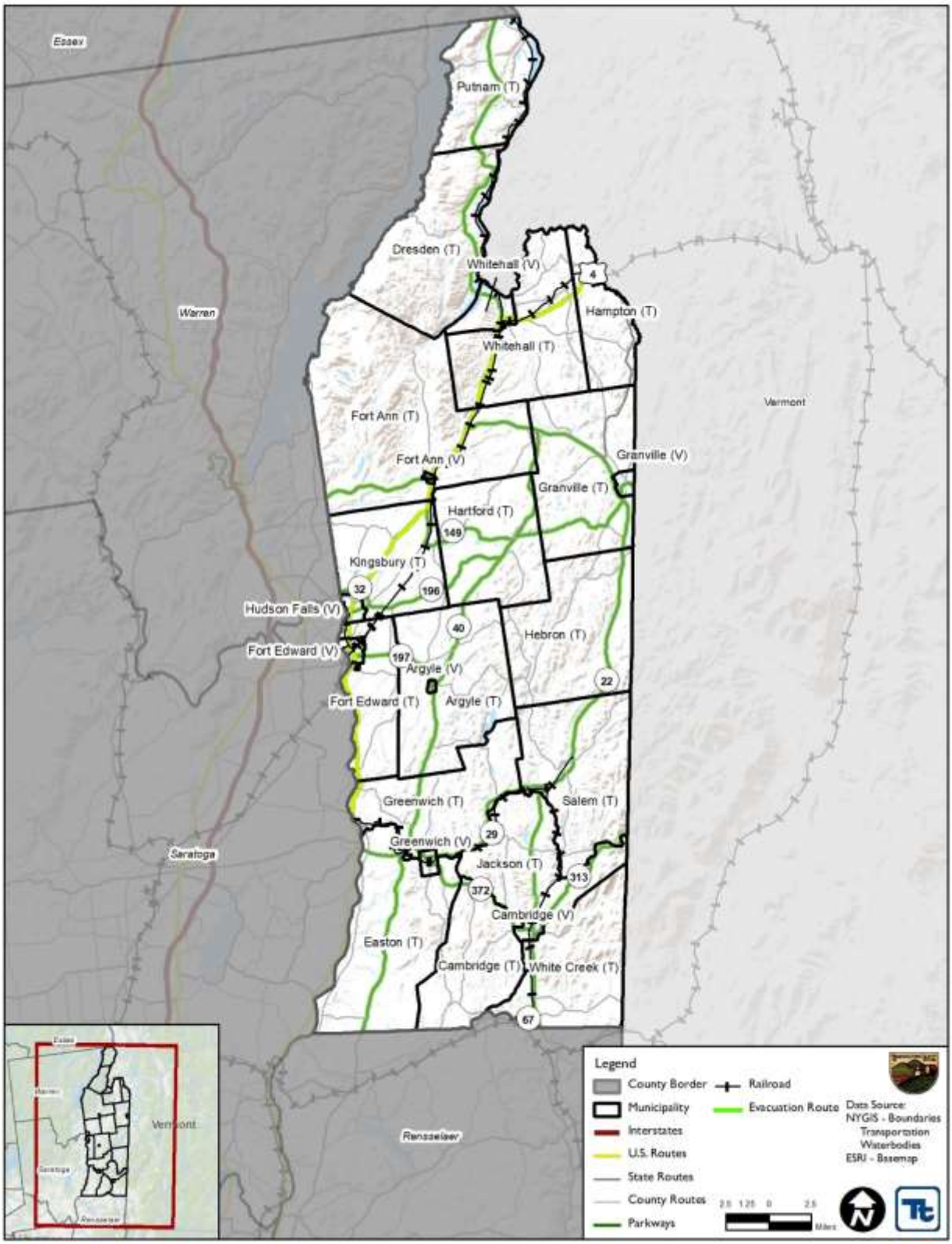
Other than evacuation plans based on the geographically-specific risks, evacuations are conducted on an event-specific basis. Due to the variable nature of such events, Washington County Department of Public Safety, working with local municipalities, assists with the coordination and communication of evacuation routing for the County. The County relies on real-time outreach methods, such as variable message sign boards, media (radio, newspaper, and television), and social media, to inform the public of pending and active evacuations.

The "Emergency Planning" page (http://washingtoncountyny.gov/151/Emergency-Planning) on the County website provides specific information and resources to support evacuation needs, particularly for those in need of special assistance through the County's special needs registry. Further the webpage provides information on the MyEM App Notification System able to provide localized critical information in the case of an emergency.

The primary roads and highways are the evacuation routes for Washington County. This includes: U.S. Route 4, State Route 22, State Route 29, State Route 32, State Route 40, State Route 67, State Route 149, State Route 196, State Route 197, State Route 313, and State Route 372. The route used depends on the location of the incident. The geography of the County is not conducive to having established evacuation routes.

Figure 4-15 illustrates the major roadways in Washington County that would be utilized as evacuation routes in and out of the County in the event of an emergency that results in an evacuation.

Figure 4-15. Evacuation Routes in Washington County



Source: NYGIS; Washington County Department of Public Safety 2018

4.4 CRITICAL FACILITIES

A comprehensive inventory of critical facilities in Washington County was developed from various sources including input from the planning partnership. The inventory of critical facilities presented in this section represents the current state of this effort at the time of publication of the HMP and was used for the risk assessment in Section 5 - Risk Assessment. For detailed lists of the critical facilities, please refer to Appendix H - Critical Facilities.

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, EOCs, schools, shelters, senior facilities and medical facilities.

Emergency Facilities are for the purposes of this Plan, emergency facilities include police, fire, emergency medical services (EMS) and emergency operations centers (EOC).

4.4.1 Essential Facilities

This section provides information on emergency facilities, hospital and medical facilities, schools, shelters and senior care and living facilities. For the purposes of this Plan, emergency facilities include police, fire, emergency medical services (EMS) and emergency operations centers (EOC). Figure 4-16 displays the location of the essential facilities in Washington County.

Emergency Facilities

Washington County Public Safety and Emergency Management is responsible for aiding communities in emergency preparedness (including emergency planning and providing training for the County's first responders), response, recovery, and mitigation. The County maintains an Emergency Operations Center in in the Town of Fort Edward, with an alternate location at the Washington County Sheriff's Law Enforcement Center in in the Town of Fort Edward. The Department is responsible for dispatching 27 fire departments (9 located in Vermont), 9 emergency squads (1 located in Vermont), the Washington County Sheriff's Office and 8 local police departments (Washington County CEMP, 2016).

The majority 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 Washington County Sheriff's Office, and local departments.

Hospitals and Medical Facilities

There are no hospitals located within the County itself; however, multiple hospitals are located in surrounding counties, including Glen Falls Hospital in Glen Falls, NY, Rutland Regional Medical Center in Vermont, and St Peter's Hospital in Albany, NY. There are 34 medical facilities ranging from general care to mental health and development facilities.

Schools

There are 24 primary educational facilities (elementary, middle and high schools) located in Washington County. SUNY Adirondack in Queensbury NY, and Green Mountain State in Poultney, VT are the nearest secondary education facilities to the County. In times of need, schools can function as shelters and are an important resource to the community. For information regarding shelters, see the Shelters subsection of this document.

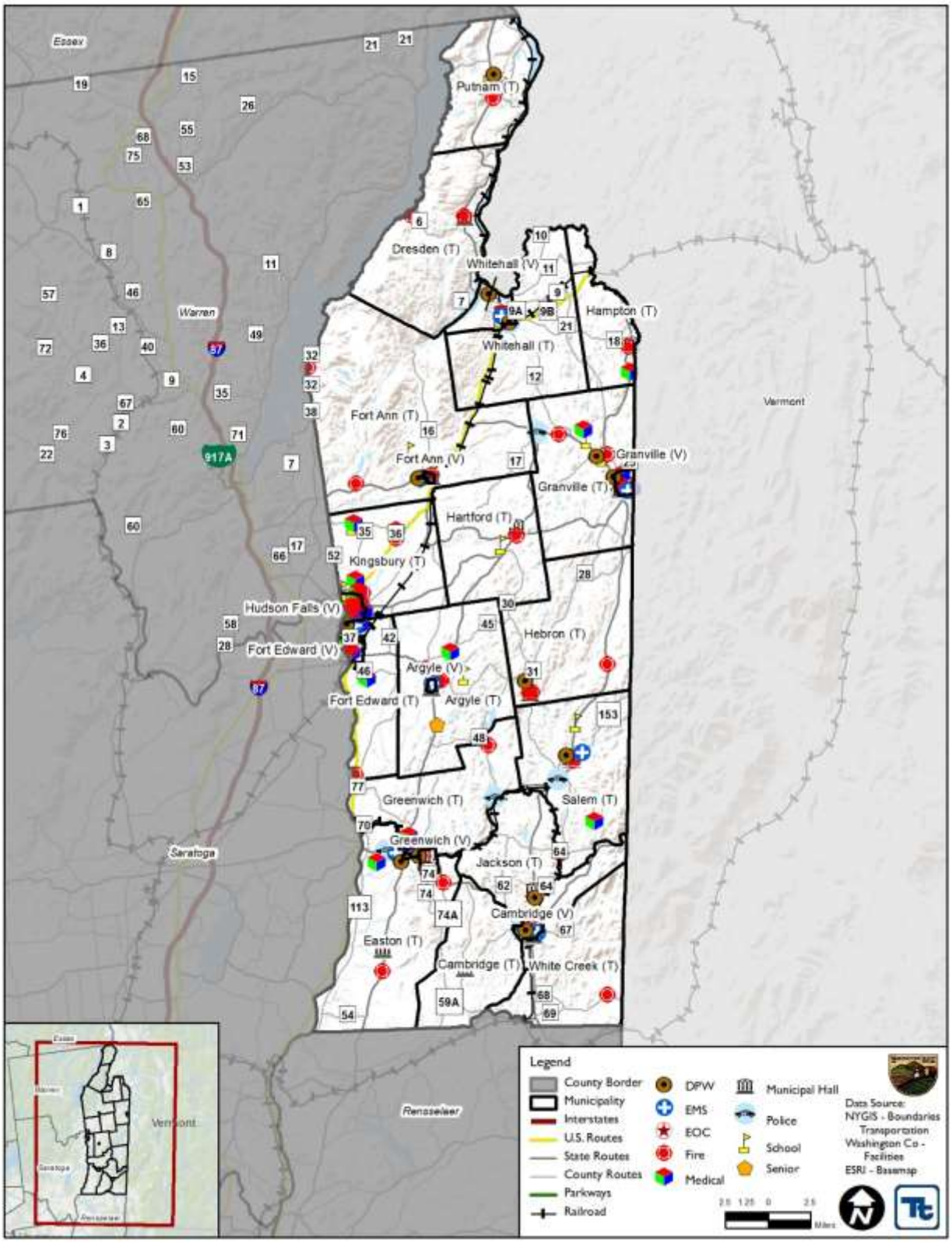
Senior Care and Living Facilities

The County has multiple programs and services for the senior population. This includes 8 nursing homes, senior centers, and senior housing facilities. These facilities are highly vulnerable to potential impacts from disasters, and knowing the location and numbers of these types of facilities will be effective in managing a response plan pre- and post-disaster.

Shelters

As discussed above, 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 Washington County Comprehensive Emergency Management Plan (CEMP). The Tri-County CART Team (with Warren and Saratoga counties) works with the EOC to identify animal friendly shelter locations and ways of safely evacuating animals when necessary.

Figure 4-16. Emergency Facilities in Washington County



Source: Washington County

4.4.2 Transportation Systems

Approximately 1,685 miles of road traverse Washington County. Interstate 87 runs parallel to Washington County through Warren County to the west. US Route 4 runs from the north of Hampton towards Hudson Falls, where it runs along the Hudson River and south towards East Greenbush, NY, outside Albany, NY. A series of state and county roadways also provide transit around and outside the County. Transportation facilities are shown in Figure 4-17.

Bus and Other Transit Facilities

There are four main bus services available in Washington County. Adirondack Trailways and Greyhound Lines operate from a bus station in Glens Falls, connecting to destinations throughout New York and beyond (Trailways 2015). Greater Glens Falls Transit connects the City of Glens Falls and the Towns of Lake George and Queensbury to destinations in Washington and Saratoga Counties. FAME provides transit services for people with disabilities in areas where the Greater Glens Falls Transit system operates (Washington County, 2008).

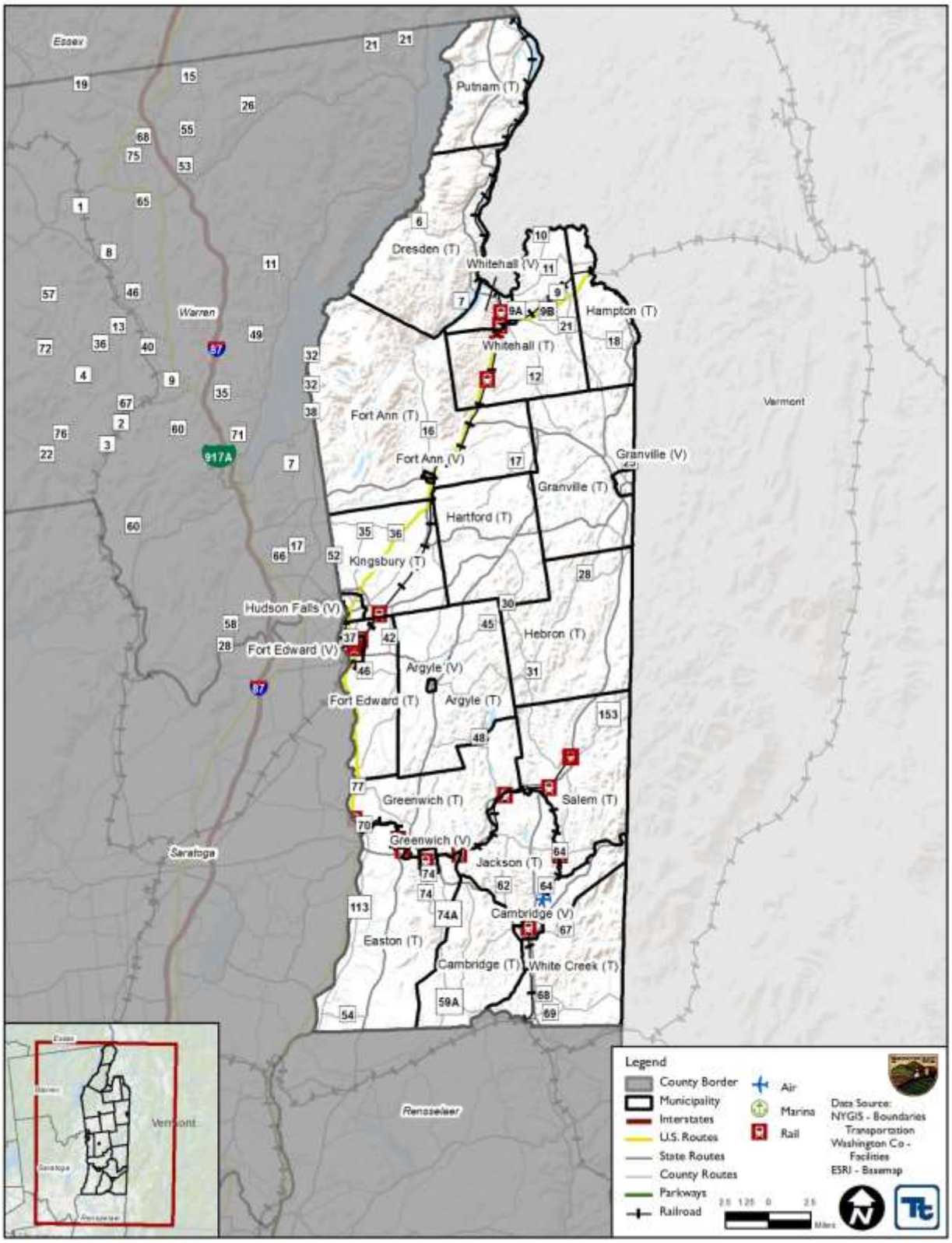
Railroad Facilities

Regional rail service in Washington County is provided by Amtrak. Residents can access the Amtrak lines from Fort Edward (V) and Whitehall (V) in Washington County and from Rensselaer, NY and Saratoga Springs, NY outside the County. The Amtrak line provides service to Poughkeepsie, where commuters can transfer to Metro North lines (Washington County Transportation). Smaller rail services are provided by the Batten Kill Railroad, which is used to transport agricultural products in Southern Washington County, and the Ethan Allen Express, which runs daily between New York City and Vermont with stops in Washington County (Washington County, 2008).

Airports

Although there are no major airports within the County, Washington County residents have access to multiple airports in surrounding counties. These include, Albany International Airport in Albany, NY, Floyd Bennet Memorial Airport in Queensbury, NY, Burlington International Airport in South Burlington, VT, and Rutland – Southern Vermont Regional Airport in North Clarendon, VT (Washington County Transportation). There are two minor air facilities located within the County, Argyle Aviation located in Argyle (T) and Chapin Air Park located in Jackson (T).

Figure 4-17. Transportation Facilities in Washington County



Source: Washington County

4.4.3 Lifeline Utility Systems

This section presents potable water, wastewater, energy resource, and communication utility system data. Due to heightened security concerns, local utility lifeline data sufficient to complete the analysis have only partially been obtained. There is one communication facility in Washington County identified as a critical facility. 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, Washington County has an extensive radio communications network that is utilized by emergency services agencies, hospitals, law enforcement, public works, transportation and other supporting organizations. Washington County is served by a variety of communication systems, which include landline telephone service providers, fiber optic service, and cellular service. The major communication companies in the County are Verizon, Sprint, AT&T, and MCI. Fiber optic service brings a variety of internet options to the area and is provided by a cable that runs along the I-87 corridor. Other internet options include Cable High Speed Internet and DSL broadband in urban areas and the larger towns of the County, which are provided by Time Warner and Verizon Online; Verizon also provides Dial-Up services. The more rural areas of the County can receive internet access through satellite systems and Wireless IPS. The County uses this extensive communication system to coordinate efforts between emergency services to ensure the security and safety of its residents. The County identified 45 communication towers, both public and private, within its border (Washington County, 2008).

Figure 4-18 shows the locations of the facilities for these various lifeline utility systems.

Potable Water

In Washington County, residents receive potable water from both public and private resources. Twelve municipal water supplies are in:

- Village of Argyle – Groundwater
- Village of Cambridge – Reservoir
- Village of Fort Ann – Groundwater
- Town of Fort Edward – Hudson River
- Village of Fort Edward – Reservoir
- Town of Granville – Groundwater
- Village of Granville – Groundwater
- Village of Greenwich – Groundwater
- Village of Hudson Falls – Hudson River
- Town of Kingsbury – Hudson River
- Village of Salem – Groundwater
- Village of Whitehall – Pine Lake

Some communities provide water to additional surrounding communities. The use of private wells is widely used in the rural and suburban areas in Washington County (Washington County, 2008).

Wastewater Facilities

There are 7 municipal sewer districts, 2 of which are owned and operated by the County. The County districts are the Airport Industrial Park and Villages of Hudson Falls/Fort Edward, inclusive of portions of the Towns of Kingsbury and Fort Edward. The Town of Dresden and Villages of Fort Ann, Granville, Greenwich, and Whitehall have sewer districts within their borders as well.

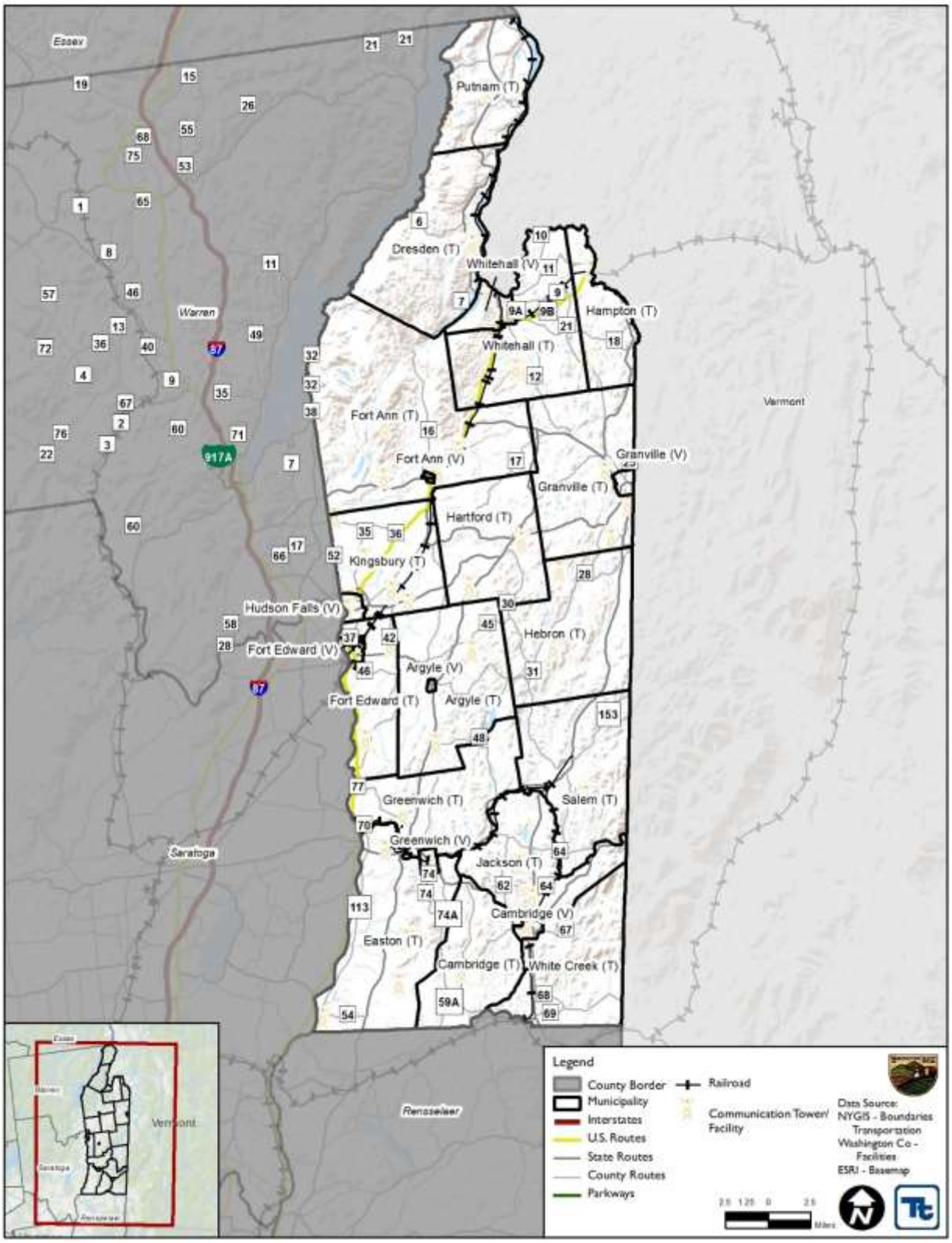
Energy Resources

Electricity and natural gas services are primarily provided by either National Grid or New York State Electric & Gas (NYSEG). Nation Grid and NYSEG both generate, transmit and distribute energy from within the County. Both companies provide various economic incentives to commercial costumers (Washington County, 2008). A bio-mass electrical generation facility, owned by the Industrial Development Agency of Washington and Warren Counties, is a mass-burn facility that converts solid waste into energy; energy is distributed by National Grid (Washington County, 2008).

Communications

Washington County is served by a variety of communication systems, which include landline telephone service providers, fiber optic service, and cellular service. The major communication companies in the County are Verizon, Sprint, AT&T, and MCI. Fiber optic service brings a variety of internet options to the area and is provided by a cable that runs along the I-87 corridor. Other internet options include Cable High Speed Internet and DSL broadband in urban areas and the larger towns of the County, which are provided by Time Warner and Verizon Online; Verizon also provides Dial-Up services. The more rural areas of the County can receive internet access through satellite systems and Wireless IPS. The County uses this extensive communication system to coordinate efforts between emergency services to ensure the security and safety of its residents. The County identified 45 communication towers, both public and private, within its border (Washington County, 2008).

Figure 4-18. Utility Lifelines in Washington County



Source: Washington County

4.4.4 High-Potential Loss Facilities

High-potential loss facilities include dams, levees, hazardous materials facilities (HAZMAT), nuclear power plants, and military installations. Dams are discussed below. Figure 4-19 shows the locations of the High-Potential Loss Facilities in the county.

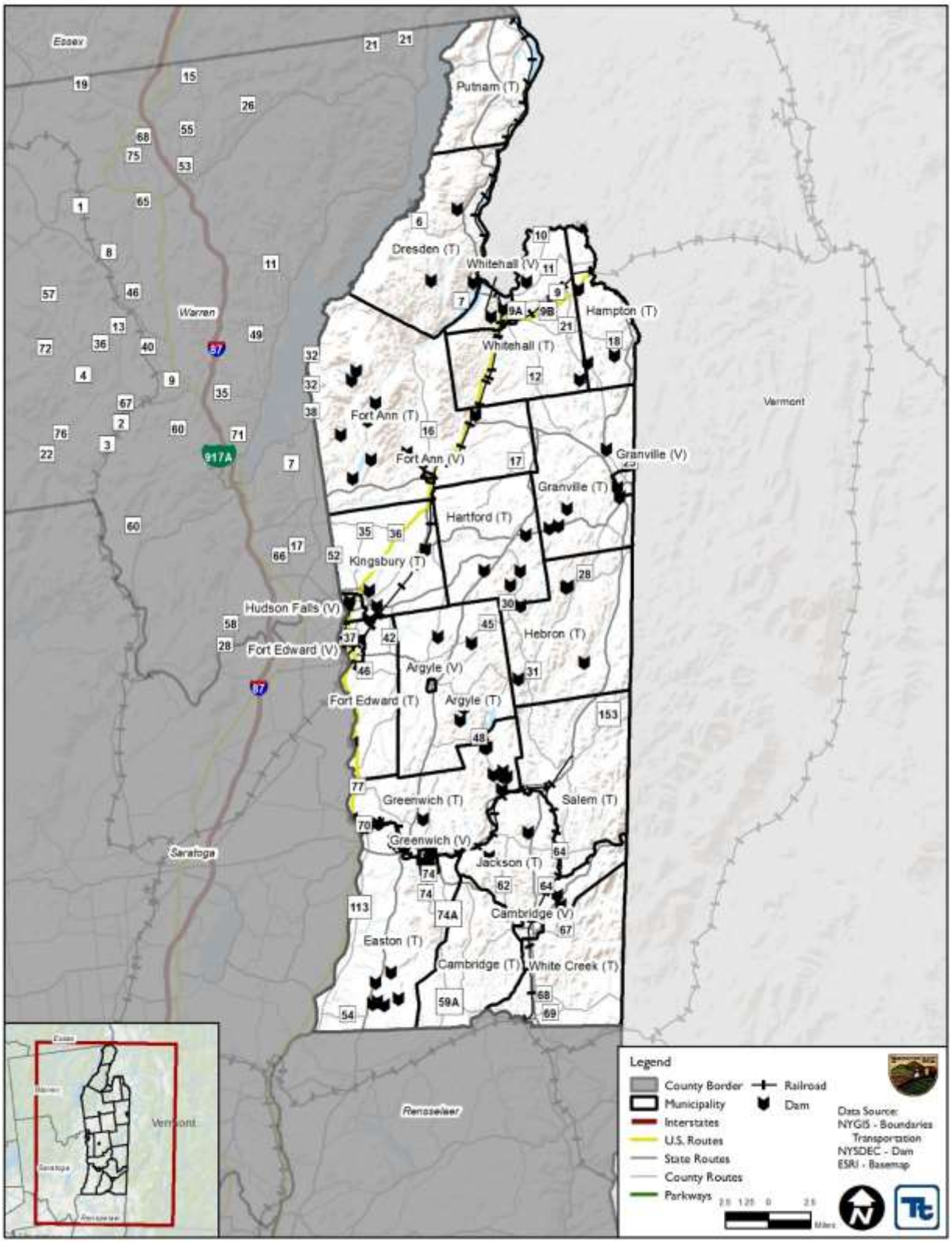
Dams and Levees

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 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.

According to the U.S. Army Corps of Engineers National Inventory of Dams (NID), there are 27 dams located within Washington County. The National Performance of Dams Program (NPDP) also indicates that there are 27 dams in Washington County (1 high hazard, 11 significant hazard, 15 low hazard). For the purpose of this plan, the NYSDEC data from the New York State GIS Clearinghouse will be used. According to County GIS data, there are 78 dams located in Washington County (54 Class A, 9 Class B, 3 Class C, 9 Class D, and 3 undefined).

Figure 4-19. High-Potential Loss Facilities in Washington County

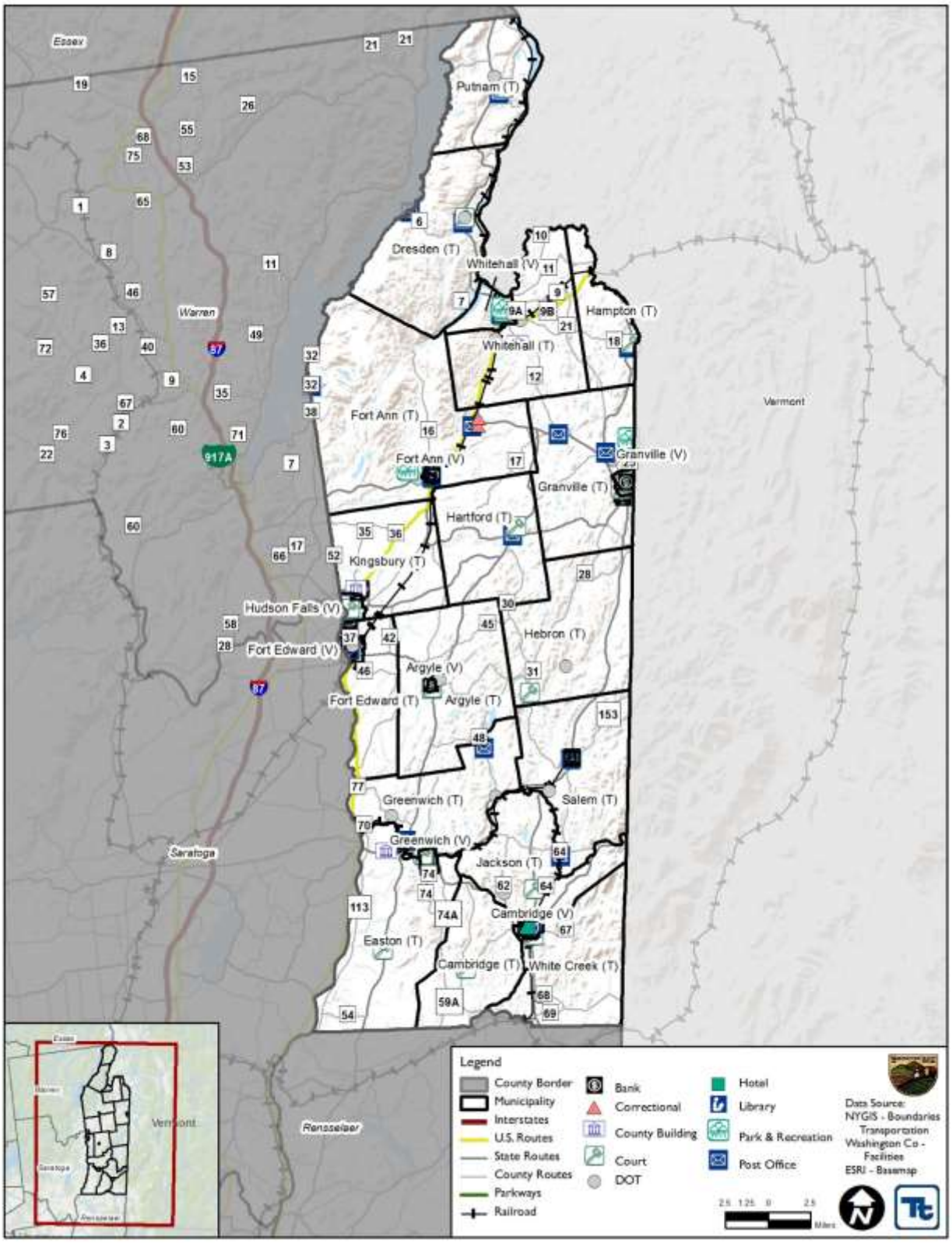


Source: Washington County

4.4.5 Other Facilities

The Planning Committee identified over 100 additional facilities (user-defined facilities) as critical including municipal buildings, government facilities, banks, etc. These facilities were included in the risk assessment conducted for the county. Figure 4-20 shows the locations of these facilities in the county.

Figure 4-20. Other Facilities in Washington County



Source: Washington County

5.1 METHODOLOGY AND TOOLS

This section describes the methodology and tools used to support the risk assessment process.

5.1.1 Methodology

The risk assessment process used for this Plan is consistent with the process and steps presented in the Federal Emergency Management Agency (FEMA) 386-2, State and Local Mitigation Planning How-to-Guide, Understanding Your Risks – Identifying Hazards and Estimating Losses (FEMA, 2001). This process identifies and profiles the hazards of concern and assesses the vulnerability of assets (population, structures, critical facilities and the economy) at risk in the community. A risk assessment provides a foundation for the community's decision makers to evaluate mitigation measures that can help reduce the impacts of a hazard when one occurs (Section 9 - Annexes of this plan).

Step 1: The first step of the risk assessment process is to identify the hazards of concern. FEMA's current regulations only require an evaluation of natural hazards. Natural hazards are natural events that threaten lives, property, and many other assets. Often, natural hazards can be predicted, where they tend to occur repeatedly in the same geographical locations because they are related to weather patterns or physical characteristics of an area.

Step 2: The next step of the risk assessment is to prepare a profile for each hazard of concern. These profiles assist communities in evaluating and comparing the hazards that can impact their area. Each type of hazard has unique characteristics that vary from event to event. That is, the impacts associated with a specific hazard can vary depending on the magnitude and location of each event (a hazard event is a specific, uninterrupted occurrence of a particular type of hazard). Further, the probability of occurrence of a hazard in a given location impacts the priority assigned to that hazard. Finally, each hazard will impact different communities in different ways, based on geography, local development, population distribution, age of buildings, and mitigation measures already implemented.

Steps 3 and 4: To understand risk, a community must evaluate what assets it possesses and which assets are exposed or vulnerable to the identified hazards of concern. Hazard profile information combined with data regarding population, demographics, general building stock, and critical facilities at risk, located in Section 4 – County Profile, prepares the community to develop risk scenarios and estimate potential damages and losses for each hazard.

5.1.2 Tools

To address the requirements of DMA 2000 and better understand potential vulnerability and losses associated with hazards of concern, Washington County used standardized tools, combined with local, state, and federal data and expertise to conduct the risk assessment. Our standardized tools used to support the risk assessment are described below.

Hazards U.S. – Multi-Hazard (HAZUS-MH)

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-MH with new models for estimating potential losses from wind (hurricanes) and flood (riverine and coastal) hazards. HAZUS-MH is a Geographic Information System (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-MH 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-MH uses default HAZUS-MH provided 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-MH's 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. The guidance Using HAZUS-MH for Risk Assessment: How-to Guide (FEMA 433) was used to support the application of HAZUS-MH for this risk assessment and plan. More information on HAZUS-MH is available at http://www.fema.gov/plan/prevent/hazus/index.shtm.

In general, probabilistic analyses were performed to develop expected/estimated distribution of losses (mean return period losses) for the flood and earthquake hazards. The probabilistic hazard generates estimates of damage and loss for specified return periods (e.g., 100- and 500-year). For annualized losses, HAZUS-MH version 3.1 calculates the maximum potential annual dollar loss resulting from various return periods averaged on a "per year" basis. It is the summation of all HAZUS-supplied return periods (e.g., 10, 50, 100, 200, 500) multiplied by the return period probability (as a weighted calculation). In summary, the estimated cost of a hazard each year is calculated.

Custom methodologies in HAZUS-MH version 3.1 (HAZUS-MH) were used to assess potential exposure and losses associated with hazards of concern for Washington County:

Inventory: The 2010 U.S. Census data at the Census-block level was used to estimate hazard exposure at the municipal level. The default demographic data in HAZUS-MH 3.1, based on the 2010 U.S. Census, was used to estimate potential sheltering and injuries for this analysis.

Census blocks do not follow the boundaries of hazard areas and can over or under estimate the population exposed when using the centroid or intersects of the Census block with the hazard zone. For the purposes of this assessment, the population/demographic data presented include only those blocks whose geometric centers fall within the identified hazard areas. The limitations of these analyses are recognized, and as such the results are only used to provide a general estimate.

The default building inventory in HAZUS-MH 3.1 is based on 2010 U.S. Census estimates at the block level. Washington County compared the default inventory available in HAZUS-MH with parcel-specific tax data maintained by Washington County Real Property Tax. In most cases, the project team felt that the differences between the default data and the most current Real Property data maintained by the County were not significant, and the default building inventory was used for the HAZUS-MH based analyses.

The critical facility inventory (essential facilities, utilities, transportation features and user-defined facilities) was updated by Washington County GIS. The critical facility inventory was then reviewed by the Planning Committee. Once approved, the data was formatted to be compatible with HAZUS-MH and the updated inventories were used for the risk assessment.

Flood: FEMA has not developed digital DFIRM flood data or flood depth grids for Washington County. Due to the lack of digital flood data, a quantitative exposure analysis was not possible. Information from the 2014 New York State Hazard Mitigation Plan was summarized qualitatively for the Flood Vulnerability Assessment in this plan. However, to provide a general vulnerability estimate of building stock and critical facilities, an analysis was performed using a 500-foot buffer abutting named streams using the Linear Hydrography Shapefile from the NYS GIS Clearinghouse. The resulting intersection of buildings and facilities within the 500-foot buffer provides a possible dataset of structures that may be vulnerable to flooding and may be used in the interim until DFIRMs are available for the County. Upon receipt of new mapping, the County intends to perform an analysis using the regulatory floodplain data to determine an accurate exposure.

Earthquake: A probabilistic assessment was conducted for Washington County for the 100-, 500- and 2,500-year MRPs through a Level 2 analysis in HAZUS-MH 3.1 to analyze the earthquake hazard and provide a range of loss estimates for Washington County. 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-MH Earthquake User Manual '*Uncertainties are inherent in any loss estimation methodology. They arise in part from incomplete scientific knowledge concerning earthquakes and their effects upon buildings and facilities. They also result from the approximations and simplifications that are necessary for comprehensive analyses. Incomplete or inaccurate inventories of the built environment, demographics and economic parameters add to the uncertainty. These factors can result in a range of uncertainly in loss estimates produced by the HAZUS Earthquake Model, possibly at best a factor of two or more*.' 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 NEHRP 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.

When unchanged, HAZUS-MH default soil types are class "D". However, for this analysis HAZUS-MH was updated with the specific NEHRP soil types for Washington County as provided by the New York State Office of Emergency Management.

Severe Storm: After reviewing historic data, the HAZUS-MH methodology and model were used to analyze the severe storm hazard for Washington County. Data used to assess this hazard include data available in the HAZUS-MH 3.1 wind model, professional knowledge, and information provided by the Steering and Planning Committees.

A probabilistic scenario was run for Washington County for annualized losses and the 100- and 500-year MRPs were examined for the wind hazard using HAZUS version 3.1. HAZUS-MH 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. Hurricane and inventory data available in HAZUS-MH were used to evaluate potential losses from the 100- and 500-year MRP events (wind impacts).

Wildfire: The WUI (interface and intermix) obtained through the SILVIS Lab, Department of Forest Ecology and Management, University of Wisconsin-Madison was used to define the 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 the purposes of 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.

The asset data (population, building stock and critical facilities) presented in Section 4 - County Profile was used to support an evaluation of assets exposed and the potential impacts and losses associated with this hazard. To determine what assets are exposed to wildfire, available and appropriate GIS data was overlaid upon the hazard area. The limitations of this analysis are recognized, and as such the analysis is only used to provide a general estimate.

Other Hazards: For many of the hazards evaluated in this risk assessment, historic data are not adequate to model future losses at this time. For some of the other hazards of concern, areas and inventory susceptible to specific hazards were mapped and exposure was evaluated to help guide mitigation efforts discussed in Section 9 - Annexes. For other hazards, a qualitative analysis was conducted using the best available data and professional judgment.

For this risk assessment, the 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:

1) Approximations and simplifications necessary to conduct such a study
2) Incomplete or dated inventory, demographic, or economic parameter data
3) The unique nature, geographic extent, and severity of each hazard
4) Mitigation measures already employed by Washington County and the amount of advance notice residents have to prepare for a specific hazard event

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, Washington County will collect additional data to assist in developing refined estimates of vulnerabilities to natural hazards.

5.2 IDENTIFICATION OF HAZARDS OF CONCERN

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

To provide a strong foundation for mitigation actions considered in Sections 6 and 9, Washington County focused on considering a full range of hazards that could impact the area, and then identified and ranked those hazards that presented the greatest concern. 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); review of the previous Washington 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 hazards and the perceived vulnerability of the study area's assets to them. Table 5.2-1 documents the process of identifying the natural hazards of concern for further profiling and evaluation.

For the purposes of this planning effort, the Planning and Steering Committees chose to group some hazards together, based on the similarity of hazard events, their typical concurrence or their 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; FEMA's "Multi-Hazard Identification and Risk Assessment – The Cornerstone of the National Mitigation Strategy"; FEMA's Local Mitigation Planning Handbook), and consideration of hazard grouping in the NYS HMP.

The "Flood" hazard includes riverine flooding, flash flooding, ice jam flooding, dam failure flooding, and flooding due to beaver dams. Inclusion of the various forms of flooding under a general "Flood" hazard is consistent with the approach used in FEMA's "Multi-Hazard Identification and Risk Assessment" guidance and the NYS HMP.

The "Severe Storm" hazard includes windstorms and 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 the purpose of 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, freezing rain/sleet, and ice storms. This grouping is consistent with the NYS HMP.

Table 5.2-1. Identification of Natural Hazards of Concern for Washington County

Hazard	Is this a hazard that may occur in Washington County?	If yes, does this hazard pose a significant threat to the County?	Why was this determination made?	Source(s)
Avalanche	No	No	• Avalanches can occur in any situation where snow, slope and weather conditions combine to create proper conditions. About 90% of all avalanches start on slopes of 30 to 45 degrees and about 98% of all avalanches occur on slopes of 25 to 50 degrees. The topography of Washington County does not support the occurrence of an avalanche. • 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 2016. • Avalanche was identified as a hazard in the NYS HMP and there have been occurrences in the State; however, there have been no occurrences in Washington County.	• NYS DHSES • Input from Steering and Planning Committees • Review of NAC-AAA database between 1998 and 2016
Coastal Erosion	No	No	• The NYS HMP identifies coastal erosion has a hazard of concern for New York State. Erosion can impact all of 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. • Washington County is not bordered by any coastal waters; therefore, coastal erosion is not an identified hazard of concern for the County.	• NYS DHSES • Input from Steering and Planning Committees
Dam Failure	Yes	Yes	• The 2014 NYS HMP identifies dam failure as a hazard of concern for New York State and includes it in the Flood hazard profiles. • There are 81 dams located in Washington County: 55 Class A, 9 Class B, 3 Class C, and 11 Class D). The dams are located in Battenville (Town of Greenwich), Center Falls (Town of Greenwich), Chamberlain Mills (Town of Salem), Coila (Town of Cambridge), Cossayuna (Town of Argyle), Dunham Basin (Town of Kingsbury), East Hartford (Town of Hartford), Town of Easton, Town of Fort Ann, Town of Granville, Town of Greenwich, Town of Hampton, Town of Hartford, Hillsdale (Town of Granville), Village of Hudson Falls, Huletts Landing (Town of Dresden), Middle Falls (Town of Greenwich), Middle Granville (Town of Granville), North Argyle (Town of Argyle), North Hebron (Town of Hebron), Town of Salem, Smith Basin (Town of Kingsbury), Truthville (Town of Granville), West Fort Ann (Town of Fort Ann), West Hebron (Town of Hebron), and Town of Whitehall. • The Steering and Planning Committees identified dam failure as a hazard of concern for Washington County. Dam failure is included in the Flood hazard profile.	• NYS DHSES • Input from Steering and Planning Committees • NYSDEC • NYS GIS
Disease Outbreak	Yes	No	• The 2014 NYS HMP does not identify disease outbreak as a hazard of concern for New York State. • While the County has been impacted by various diseases (influenza), the Steering and Planning Committees did not identify disease outbreak as a hazard of concern for Washington County.	• NYS DHSES • Input from Steering and Planning Committees

Table 5.2-1. Identification of Natural Hazards of Concern for Washington County

Hazard	Is this a hazard that may occur in Washington County?	If yes, does this hazard pose a significant threat to the County?	Why was this determination made?	Source(s)
Drought	Yes	No	• The NYS HMP identifies drought as a hazard of concern for the State. Washington County has been impacted by several drought events that have occurred in New York State. • The NOAA-NCDC Storm Events Database did not identify any drought events between 1950 and 2016 in the County. • New York State has been included in one FEMA drought-related disaster declaration; however, Washington County was not included in the declaration. • The Washington County HAZNY ranked drought as a low hazard. • Washington County has been included in three recent drought-related USDA disaster declarations; however, damages were minimal. The USDA designates counties as disaster areas to make emergency loans available to producers suffering losses in those counties. o S3427 – Drought / Excessive Heat – 2012 o S3441 – Drought – 2012 o S3887 – Drought – 2015 • According to the NRCC, Washington County is located within two climate divisions: Hudson Valley and Champlain Valley. All of which have been impacted by periods of severe and extreme drought and include the following events: o November 1908 – January 1909 o November 1909 – January 1910 o May-November 1911 o April-June 1915 o October 1930 – April 1931 o October-December 1934 o December 1939 – January 1940 o August 1941 – February 1942 o October-December 1949 o June-July 1950 o November-December 1953 o February-May 1957 o August-November 1957 o June 1964 – August 1966 o April-May 1985 o August-September 1995 o July-August 1999 o November 2001 – April 2002	• NYS DHSES • FEMA • USDA • Input from Steering and Planning Committees • NOAA-NCDC • NRCC

Table 5.2-1. Identification of Natural Hazards of Concern for Washington County

Hazard	Is this a hazard that may occur in Washington County?	If yes, does this hazard pose a significant threat to the County?	Why was this determination made?	Source(s)
			• Based on input from the Steering and Planning Committees, the low ranking in the County's HAZNY, and the minimal impacts of recent events in the County, drought was not identified as a hazard of concern for Washington County.	
Earthquake	Yes	Yes	• The NYS HMP identified earthquake as a hazard of concern for the State. • New York State has been included in one FEMA earthquake-related disaster declaration (DR-1145); Washington County was included in this declaration. • According to the NYS HMP, between 1973 and 2012, there have been 189 earthquakes epicentered in the State. Of those 189 events, only two had an epicenter in Washington County. • There have been four earthquakes with epicenters located in Washington County. • Based on previous occurrences and input from the Steering and Planning Committees, earthquake was identified as a hazard of concern for Washington County. Additionally, the Steering Committee identified dam failures as a result of an earthquake as a concern to the County.	• NYS DHSES • Input from Steering and Planning Committees • USGS – Earthquake Hazards Program, Review of USGS Seismic Maps
Expansive Soils	Yes	No	• The NYS HMP identified expansive soils has a hazard of concern for New York State. However, a majority of Washington County is underlain by soils with little to no swelling potential and contains areas with less than 50% of the area is underlain by soils with abundant clays of slight to moderate swelling potential. • The Steering and Planning Committees did not identify expansive soils as a hazard of concern for Washington County.	• NYS DHSES • Input from Steering and Planning Committees • Review of USGS 1989 Swelling Clays Map of the Conterminous United States
Extreme Temperature	Yes	No	• The NYS HMP identified extreme temperatures as a hazard of concern for New York State. • According to the NOAA-NCDC database, between 1950 and 2016, there have been 17 extreme temperature events in Washington County. • Washington County has not been included in any FEMA disaster declarations for extreme temperature-related events; however, the County has been included in one recent USDA disaster declaration (S3427 in 2012). • The Steering and Planning Committees did not identify extreme temperatures as a hazard of concern for the County.	• NYS DHSES • Input from Steering and Planning Committees • NOAA-NCDC

Flood (riverine, ice jam, dam failure and flash)	Yes	Yes	• The NYS HMP identified flooding as a hazard of concern for New York State.
			• The County has been included in three flood-related FEMA disaster declarations:
			  ○ FEMA-DR-515 (Severe Storms and Flooding) – July 21, 1976
			  ○ FEMA-DR-1095 (Severe Storms and Flooding) – January 19-20, 1996
				• NYS DHSES
				• Input from Steering and Planning Committees

Table 5.2-1. Identification of Natural Hazards of Concern for Washington County

Hazard	Is this a hazard that may occur in Washington County?	If yes, does this hazard pose a significant threat to the County?	Why was this determination made?	Source(s)
			○ FEMA-DR-1534 (Severe Storms and Flooding) – May-June 2004 • Between 1780 and 2015, there have been 43 ice jams in the County that have occurred along Batten Kill, Bond Creek, Hoosic River, Hudson River, and Mettawee River. • The Steering and Planning Committees identified flooding as a hazard of concern for the County.	• FEMA • NOAA-NCDC • USACE CRREL Ice Jam Database
Hailstorm	Yes	Yes	Please see Severe Storm	
Hurricane	Yes	No	Please see Severe Storm	
Ice Jams	Yes	Yes	Please see Flood	
Ice Storm	Yes	Yes	Please see Severe Winter Storm	
Infestation	Yes	No	• The 2014 NYS HMP does not identify infestation as a hazard of concern for New York State. • According to the New York Invasive Species Map, there have been no reported infestations of invasive insects in Washington County. • The Steering and Planning Committees did not identify infestation as a hazard of concern for Washington County.	• NYS DHSES • Input from Steering and Planning Committees • USDA • NYSDEC
Land Subsidence	Yes	No	• 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." • NYS HMP does not identify Washington County as a county that has experienced land subsidence in the past. In general, moderate to low land subsidence susceptibility exists for New York State, however, it was identified that this hazard has a very low risk to population or property. • Sinkholes often occur in areas underlain by carbonate rock, limestone, salt beds or rocks that naturally dissolve by groundwater circulating through them. Portions of western Washington County are underlain by carbonate rock. • The Steering and Planning Committees did not identify land subsidence as a hazard of concern for Washington County.	• NYS DHSES • Input from Steering and Planning Committees • USGS
Landslide	Yes	No	• The NYS HMP includes landslide as a hazard of concern for New York State. According to the NYS HMP, 5,039 people in Washington County live within a high incidence of landslide area. The remainder of the population lives within a high susceptibility/moderate incidence area. • Between 1954 and 2016, New York State was included in one landslide-related disaster declaration; however, Washington County was not included in the declaration. • The Steering and Planning Committees did not identify landslide as a hazard of concern for Washington County.	• NYS DHSES • Input from Steering and Planning Committees • FEMA

Table 5.2-1. Identification of Natural Hazards of Concern for Washington County

Hazard	Is this a hazard that may occur in Washington County?	If yes, does this hazard pose a significant threat to the County?	Why was this determination made?	Source(s)
Nor'Easters	Yes	Yes	Please see Severe Storm	
Severe Storm (windstorms, thunderstorms, hurricanes / tropical storms, Nor'Easters, hail and tornados)	Yes	Yes	• 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: hailstorm, high wind, and hurricane. For the purpose of the Washington County HMP update, the hazards were combined into one profile. • The NOAA-NCDC Storm Events Database indicated that Washington County was impacted by 395 severe storm-related events between 1950 and 2016. • According to the SPC, four tornadoes have impacted Washington County between 1950 and 2016. • FEMA included Washington County is five severe storm-related disaster declarations: o FEMA-DR-515 (Severe Storms and Flooding) – July 21, 1976 o FEMA-DR-1095 (Severe Storms and Flooding) – January 19-20, 1996 o FEMA-DR-1534 (Severe Storms and Flooding) – May-June 2004 o FEMA-DR-4020 (Hurricane Irene) – August 28, 2011 o FEMA-EM-3351 (Hurricane Sandy) – October 28, 2012 • The Steering and Planning Committees identified severe storms as a hazard of concern for Washington County.	• NYS DHSES • FEMA • NOAA-NCDC • SPC • Input from Steering and Planning Committees
Severe Winter Storm (heavy snow, blizzards, ice storms)	Yes	Yes	• The NYS HMP identified severe winter storm as a hazard of concern for New York State. • The NOAA-NCDC Storm Events Database indicated that Washington County was impacted by 197 winter storm events between 1950 and 2016. • FEMA included Washington County in two winter storm-related disaster declarations: o FEMA-DR-801 (Severe Winter Storm) – October 4, 1987 o FEMA-DR-1827 (Severe Winter Storm) – December 11-31, 2008 • The Planning and Steering Committees identified severe winter storm as a hazard of concern for Washington County.	• NYS DHSES • FEMA • NOAA-NCDC • Input from Steering and Planning Committees
Tornado	Yes	Yes	Please see Severe Storm	
Tsunami	No	No	• Tsunami is not identified as a hazard of concern in the NYS HMP. • The Planning and Steering Committees does not consider tsunami to be a significant concern to the planning area.	• NYS DHSES • Input from Steering and Planning Committees
Volcano	No	No	• The NYS HMP did not identify volcano as a hazard of concern for New York State. • The Planning and Steering Committees does not consider volcano to be a hazard of concern for the planning area.	• NYS DHSES • Input from Steering and Planning

Table 5.2-1. Identification of Natural Hazards of Concern for Washington County

Hazard	Is this a hazard that may occur in Washington County?	If yes, does this hazard pose a significant threat to the County?	Why was this determination made?	Source(s)
				Committees
Wildfire	Yes	Yes	• The NYS HMP identified wildfire as a hazard of concern for New York State. • Washington County was not included in any FEMA wildfire-related disaster declarations. • The NOAA-NCDC Storm Events Database identified two wildfire events in Washington County between 1950 and 2016. The County has also been impacted by other wildfire events not identified in the NOAA-NCDC Storm Events Database. • The Planning and Steering Committees did identified wildfire as a hazard of concern for Washington County due to concerns regarding impacts from drought conditions and the amount of woodland in the County.	• NYS DHSES • NOAA-NCDC • FEMA • NYSDEC • Input from Steering and Planning Committees
Windstorm	Yes	Yes	Please see Severe Storm	

CRREL *Cold Regions Research and Engineering Laboratory*
DR *Presidential Disaster Declaration Number*
EM *Presidential Disaster Emergency Number*
FEMA *Federal Emergency Management Agency*
NAC-AAA *National Avalanche Center – American Avalanche Association*
NCDC *National Climatic Data Center*
NOAA *National Oceanic and Atmospheric Administration*
NRCC *Northeast Regional Climate Center*
NYSDEC *New York State Department of Environmental Conservation*
NYS DHSES *New York State Division of Homeland Security and Emergency Services*
NYS GIS *New York State Geographic Information Services*
NYS HMP *New York State Hazard Mitigation Plan*
SPC *Storm Prediction Center*
USACE *U.S. Army Corps of Engineers*
USDA *U.S. Department of Agriculture*
USGS *United States Geologic Survey*

In summary, a total of five 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):

- Earthquake
- Flood (riverine, urban/stormwater; dam failure, flash, ice jam, beaver dam)
- Severe Storm (windstorms, thunderstorms, hail, lightning and tornados)
- Severe Winter Storm (heavy snow, blizzards, ice storms)
- Wildfire

Other natural hazards of concern that have occurred within Washington County, but have a low potential to occur and/or result in significant impacts, may be considered in future versions of the Plan.

5.3 HAZARD RANKING

After the hazards of concern were identified for Washington County, the hazards were ranked to describe their probability of occurrence and their impact on population, property (general building stock including critical facilities) and the economy. Each participating town or village may have differing degrees of risk exposure and vulnerability compared to the County as a whole; therefore, each jurisdiction ranked the degree of risk to each hazard as it pertains to their community using the same methodology as applied to the County-wide ranking. This assured consistency in the overall ranking of risk process. The hazard ranking for the County and each participating municipality can be found in their jurisdictional annex in Volume II of this plan.

5.3.1 Hazard Ranking Methodology

The methodology used to rank the hazards of concern for Washington County is described below. Estimates of risk for the County were developed using methodologies promoted by FEMA's hazard mitigation planning guidance and generated by FEMA's HAZUS-MH risk assessment tool.

Probability of Occurrence

The probability of occurrence is an estimate of how often a hazard event occurs. A review of historic events assists with this determination. Each hazard of concern is rated in accordance with the numerical ratings and definitions in Table 5.3-1.

Table 5.3-1. Probability of Occurrence Ranking Factors

Rating	Probability Category	Definition
1	Rare	Hazard event is not likely to occur within 100 years (>1% chance of occurrence in any given year)
2	Occasional	Hazard event is likely to occur within 100 years (1% chance of occurrence in any given year)
3	Frequent	Hazard event is likely to occur within 25 years (4% chance of occurrence in any given 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 a subjective assessment by the Planning Committee, 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: three (3) for population, two (2) for property, and one (1) for economy. This gives the impact on population the greatest weight in evaluating the impact of a hazard.

Table 5.3-2 presents the numerical rating, weighted factor and description for each impact category

Table 5.3-2. Numerical Values and Definitions for Impacts on Population, Property and Economy

Category	Weighting Factor	Low Impact* (1)	Medium Impact (2)	High Impact (3)
Population	3	14% or less of your population is exposed to a hazard with potential for	15% to 29% of your population is exposed to a hazard with potential for	30% or more of your population is exposed to a hazard with potential

Category	Weighting Factor	Low Impact* (1)	Medium Impact (2)	High Impact (3)
		measurable life safety impact, due to its extent and location	measurable life safety impact, due to its extent and location	for measurable life safety impact, due to its extent and location
Property	2	Property exposure is 14% or less of the total replacement cost for your community	Property exposure is 15% to 29% of the total replacement for your community	Property exposure is 30% or more of the total replacement cost for your community
Economy	1	Loss estimate is 9% or less of the total replacement cost for your community	Loss estimate is 10% to 19% of the total replacement cost for your community	Loss estimate is 20% or more of the total replacement cost for your 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.*

Risk Ranking Value

The risk ranking for each hazard is then calculated by multiplying the numerical value for probability of occurrence by the sum of the numerical values for impact. The equation is as follows: Weighting Factor (1, 2, or 3) X Impact Value (6 to 18) = Hazard Ranking Value. Based on the total for each hazard, a priority ranking is assigned to each hazard of concern (high, medium, or low).

5.3.2 Hazard Ranking Results

Using the process described above, the risk ranking for the identified hazards of concern was determined for Washington County. Based on the combined risk values for probability of occurrence and impact to Washington County, a priority ranking of "high", "medium" or "low" risk was assigned. The hazard ranking for the Washington planning area is detailed in the subsequent tables that present the step-wise process for the ranking. The county–wide risk ranking includes the entire planning area and may 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 county-wide risk and local rankings to ensure consistency in the overall ranking of risk.

This risk ranking exercise serves two purposes: 1) to describe the probability of occurrence for each hazard, and 2) to describe the impact each would have on the people, property and economy of Washington County. Estimates of risk for Washington County were developed using methodologies promoted by FEMA's hazard mitigation planning guidance and generated by FEMA's HAZUS-MH risk assessment tool.

Table 5.3-3 shows the probability ranking assigned for likelihood of occurrence for each hazard.

Table 5.3-3. Probability of Occurrence Ranking for Hazards of Concern for Washington County

Hazard of Concern	Probability	Numeric Value
Earthquake	Occasional	2
Flood	Frequent	3
Severe Storm	Frequent	3
Severe Winter Storm	Frequent	3
Wildfire	Frequent	3

Table 5.3-4 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, may have a lower impact when analyzed county-wide. Jurisdictional ranking results are presented in each local annex in Section 9 - Annexes of this plan. The weighting factor results and a total impact for each hazard also are summarized.

Table 5.3-4. Impact Ranking for Hazards of Concern for Washington 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	H	3	3 x 3 = 9	M	2	2 x 2 = 4	L	1	1 x 1 = 1	14
Flood	L	1	3 x 1 = 3	M	2	2 x 2 = 4	H	3	1 x 3 = 3	10
Severe Storm	H	3	3 x 3 = 9	H	3	2 x 3 = 6	L	1	1 x 1 = 1	16
Severe Winter Storm	H	3	3 x 3 = 9	H	3	2 x 3 = 6	M	2	1 x 2 = 2	17
Wildfire	H	3	3 x 3 = 9	M	2	2 x 2 = 4	H	3	1 x 3 = 3	16

Table 5.3-5 presents the total ranking value for each hazard.

Table 5.3-5. Total Risk Ranking Value for Hazards of Concern for Washington County

Hazard of Concern	Probability	Impact	Total = (Probability x Impact)
Earthquake	2	14	28
Flood	3	10	30
Severe Storm	3	16	48
Severe Winter Storm	3	17	51
Wildfire	3	16	48

Table 5.3-6 presents the hazard ranking category by jurisdiction assigned for each hazard of concern. The ranking categories are determined by an evaluation of the total risk ranking score into three categories, low, medium, and high whereby a total score of 14 and below is categorized as low, 15 to 30 is medium, and 31 and over is considered a high risk category.

These rankings have been used as one of the bases for identifying the jurisdictional hazard mitigation strategies included in Section 9 - Annexes of this plan. The summary rankings for the County reflect the results of the vulnerability analysis for each hazard of concern and vary from the specific results of each jurisdiction. For example, the severe storm hazard may be ranked high in one jurisdiction, but due to the exposure and impact county-wide, it is ranked as a medium hazard and is addressed in the county mitigation strategy accordingly. This is depicted below. Please note that this table does not include the adjustments made by each municipality during the update of their individual annexes. Refer to Section 9 – Annexes for those adjustments.

Table 5.3-6. Summary of Overall Ranking of Natural Hazards by Jurisdiction

Washington County Municipalities	Hazards of Concern				
	Earthquake	Flood	Severe Storm	Severe Winter Storm	Wildfire
Argyle (T)	High	Medium	High	High	High
Argyle (V)	High	Medium	High	High	Low
Cambridge (T)	Medium	Medium	High	High	High
Cambridge (V)	Medium	High	High	High	High
Dresden (T)	Medium	High	High	High	High
Easton (T)	Medium	Medium	High	High	High
Fort Ann (T)	Medium	High	High	High	High
Fort Ann (V)	Medium	High	High	High	High
Fort Edward (T)	Low*	Medium*	Medium*	Medium*	Medium*
Fort Edward (V)	High	Medium	High	High	High
Granville (T)	Medium	Medium	High	High	High
Granville (V)	Medium	Medium	High	High	High
Greenwich (T)	Medium	Medium	High	High	High

Washington County Municipalities	Hazards of Concern				
	Earthquake	Flood	Severe Storm	Severe Winter Storm	Wildfire
Greenwich (V)	Low*	Low*	Medium*	Medium*	Low*
Hampton (T)	Medium	Medium	High	High	High
Hartford (T)	High	Medium	High	High	High
Hebron (T)	Medium	Medium	High	High	High
Hudson Falls (V)	Medium	Medium	High	High	High
Jackson (T)	Medium	High	High	High	High
Kingsbury (T)	High	Medium	High	High	High
Putnam (T)	Medium	High	High	High	High
Salem (T)	Medium	Medium	High	High	High
White Creek (T)	Medium	High	High	High	High
Whitehall (T)	Medium	Medium	High	High	High
Whitehall (V)	Medium	High	High	High	High

Note: The rankings listed in the table above reflect municipal input.

** ranking adjusted by the municipality*

5.4 HAZARDS PROFILES AND VULNERABILITY ASSESSMENT

The following sections profile and assess vulnerability for each hazard of concern. For each hazard, the profile includes: the hazard description; its location and extent; previous occurrences and losses; and the probability of future events. The vulnerability assessment for each hazard includes: an overview of vulnerability; the data and methodology used; the impact on life, health and safety; impact on general building stock; impact on critical facilities; impact on the economy; additional data needs and next steps; and the overall vulnerability assessment finding. Hazards are presented as listed above, starting with the severe storm hazard and ending with the earthquake hazard.

5.4.1 EARTHQUAKE

This section provides a profile and vulnerability assessment for the earthquake hazard.

5.4.1.1 Hazard Profile

This section provides profile information including description, extent, location, previous occurrences and losses and the probability of future occurrences.

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 (Federal Emergency Management Agency [FEMA] 2001; Shedlock and Pakiser 1997). Most earthquakes occur at the boundaries where the Earth's tectonic plates meet (faults); less than 10% of earthquakes occur within plate interiors. New York is in an area where the rarer plate interior-related earthquakes occur. As plates continue to move and plate boundaries change geologically over 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 and Pakiser 1997).

According to the U.S. Geological Society (USGS) Earthquake Hazards Program, an earthquake hazard is any disruption associated with an earthquake that may affect residents' normal activities. This includes surface faulting, ground shaking, landslides, liquefaction, tectonic deformation, tsunamis, and seiches; each of these terms is defined below:

- *Surface faulting*: Displacement that reaches the earth's surface during a slip along a fault. Commonly occurs with shallow earthquakes—those with 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 a 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 the wet sand near the water at the beach. Earthquake shaking can cause this effect. Liquefaction susceptibility is determined by the geological history, depositional setting, and topographic position of the soil (Stanford 2003). Liquefaction effects may occur along the shorelines of the ocean, rivers, and lakes and they can also happen in low-lying areas away from water bodies in locations where the ground water is near the earth's surface.
- *Tectonic Deformation*: A change in the original shape of a material caused by stress and strain.
- *Tsunami*: A sea wave of local or distant origin that results from large-scale seafloor displacements associated with large earthquakes, major sub-marine slides, or exploding volcanic islands.
- *Seiche*: The sloshing of a closed body of water, such as a lake or bay, from earthquake shaking (USGS 2012a).

Extent

An earthquake's magnitude and intensity are used to describe the size and severity of the event. Magnitude describes the size at the focus of an earthquake and intensity describes the overall felt severity of shaking during the event. The earthquake's magnitude is a measure of the energy released at the source of the earthquake and is expressed by ratings on the Richter scale and/or the moment magnitude scale. The Richter Scale measures magnitude of earthquakes and has no upper limit; however, it is not used to express damage (USGS 2014). Table

5.4.1-1 presents the Richter scale magnitudes and corresponding earthquake effects. The moment magnitude scale (MMS) is used to describe the size of an earthquake. It is based on the seismic moment and is applicable to all sizes of earthquakes (USGS 2012). It is used by seismologists to measure the size of earthquakes in terms of the energy released. The Richter Scale is not commonly used anymore, as it has been replaced by the MMS which is a more accurate measure of the earthquake size (USGS 2014). The Richter Scale is described below.

Table 5.4.1-1. Richter Magnitude Scale

Richter Magnitude	Earthquake Effects
2.5 or less	Usually not felt, but can be recorded by seismograph
2.5 to 5.4	Often felt, but causes only minor damage
5.5 to 6.0	Slight damage to buildings and other structures
6.1 to 6.9	May cause a lot of damage in very populated areas
7.0 to 7.9	Major earthquake; serious damage
8.0 or greater	Great earthquake; can totally destroy communities near the epicenter

Source: Michigan Tech University, Date Unknown

The intensity of an earthquake is based on the observed effects of ground shaking on people, buildings, and natural features, and varies with location. The Modified Mercalli (MMI) scale expresses intensity of an earthquake and describes how strong a shock was felt at a particular location in values. Table 5.4.1-2 summarizes earthquake intensity as expressed by the Modified Mercalli scale. Table 5.4.1-3 displays the MMI scale and its relationship to the areas Peak Ground Acceleration (PGA).

Table 5.4.1-2. 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 motor cars may rock slightly. Vibrations 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 motor cars 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	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	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	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	Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations. Rails bent.

Source: USGS 2014

Table 5.4.1-3. Modified Mercalli Intensity 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
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

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 2011). Damage levels experienced in an earthquake vary with the intensity of ground shaking and with the seismic capacity of structures, as noted in Table 5.4.1-4.

Table 5.4.1-4. 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.

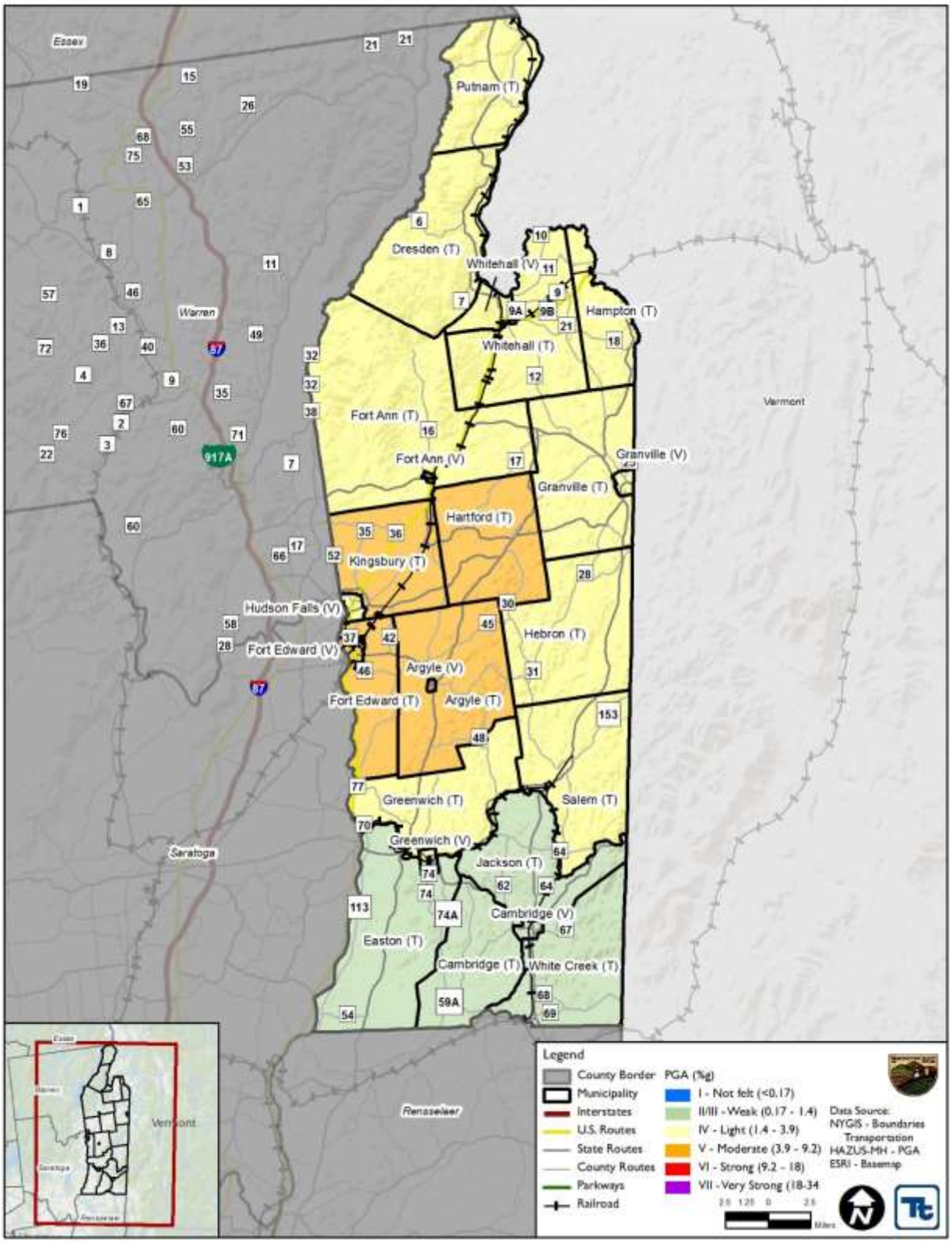
Source: NJOEM 2011
Note: %g Peak Ground Acceleration

National maps of earthquake shaking hazards have been produced since 1948. They provide information essential to creating and updating the seismic design requirements for building codes, insurance rate structures, earthquake loss studies, retrofit priorities and land use planning used in the U.S. Scientists frequently revise these maps to reflect new information and knowledge. Buildings, bridges, highways and utilities built to meet modern seismic design requirements are typically able to withstand earthquakes better, with less damages and disruption. After thorough review of the studies, professional organizations of engineers update the seismic-risk maps and seismic design requirements contained in building codes (Brown et al., 2001).

The USGS updated the National Seismic Hazard Maps in 2014, which superseded the 2008 maps. New seismic, geologic, and geodetic information on earthquake rates and associated ground shaking were incorporated into these revised maps. The 2014 map represents the best available data as determined by the USGS. According to the data, Washington County has a PGA between 3%g and 5%g (USGS 2014). The 2014 PGA map can be found at http://earthquake.usgs.gov/hazards/products/conterminous/2014/2014pga10pct.pdf.

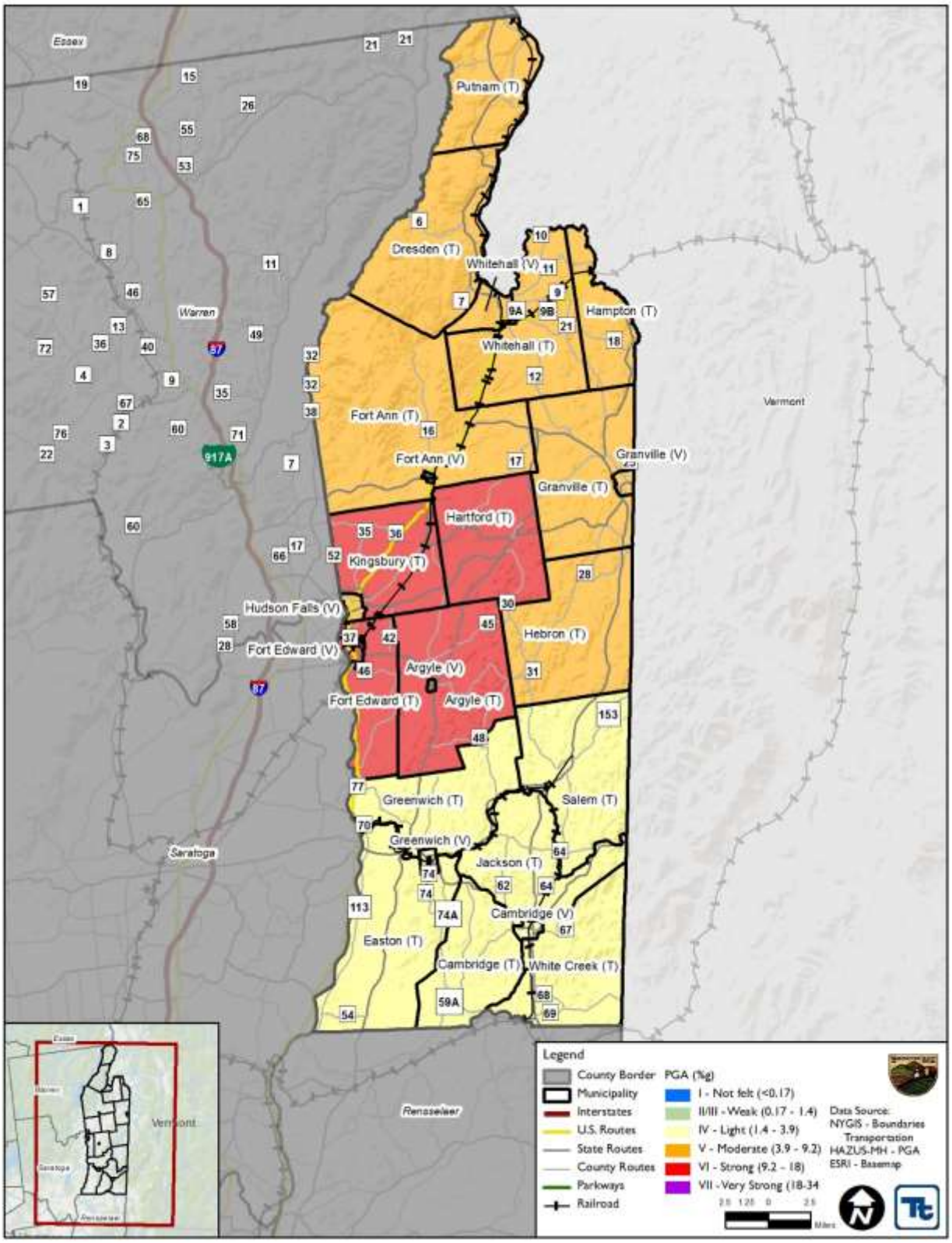
A probabilistic assessment was conducted for the 100-, 500- and 2,500-year mean return periods (MRP) in HAZUS-MH 2.2 to analyze the earthquake hazard for Washington County. The HAZUS analysis evaluates the statistical likelihood that a specific event will occur and what consequences will occur. Figure 5.4.1-1 through Figure 5.4.1-3 illustrates the geographic distribution of PGA (*g*) across the County or 100-, 500- and 2,500-year MRP events by Census-tract.

Figure 5.4.1-1. Peak Ground Acceleration 100-Year Mean Return Period for Washington County



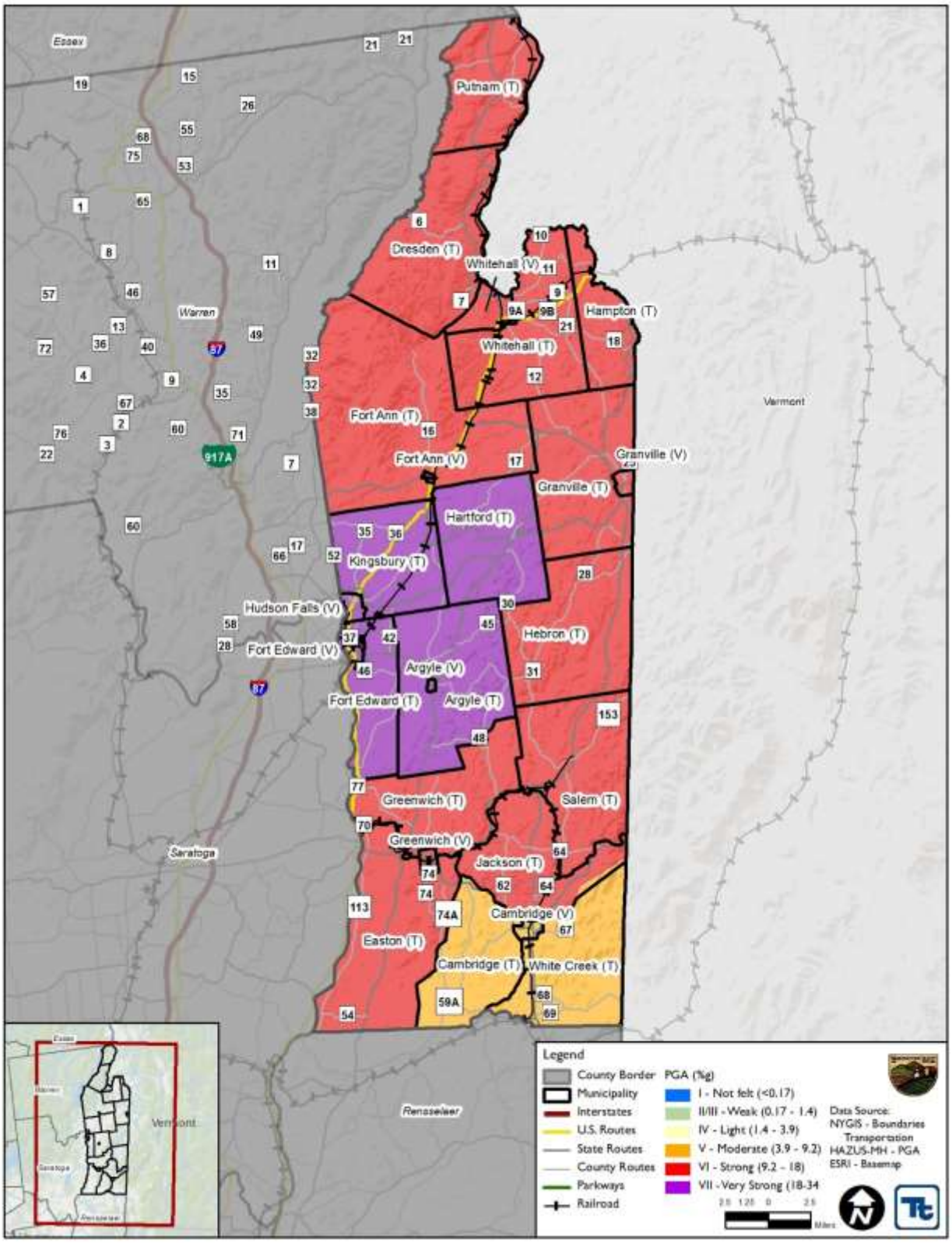
Source: HAZUS-MH 3.0
Note: The peak ground acceleration for the 100-year MRP is 1.35 to 4.05%g

Figure 5.4.1-2. Peak Ground Acceleration 500-Year Mean Return Period for Washington County



Source: HAZUS-MH 3.0
Note: The peak ground acceleration for the 500-year MRP is 3.62 to 11.55%g

Figure 5.4.1-3. Peak Ground Acceleration 2,500-Year Mean Return Period for Washington County



Source: HAZUS-MH 3.0
Note: The peak ground acceleration for the 2500-year MRP is 8.82 to 29.13%g

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. 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 A to E, as noted in Table 5.4.1-5, 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 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 2014).

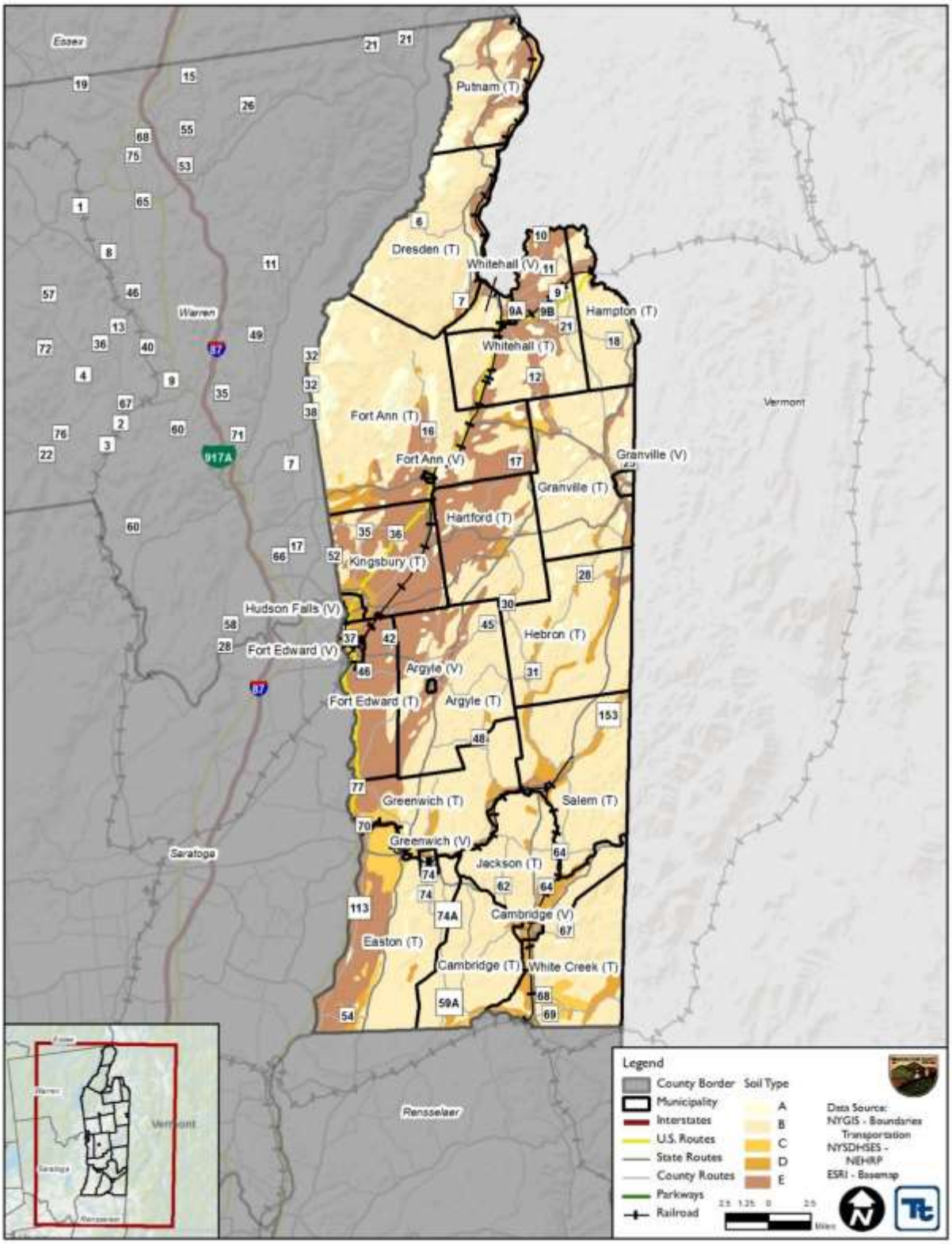
Table 5.4.1-5. NEHRP Soil Classifications

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 5.4.1-4 illustrates the NEHRP soils located throughout Washington County. The data was available from the NYS DHSES. The available NEHRP soils information is incorporated into the HAZUS-MH earthquake model for the risk assessment (discussed in further detail later in this section). According to this figure, Washington County is predominately underlain by type A and B soils. However, there are bands of Class E soils that run diagonally through the County, southwest to northeast. There are also small bands of Class D soils throughout the County. Areas underlain by Class D and E experience stronger shaking and may see larger impacts from earthquakes. As discussed later in this profile, 27.3% of the County's land area is classified as "D" and "E" soil types, putting those areas underlain by Class D and E at higher risk to the impacts of earthquake. The municipalities of Kingsbury (T), Hudson Falls (V), Fort Edward (T), Fort Edward (V), and Hartford (T) have the largest number of people exposed to Class D and E soils. Overall, 32,501 people in the County are exposed to Class D and E soils while the remaining population, 30,715 people, are exposed to Class A through C soils.

Figure 5.4.1-4. NEHRP Soils in Washington County



Source: *NYSDHSES, 2014*

Note: *Washington County contains primarily B and A soil types.*

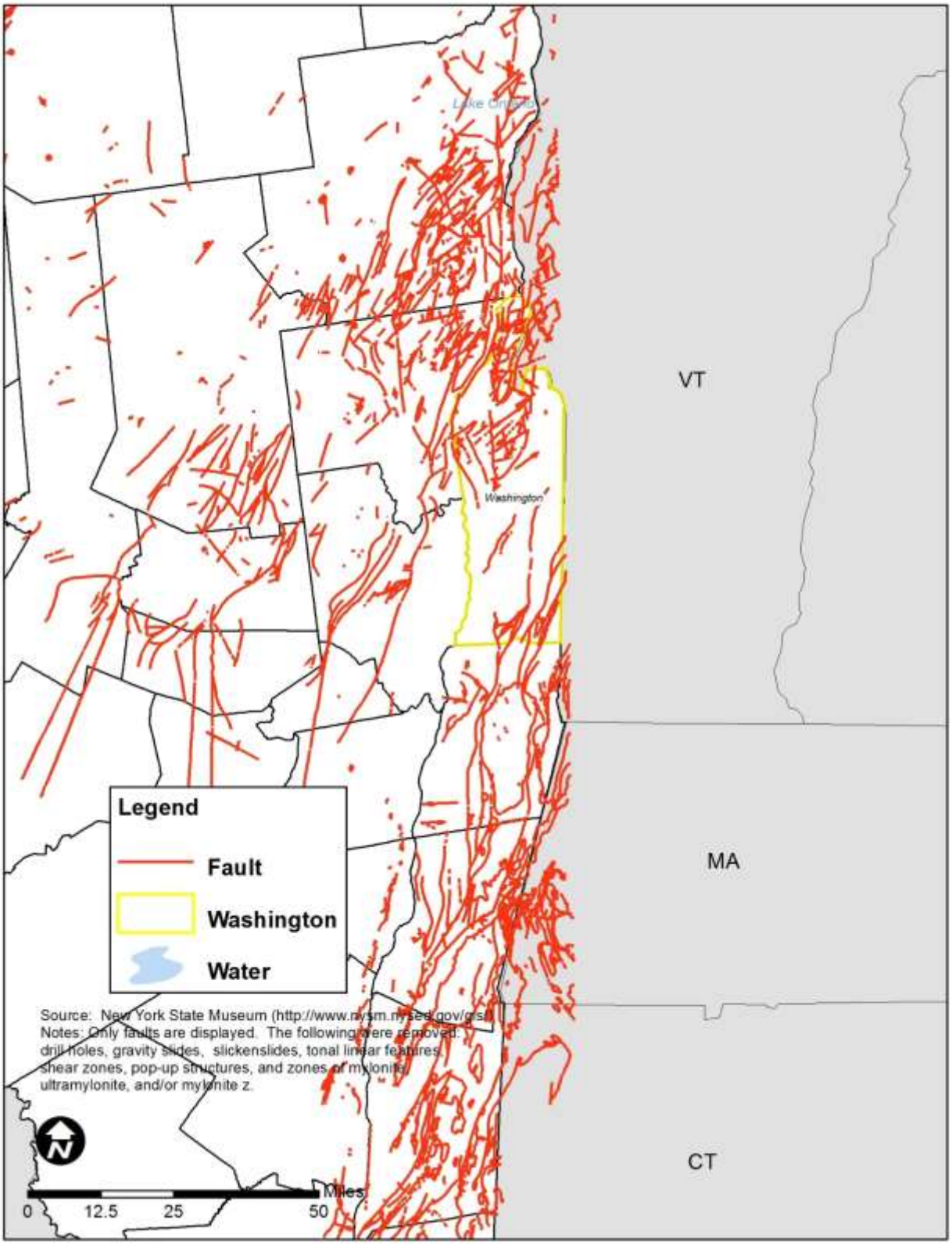
Location

As noted in the 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 floods and hurricanes have occurred more recently than a major earthquake event (NYS DHSES 2011). However, the potential for earthquakes exists across all of New York State and the entire northeastern U.S. 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 et al., 2003).

There are three general regions in New York State that have a higher seismic risk compared to 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 (includes Washington County); 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 has 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 and Witte 2015). Movement can take place at faults and cause an earthquake. There are numerous faults throughout New York State. Figure 5.4.1-5 illustrates the faults relative to Washington County (New York State Museum 2012). According to this figure, there are numerous fault lines that run throughout and surrounding the County.

Figure 5.4.1-5. Faults in Washington County

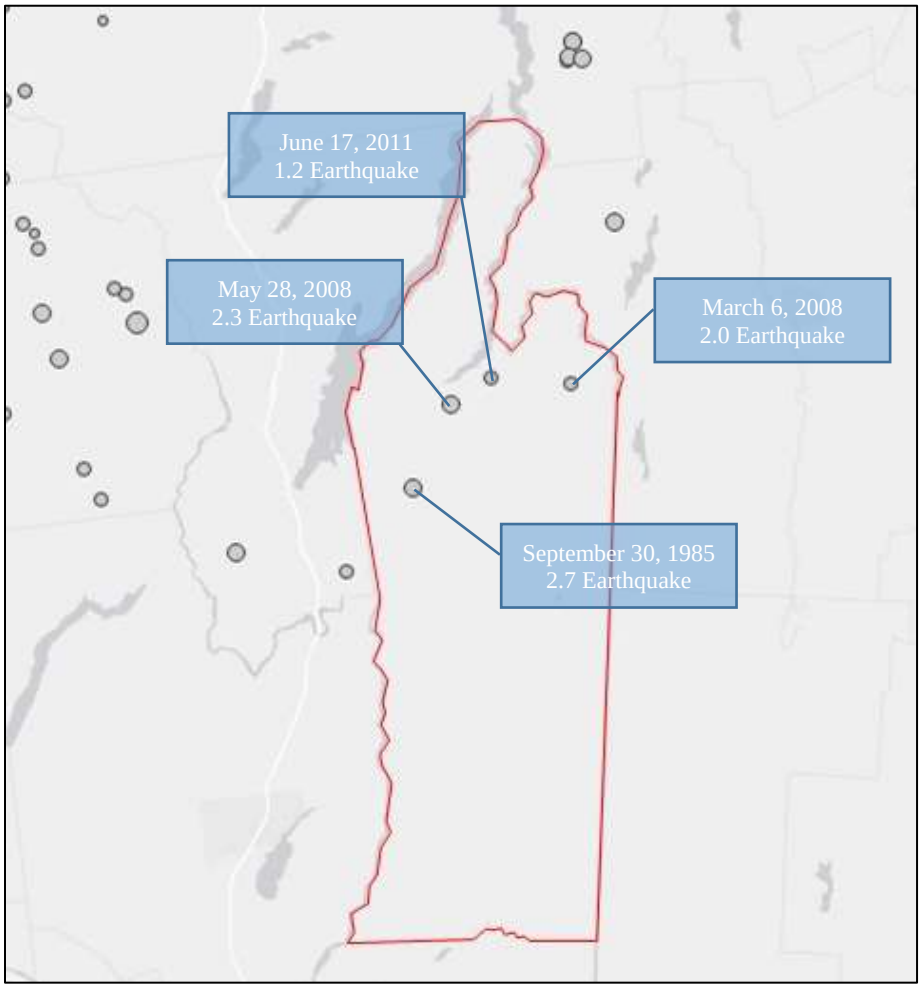


Source: New York State Museum 2012

The Lamont-Doherty Cooperative Seismographic Network (LCSN) monitors earthquakes that occur primarily in the northeastern United States. The goal of the project is 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 52 seismographic stations in the following seven states: Connecticut, Delaware, Maryland, New Jersey, New York, Pennsylvania, and Vermont. There are no seismic stations in Washington County; however, there are several within the vicinity of the County (LCSN 2014). 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 5.4.1-6 illustrates historic earthquake epicenters in and surrounding Washington County between 1950 and 2016. According to this figure, there are have been four earthquakes with epicenters in Washington County (September 1985, March 2008, May 2008, and June 2011). In addition to these earthquakes in Washington County, there have been numerous events originating outside of New York State that have been felt within the State. 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 (NYS DHSES 2014). For details regarding these events, please refer to Table 5.4.1-6.

Figure 5.4.1-6. Earthquake Epicenters in Washington County and the Surrounding Area, 1950 – 2016



Source: USGS 2016
Note: Washington County is outlined in red.

Previous Occurrences and Losses

Many sources provided historical information regarding previous occurrences and losses associated with earthquakes throughout New York State. Therefore, with so many sources reviewed for the purpose of this HMP, loss and impact information for many events could vary depending on the sources. According to the New York State 2014 HMP, between 1973 and 2012, 189 earthquakes were epicentered in New York State. Of those 189 earthquakes, two were reported to have epicenters in Washington County. USGS data covers a longer time period both before and after the reporting period displayed by the New York State HMP. Between 1950 and 2016, four earthquakes were reported to have epicenters in Washington County.

Between 1954 and 2016, New York State was included in one earthquake-related major disaster (DR) or emergency (EM) declaration. Generally, these disasters cover a wide region of the State; therefore, they may have impacted many counties. However, not all counties were included in the disaster declaration. Washington County was included in the disaster declaration (DR-1415) for an earthquake that occurred on April 20, 2002 (FEMA 2016).

For this HMP update, known earthquakes events that have impacted New York State and Washington County between 2002 and 2016 are identified in Table 5.4.1-6. Many sources were researched for historical information regarding earthquake events in Washington County; therefore, Table 5.4.1-6 may not include all earthquake events that have impacted the County.

Table 5.4.1-6. Earthquake Events Impacting Washington County Between 2002 and 2016

Dates of Event	Event Type	Location	FEMA Declaration Number	County Designated?	Losses / Impacts
April 20, 2002	Earthquake 5.1	Au Sable Forks, NY (Clinton County)	DR-1415	Yes	Largest earthquake to hit New York State in 20 years. People felt the earthquake from Washington, D.C. to Bangor, Maine. This event was epicentered in Au Sable Forks, New York (Clinton County) and caused widespread light to moderate damage in the northeast portion of the State. The State had approximately $2 million in eligible damages. Washington County reported minimal damage.
March 6, 2008	Earthquake 2.0	Town of Whitehall, NY	N/A	N/A	No reference and/or no damage reported.
May 28, 2008	Earthquake 2.3	Village of Fort Ann, NY	N/A	N/A	No reference and/or no damage reported.
February 1, 2010	Earthquake 1.5	Queensbury, NY (Warren County)	N/A	N/A	No reference and/or no damage reported.
June 23, 2010	Earthquake 5.3	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 Washington County, New York. Residents of Cambridge, Fort Ann, Fort Edward, Granville, Greenwich, Hartford, Hudson Falls, Salem and Whitehall reported having felt it. There were no reports of injuries or damages in the County.
June 17, 2011	Earthquake 1.2	Town of Whitehall, NY	N/A	N/A	No reference and/or no damage reported.
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 23rd 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. In Washington County, many residents reported having felt the quake.
August 25, 2013	Earthquake 2.7	6 miles S/SE of Warrensburg, NY (Warren County)	N/A	N/A	The USGS confirmed a minor earthquake occurred in the Glens Falls (Warren County) area on the morning of August 25th. The 2.7 earthquake was centered approximately 6 miles south/southeast of Warrensburg (Warren County). There were reports of people having felt the event in Washington County, New York. Residents of Argyle, Fort Ann, Fort Edward, and Whitehall reported having felt it. There were no reports of injuries or damages in the County.

Source(s): *NYS DHSES 2014; USGS 2015; FEMA 2016*
DR *Major Disaster Declaration (FEMA)*
FEMA *Federal Emergency Management Agency*
NY *New York*
USGS *U.S. Geological Survey*

Probability of Future Events

Earthquake hazard maps illustrate the distribution of earthquake shaking levels that have a certain probability of occurring over a given time period. According to the USGS, in 2014 (the date of the most recent analysis), Washington County had a PGA of 3-5%g for earthquakes with a 10-percent probability of occurring within 50 years.

According to the 2014 NYS HMP, using historical information to predict future earthquake occurrences, it was determined that New York State can expect damaging earthquake events on average only once in 22 years. The frequency of damaging earthquakes within and adjacent to New York State has been relatively low. However, the fact that large, damaging earthquakes have occurred in the past, combined with the State's high population density and number of older buildings, suggests that many people are at risk from a damaging earthquake in New York State (NYS DHSES 2014).

According to the USGS, Washington County has experienced four earthquakes with epicenters in the County. However, numerous earthquakes with epicenters outside of Washington County have also directly and indirectly impacted the County. The table below shows these statistics, as well as the annual average number of events and the percent chance of earthquakes occurring in Washington County in future years (USGS 2016).

Table 5.4.1-7. Probability of Future Occurrence of Earthquake Events

Hazard Type	Number of Occurrences Between 1950 and 2016	Rate of Occurrence	Recurrence Interval (in years)	Probability of event Occurring in Any Given Year	% Chance of Occurring in Any Given Year
Earthquake with epicenter inside County	4	0.06	16.50	0.06	6.06
Earthquakes within the vicinity of the County*	32	0.49	2.06	0.48	48.48

Source: USGS 2016
** Earthquakes to occur within a 50-mile radius of Washington County*

Earlier in this section, the identified hazards of concern for Washington County were ranked. NYS DHSES conducts a similar ranking process for hazards that affect the State. The probability of occurrence, or likelihood of the event, is one parameter used for ranking hazards. Based on historical records and input from the Planning Committee, the probability of occurrence for earthquakes in the County is considered 'occasional' (likely to occur within 100 years, as presented in Table 5.3-3). It is anticipated that the County will experience indirect impacts from earthquakes that may affect the general building stock, local economy and may induce secondary hazards such ignite fires and cause utility failure.

Impact of Climate Change

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.

5.4.1.2 Vulnerability Assessment

To understand risk, a community must evaluate what assets are exposed or vulnerable in the identified hazard area. For the earthquake hazard, the entire County has been identified as exposed. Therefore, all assets in Washington County (population, structures, critical facilities and lifelines), as described in Section 4 - County Profile, are potentially vulnerable. The following section includes an evaluation and estimation of the potential impact of the earthquake hazard on Washington County including the following:

- Overview of vulnerability
- Data and methodology used for the evaluation
- Impact on: (1) life, health and safety of residents, (2) general building stock, (3) critical facilities, (4) economy, and (5) future growth and development
- Change of vulnerability as compared to that presented in the 2010 Washington County Hazard Mitigation Plan
- Effect of climate change on vulnerability
- Further data collections that will assist understanding this hazard over time

Overview of Vulnerability

Earthquakes usually occur without warning and can impact areas a great distance from their point of origin. The extent of damage depends on the density of population and building and infrastructure construction in the area shaken by the quake. Some areas may be more vulnerable than others based on soil type, the age of the buildings and building codes in place. Historically, the Building Officials Code Administration (BOCA) used in the Northeast was developed to address local concerns including heavy snow loads and wind, compounding for potential damage; seismic requirements for design criteria are not as stringent compared to the west coast's reliance on the more seismically-focused Uniform Building Code). As such, a smaller earthquake in the Northeast can cause more structural damage than if it occurred out west.

The entire population and general building stock inventory of the County is at risk of being damaged or experiencing losses due to impacts of an earthquake. Potential losses associated with the earth shaking were calculated for Washington County for three probabilistic earthquake events, the 100-year, 500- and 2,500-year mean return periods (MRP). The impacts on population, existing structures, critical facilities and the economy within Washington County are presented below, following a summary of the data and methodology used.

Data and Methodology

A probabilistic assessment was conducted for Washington County for the 100-, 500- and 2,500-year MRPs through a Level 2 analysis in HAZUS-MH 3.0 to analyze the earthquake hazard and provide a range of loss estimates for Washington County. 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. According to the New York City Area Consortium for Earthquake Loss Mitigation (NYCEM), probabilistic estimates are best for urban planning, land use, zoning and seismic building code regulations (NYCEM, 2003). The default assumption is a magnitude 7 earthquake for all return periods. In addition, an annualized loss run was also conducted in HAZUS-MH 3.0 to estimate the annualized general building stock dollar losses for Washington County.

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 NEHRP 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.

As illustrated in Figure 5.4.1-4 earlier in this section, Washington County is made up primarily of very hard rock (A) and rock or firm ground (B); areas of dense soil/soft rock (C), stiff/soft soils (D), and soft soils (E) are located primarily in throughout the eastern and southeastern areas of the County. When unchanged, HAZUS-MH default soil types are class "D". However, for this analysis HAZUS-MH was updated with the specific NEHRP soil types for Washington County as provided by NYS DHSES.

In addition to the probabilistic scenarios mentioned, an annualized loss run was conducted in HAZUS 3.0 to estimate the annualized general building stock dollar losses for the County. The annualized loss methodology combines the estimated losses associated with ground shaking for eight return periods: 100, 250, 500, 750, 1000, 1500, 2000, 2500-year, which are based on values from the USGS seismic probabilistic curves. Annualized losses are useful for mitigation planning because they provide a baseline upon which to 1) compare the risk of one hazard across multiple jurisdictions and 2) compare the degree of risk of all hazards for each participating jurisdiction.

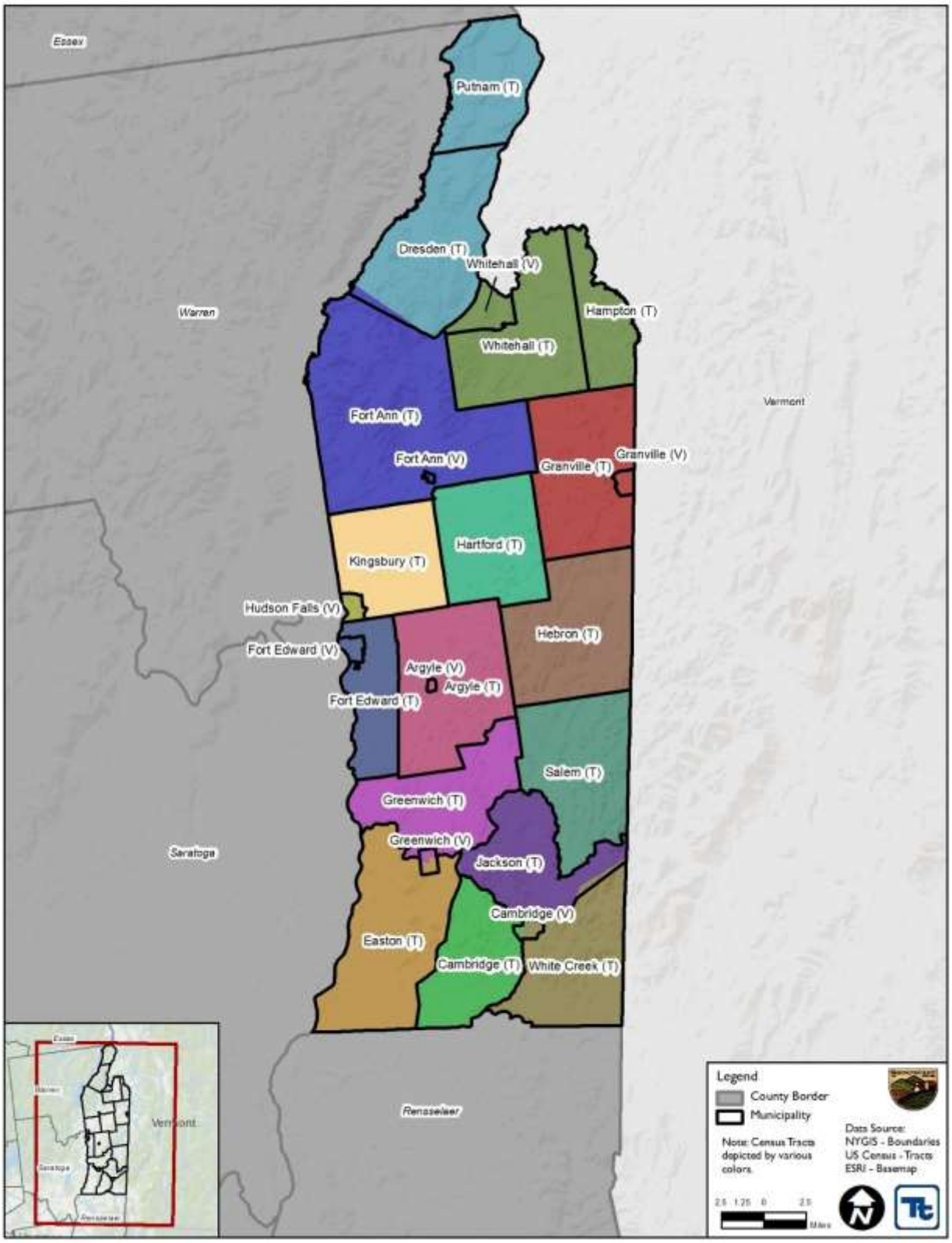
As noted in the HAZUS-MH Earthquake User Manual '*Uncertainties are inherent in any loss estimation methodology. They arise in part from incomplete scientific knowledge concerning earthquakes and their effects upon buildings and facilities. They also result from the approximations and simplifications that are necessary for comprehensive analyses. Incomplete or inaccurate inventories of the built environment, demographics and economic parameters add to the uncertainty. These factors can result in a range of uncertainly in loss estimates produced by the HAZUS Earthquake Model, possibly at best a factor of two or more*.' However, HAZUS' potential loss estimates are acceptable for the purposes of this HMP.

The occupancy classes available in HAZUS-MH 3.1 were condensed into the following categories (residential, commercial, industrial, agricultural, religious, government, and educational) to facilitate the analysis and the presentation of results. Residential loss estimates address both multi-family and single-family dwellings. Impacts to critical facilities and utilities were also evaluated.

Data used to assess this hazard include data available in the HAZUS-MH 3.1 earthquake model, USGS data, data provided by NYS DHSES, professional knowledge, and information provided by the County's Planning Committee.

HAZUS-MH 3.1 generates results at the census-tract level. The boundaries of the census tracts are not always coincident with the town and village boundaries in Washington County. The results in the tables below are presented for the census tracts with the associated towns and villages listed for each tract. Figure 5.4.1-7 shows the spatial relationship between the census tracts and the town and village boundaries.

Figure 5.4.1-7. Washington County Census Tracts



Source: HAZUS-MH 3.0

Impact on Life, Health and Safety

Overall, the entire population of Washington County is exposed to the earthquake hazard event. The impact of earthquakes on life, health and safety is dependent upon the severity of the event. Risk to public safety and loss of life from an earthquake in Washington County is minimal with higher risk occurring in buildings as a result of damage to the structure, or people walking below building ornamentation and chimneys that may be shaken loose and fall as a result of the quake. Additionally, populations downstream of a dam may be susceptible to flooding as a result of dam failure if the dam is damaged during the event.

Populations considered most vulnerable are those located in/near the built environment, particularly near unreinforced masonry construction. In addition, the vulnerable population includes the elderly (persons over the age of 65) and individuals living below the Census poverty threshold. These 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. Refer to Section 4 - County Profile for the vulnerable population statistics in Washington County.

An exposure analysis was performed using the NEHRP soils data and the 2010 Census population data. The sum of the population by Census Block within the NEHRP class "D" and "E" soil types were calculated and summarized in Table 5.4.1-8 below. Overall, although only 27.3% of the county's land area is classified as "D" and "E" soil types, because these soils lie primarily under the population centers of Kingsbury (T), Hudson Falls (V), Fort Edward (T), Fort Edward (V), and Hartford (T). Approximately 51.4% of the County's population is located on these two classes of soil.

Table 5.4.1-8. Approximate Population within NEHRP 'D" and 'E' Soils

Municipality	Total Population (2010 Census)	Population NEHRP Class "D" and "E" Soils	
		Number	%
Argyle (T)	3,476	840	24.2%
Argyle (V)	306	162	52.9%
Cambridge (T)	1,549	110	7.1%
Cambridge (V)	1,870	1,836	98.2%
Dresden (T)	652	126	19.3%
Easton (T)	2,128	426	20.0%
Fort Ann (T)	5,706	3,010	52.8%
Fort Ann (V)	484	484	100.0%
Fort Edward (T)	2,996	2,365	78.9%
Fort Edward (V)	3,375	3,375	100.0%
Granville (T)	4,126	545	13.2%
Granville (V)	2,543	1,192	46.9%
Greenwich (T)	3,373	711	21.1%
Greenwich (V)	1,777	754	42.4%
Hampton (T)	938	41	4.4%
Hartford (T)	2,269	726	32.0%
Hebron (T)	1,853	162	8.7%
Hudson Falls (V)	7,281	7,204	98.9%

Table 5.4.1-8. Approximate Population within NEHRP 'D" and 'E' Soils

Municipality	Total Population (2010 Census)	Population NEHRP Class "D" and "E" Soils	
		Number	%
Jackson (T)	1,800	320	17.8%
Kingsbury (T)	5,390	4,656	86.4%
Putnam (T)	609	157	25.8%
Salem (T)	2,715	901	33.2%
White Creek (T)	1,958	554	28.3%
Whitehall (T)	1,428	684	47.9%
Whitehall (V)	2,614	1,160	44.4%
Washington County	**63,216**	**32,501**	**51.4%**

Sources: NYS DHSES 2014; U.S. Census 2010

Residents may be displaced or require temporary to long-term sheltering due to an earthquake event. 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. Table 5.4.1-9 summarizes the households HAZUS-MH 3.1 estimates will be displaced and population that may require short-term sheltering as a result of the 100-, 500- and 2,500-year MRP earthquake events.

Table 5.4.1-9. Summary of Estimated Sheltering Needs for Washington County

Scenario	Displaced Households	Persons Seeking Short-Term Shelter
100-Year	2	1
500-Year	19	11
2,500-Year	159	92

Source: HAZUS-MH 3.0

According to the 1999-2003 NYCEM Summary Report (*Earthquake Risks and Mitigation in the New York / New Jersey / Connecticut Region*), there is a strong correlation between structural building damage and the 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., and peak commute time is 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 keep 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. There are no injuries or casualties estimated for the 100-year event.

Table 5.4.1-10 and Table 5.4.1-11 summarize the County-wide injuries and casualties estimated for the 500- and 2,500-year MRP earthquake event. For the 100-year MRP earthquake event, there is 1 estimated injury at 2 AM, 2 PM, and 5 PM.

Table 5.4.1-10. Estimated Number of Injuries and Casualties from the 500-Year MRP Earthquake Event.

Level of Severity	Time of Day		
	2:00 AM	2:00 PM	5:00 PM
Injuries	6	1	0
Hospitalization	7	1	0
Casualties	5	1	0

Source: HAZUS-MH 3.1

Table 5.4.1-11. Estimated Number of Injuries and Casualties from the 2,500-Year MRP Earthquake Event

Level of Severity	Time of Day		
	2:00 AM	2:00 PM	5:00 PM
Injuries	40	63	45
Hospitalization	9	15	10
Casualties	2	3	2

Source: HAZUS-MH 3.1

Impact on General Building Stock

After considering the population vulnerable to the earthquake hazard, the value of general building stock exposed to and damaged by 100-, 500- and 2,500-year MRP earthquake events was evaluated. In addition, annualized losses were calculated using HAZUS-MH 3.0. The entire County's general building stock is considered at risk and exposed to this hazard.

As stated earlier, soft soils (NEHRP soil classed D and E) can amplify ground shaking to damaging levels even in a moderate earthquake (NYCEM, 2003). Therefore, buildings located on NEHRP soil classes D and E have an increased risk of damages from an earthquake. Table 5.4.1-12 summarizes the approximate number and value of buildings in Washington County on the approximately located NEHRP soils classed D and E. Numbers were calculated using 2010 census blocks, with HAZUS demographics, whose centroids fall within areas of D and E soils.

Table 5.4.1-12. Number and Improvement Value of Buildings within NEHRP 'D' and 'E' Soils

Municipality	Total Number of Buildings	Total Improvement (Structure and Contents)	Buildings NEHRP Class "D" and "E" Soils		
			Number	Improvement	% of Total Improvement
Argyle (T)	1,902	$902,641,904	489	$216,850,554	24.0%
Argyle (V)	147	$105,497,653	61	$42,606,224	40.4%
Cambridge (T)	758	$500,184,564	109	$87,239,782	17.4%
Cambridge (V)	961	$1,474,549,125	945	$1,464,699,209	99.3%
Dresden (T)	662	$343,123,687	245	$130,136,799	37.9%
Easton (T)	1,047	$722,166,767	245	$158,337,141	21.9%
Fort Ann (T)	2,109	$1,082,086,973	852	$454,562,060	42.0%
Fort Ann (V)	216	$192,253,336	216	$192,253,336	100.0%
Fort Edward (T)	1,458	$995,655,274	1,175	$843,364,261	84.7%

Table 5.4.1-12. Number and Improvement Value of Buildings within NEHRP 'D' and 'E' Soils

Municipality	Total Number of Buildings	Total Improvement (Structure and Contents)	Buildings NEHRP Class "D" and "E" Soils		
			Number	Improvement	% of Total Improvement
Fort Edward (V)	1,853	$1,308,363,331	1,853	$1,308,363,331	100.0%
Granville (T)	1,928	$1,185,762,623	415	$398,246,896	33.6%
Granville (V)	1,398	$2,347,300,819	629	$1,342,093,225	57.2%
Greenwich (T)	1,693	$1,161,751,834	443	$357,630,926	30.8%
Greenwich (V)	980	$1,504,098,323	549	$1,152,997,125	76.7%
Hampton (T)	544	$241,107,314	46	$19,023,449	7.9%
Hartford (T)	1,092	$1,035,675,130	347	$672,656,782	64.9%
Hebron (T)	1,174	$582,232,167	177	$102,125,065	17.5%
Hudson Falls (V)	3,792	$7,181,239,900	3,764	$7,165,673,000	99.8%
Jackson (T)	1,278	$640,798,344	338	$155,492,318	24.3%
Kingsbury (T)	2,688	$1,838,974,710	2,162	$1,586,168,779	86.3%
Putnam (T)	770	$422,773,863	227	$130,553,133	30.9%
Salem (T)	1,457	$984,630,612	499	$438,882,808	44.6%
White Creek (T)	969	$804,201,102	376	$205,707,120	25.6%
Whitehall (T)	757	$446,240,581	437	$292,786,221	65.6%
Whitehall (V)	1,660	$1,446,746,007	714	$728,096,316	50.3%
Washington County	**33,293**	**$29,450,055,943**	**17,313**	**$19,646,545,861**	**66.7%**

Sources: NYS DHSES 2014, Washington County, HAZUS 3.0
Note: RCV is the estimated replacement cost value of both structure and contents.

According to NYCEM, where earthquake risks and mitigation were evaluated in the New York, New Jersey and Connecticut region, most damage and loss caused by an earthquake is directly or indirectly the result of ground shaking (NYCEM, 2003). NYCEM indicates there is a strong correlation between PGA and the damage a building might experience. The HAZUS-MH model is based on the best available earthquake science and aligns with these statements. HAZUS-MH 3.0 methodology and model were used to analyze the earthquake hazard for the general building stock for Washington County. See Figure 5.4.1-1 through Figure 5.4.1-3 earlier in this profile which illustrate the geographic distribution of PGA (g) across the County for 100-, 500- and 2,500-year MRP events at the Census-Tract level.

In addition, according to NYCEM, a building's construction determines how well it can withstand the force of an earthquake. The NYCEM report indicates that un-reinforced 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 contribute to a building's capability to withstand an earthquake's force include its age, number of stories and quality of construction. HAZUS-MH considers building construction and the age of buildings as part of the analysis.

Potential building damage was evaluated by HAZUS-MH 3.0 across the following damage categories (none, slight, moderate, extensive and complete). Table 5.4.1-13 provides definitions of these five categories of damage for a light wood-framed building; definitions for other building types are included in HAZUS-MH technical manual documentation. General building stock damage for these damage categories by occupancy class and building type on a County-wide basis is summarized below for the 100-, 500- and 2,500-year events.

Table 5.4.1-13. 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.

Source: HAZUS-MH Technical Manual

Table 5.4.1-14 shows the estimated buildings damaged by occupancy class for both the 100- and 500-year MRP earthquake events. Table 5.4.1-13 shows the estimated buildings damaged by occupancy class for the 2,500-year MRP earthquake event.

Table 5.4.1-16 and Table 5.4.1-17 summarize the damage estimated for the 100-, 500- and 2,500-year MRP earthquake events by municipality. Damage loss estimates include structural and non-structural damage to the building and loss of contents.

Table 5.4.1-14. Estimated Buildings Damaged by General Occupancy for 100-year and 500-year MRP Earthquake Events

Category	Average Damage State									
	100-Year MRP					500-Year MRP				
	None	Slight	Moderate	Extensive	Complete	None	Slight	Moderate	Extensive	Complete
Residential	29.972	130	34	3	0	28,808	987	300	40	5
Commercial	1.575	13	4	0	0	1,472	79	35	6	1
Industrial	360	3	1	0	0	333	19	10	2	0
Agriculture, Education, Government, Religion	1,188	7	1	0	0	1,127	48	18	3	0

Source: HAZUS-MH 3.1

Table 5.4.1-15. Estimated Buildings Damaged by General Occupancy for 2,500-year MRP Earthquake Events

Category	Average Damage State				
	2,500-Year MRP				
	None	Slight	Moderate	Extensive	Complete
Residential	25,091	3,274	1,368	342	64
Commercial	1,136	203	176	63	13
Industrial	249	44	47	20	5
Agriculture, Education, Government, Religion	918	136	103	33	7

Source: HAZUS-MH 3.1

Table 5.4.1-16. Estimated Value (Building and Contents) Damaged by the 100-, 500- and 2,500-Year MRP Earthquake Events

Municipality	Total Improvement (Structure and Contents)	Estimated Total Damages*				Percent of Total Building and Contents **			
		Annualized Loss	100-Year	500-Year	2,500-Year	Annualized Loss	100-Year	500-Year	2,500-Year
Argyle (T)-Argyle (V)	$1,009,116,618	$534,556	$3,806,001	$48,024,634	$331,519,714	<1%	<1%	4.8%	32.9%
Cambridge (T)-Cambridge (V)	$817,676,616	$23,700	$0	$2,100,840	$21,010,698	<1%	0.0%	<1%	2.6%
Dresden (T)-Putnam (T)	$765,897,550	$35,643	$0	$2,844,861	$33,492,916	<1%	0.0%	<1%	4.4%
Easton (T)-Greenwich (V)	$781,915,398	$23,849	$0	$2,019,966	$21,660,795	<1%	0.0%	<1%	2.8%

Table 5.4.1-16. Estimated Value (Building and Contents) Damaged by the 100-, 500- and 2,500-Year MRP Earthquake Events

Municipality	Total Improvement (Structure and Contents)	Estimated Total Damages*				Percent of Total Building and Contents **			
		Annualized Loss	100-Year	500-Year	2,500-Year	Annualized Loss	100-Year	500-Year	2,500-Year
Fort Ann (T)-Fort Ann (V)	$1,274,675,942	$47,826	$0	$3,877,453	$44,550,107	<1%	0.0%	<1%	3.5%
Fort Edward (T)-Fort Edward (V)	$2,289,503,566	$1,433,060	$9,062,247	$118,968,187	$866,945,901	<1%	<1%	5.2%	37.9%
Granville (T)-Granville (V)	$3,533,063,442	$148,244	$0	$12,646,196	$132,879,223	<1%	0.0%	<1%	3.8%
Greenwich (T)-Greenwich (V)	$2,607,101,091	$93,278	$0	$8,059,506	$82,837,817	<1%	0.0%	<1%	3.2%
Hampton (T)-Whitehall (T)-Whitehall (V)	$2,134,093,902	$82,867	$0	$6,814,745	$76,340,720	<1%	0.0%	<1%	3.6%
Hartford (T)	$1,035,339,498	$747,256	$4,591,975	$58,329,243	$437,733,416	<1%	<1%	5.6%	42.3%
Hebron (T)	$582,232,167	$19,779	$0	$1,774,192	$17,310,675	<1%	0.0%	<1%	3.0%
Hudson Falls (V)	$7,193,825,182	$1,854,801	$11,236,119	$163,147,459	$1,248,887,933	<1%	<1%	2.3%	17.4%
Jackson (T)	$641,133,977	$19,715	$0	$1,741,862	$17,280,275	<1%	0.0%	<1%	2.7%
Kingsbury (T)	$1,839,927,405	$1,249,732	$7,963,471	$104,697,088	$757,900,201	<1%	<1%	5.7%	41.2%
Salem (T)	$983,778,525	$30,757	$0	$2,740,491	$26,747,483	<1%	0.0%	<1%	2.7%
White Creek (T)-Cambridge (V)	$1,960,775,065	$60,451	$0	$5,588,603	$51,707,739	<1%	0.0%	<1%	2.6%
Washington County	**$29,450,055,943**	**$6,405,514**	**$36,659,812**	**$543,375,325**	**$4,168,805,613**	**<1%**	**<1%**	**1.8%**	**14.2%**

Source: HAZUS-MH 3.0

Table 5.4.1-17. Estimated Value (Building and Contents) Damaged by the 100-, 500-, and 2,500-Year MRP Earthquake Events

Municipality	Total Improvement (Building and Contents)	Estimated Residential Damage			Estimated Commercial Damage		
		100-Year	500-Year	2,500-Year	100-Year	500-Year	2,500-Year
Argyle (T)-Argyle (V)	$1,009,116,618	$3,004,277	$37,064,822	$242,399,812	$207,295	$2,784,965	$22,874,612
Cambridge (T)-Cambridge (V)	$817,676,616	$0	$1,472,106	$14,214,559	$0	$459,353	$4,964,384
Dresden (T)-Putnam (T)	$765,897,550	$0	$2,552,286	$29,642,354	$0	$82,852	$1,151,480
Easton (T)-Greenwich (V)	$781,915,398	$0	$1,207,728	$12,207,091	$0	$197,105	$2,244,410

Table 5.4.1-17. Estimated Value (Building and Contents) Damaged by the 100-, 500-, and 2,500-Year MRP Earthquake Events

Municipality	Total Improvement (Building and Contents)	Estimated Residential Damage			Estimated Commercial Damage		
		100-Year	500-Year	2,500-Year	100-Year	500-Year	2,500-Year
Fort Ann (T)-Fort Ann (V)	$1,274,675,942	$0	$2,871,623	$32,075,580	$0	$515,207	$6,404,923
Fort Edward (T)-Fort Edward (V)	$2,289,503,566	$5,080,957	$64,214,853	$414,827,349	$2,437,902	$32,712,485	$269,063,600
Granville (T)-Granville (V)	$3,533,063,442	$0	$8,629,516	$86,011,659	$0	$1,526,146	$16,948,242
Greenwich (T)-Greenwich (V)	$2,607,101,091	$0	$6,204,352	$61,755,217	$0	$1,111,699	$12,421,083
Hampton (T)-Whitehall (T)-Whitehall (V)	$2,134,093,902	$0	$4,786,116	$51,587,126	$0	$1,427,899	$17,214,073
Hartford (T)	$1,035,339,498	$1,725,186	$21,208,219	$132,942,961	$140,090	$1,880,317	$15,200,487
Hebron (T)	$582,232,167	$0	$1,574,449	$15,134,953	$0	$59,717	$644,678
Hudson Falls (V)	$7,193,825,182	$10,104,337	$144,978,729	$1,106,599,305	$538,140	$8,465,259	$66,437,352
Jackson (T)	$641,133,977	$0	$1,454,661	$14,080,437	$0	$117,309	$1,318,031
Kingsbury (T)	$1,839,927,405	$5,014,597	$64,436,723	$425,267,688	$1,716,971	$23,135,445	$190,766,888
Salem (T)	$983,778,525	$0	$1,985,415	$18,821,579	$0	$313,388	$3,353,781
White Creek (T)-Cambridge (V)	$1,960,775,065	$0	$2,842,427	$25,630,770	$0	$990,498	$9,727,508
Washington County	**$29,450,055,943**	**$24,929,353**	**$367,484,026**	**$2,683,198,437**	**$5,040,398**	**$75,779,643**	**$640,735,530**

Source: HAZUS-MH 3.0

HAZUS-MH estimated over $36 million in damages to the building stock as a result of the 100-year earthquake event. It is also estimated that there would be over $543 million in damages to buildings in the County as a result of a 500-year earthquake event. This includes structural damage, non-structural damage and loss of contents, representing less than one-percent of the total replacement value for general building stock in Washington County. For a 2,500-year MRP earthquake event, HAZUS-MH estimates over $4 billion, nearly two-percent of the total general building stock replacement value. Residential and commercial buildings account for most of the damage for earthquake events.

Earthquakes can cause secondary hazard events such as fires. HAZUS-MH estimates there will be no ignitions anticipated as a result of the 100-, 500-, and 2,500-year MRP events.

Impact on Critical Facilities

After considering the general building stock exposed to, and damaged by, 100-, 500- and 2,500-year MRP earthquake events, critical facilities were evaluated. All critical facilities (essential facilities, transportation systems, lifeline utility systems, high-potential loss facilities and user-defined facilities) in Washington County are considered exposed and potentially vulnerable to the earthquake hazard. Refer to Subsection 4.4 - Critical Facilities in Section 4 - County Profile of this Plan for a complete inventory of critical facilities in the County.

To estimate critical facility exposure to the potential impacts of an earthquake an exposure analysis was performed using the NEHRP soils data to determine the critical facility's location in relation to these areas. The critical facilities and utilities in the areas were calculated and summarized in Table 5.4.1-18 below.

Table 5.4.1-18. Number of Critical Facilities Located in the NEHRP Soil Class D and E

Municipality	Facility Types																			
	Air	Bank	Communication Tower	Correctional	DPW	EMS	Emergency Operation Center	Fire Station	Government	Hotel	Library	Marina	Medical	Municipal Hall	Parks and Recreation	Police Station	Post Office	Rail Facility	School	Senior Facility
Argyle (T)	1	0	0	0	0	0	0	2	0	0	0	0	1	0	0	0	0	0	0	0
Argyle (V)	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
Cambridge (T)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cambridge (V)	0	1	0	0	1	1	0	1	2	1	1	0	2	2	0	1	1	1	3	3
Dresden (T)	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0
Easton (T)	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Fort Ann (T)	0	0	0	2	1	1	0	1	1	0	0	0	1	0	1	0	1	0	1	0
Fort Ann (V)	0	1	0	0	0	0	0	1	1	1	0	0	0	2	0	0	1	0	0	0
Fort Edward (T)	0	1	1	0	0	1	1	1	4	0	0	0	4	0	0	0	0	0	1	1
Fort Edward (V)	0	1	0	0	0	0	0	1	2	0	0	0	2	1	0	1	1	3	2	0
Granville (T)	0	1	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1	0	1	0
Granville (V)	0	2	0	0	1	0	0	0	2	0	0	0	1	1	0	1	1	0	0	2
Greenwich (T)	0	0	0	0	0	0	0	1	1	0	0	0	1	0	0	1	0	2	0	0
Greenwich (V)	0	3	0	0	0	0	0	1	2	0	1	0	0	2	0	0	1	0	0	0
Hampton (T)	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hartford (T)	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	1	0
Hebron (T)	0	0	0	0	0	0	0	2	2	0	0	0	0	1	0	0	0	0	0	0
Hudson Falls (V)	0	1	2	0	0	0	0	2	3	0	0	0	8	2	0	1	1	0	4	1
Jackson (T)	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Kingsbury (T)	0	2	3	0	0	0	0	1	3	0	0	0	2	0	0	0	0	1	1	0
Putnam (T)	0	0	0	0	0	0	0	1	1	0	0	0	0	1	0	0	1	0	1	0

Table 5.4.1-18. Number of Critical Facilities Located in the NEHRP Soil Class D and E

Municipality	Facility Types																			
	Air	Bank	Communication Tower	Correctional	DPW	EMS	Emergency Operation Center	Fire Station	Government	Hotel	Library	Marina	Medical	Municipal Hall	Parks and Recreation	Police Station	Post Office	Rail Facility	School	Senior Facility
Salem (T)	0	3	0	0	0	1	0	1	2	0	0	0	1	2	0	1	1	2	0	0
White Creek (T)	0	0	1	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
Whitehall (T)	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	2	0	0
Whitehall (V)	0	0	0	0	1	0	0	0	1	0	0	0	1	1	0	1	0	1	0	0
Washington County	**2**	**17**	**9**	**2**	**5**	**4**	**1**	**19**	**32**	**2**	**2**	**1**	**24**	**15**	**1**	**7**	**13**	**13**	**15**	**7**

Source: Washington County; NYS DHSES, 2014

HAZUS-MH 3.1 estimates the probability that critical facilities may sustain damage as a result of 100-, 500- and 2,500-year MRP earthquake events. Additionally, HAZUS-MH estimates percent functionality for each facility days after the event. Table 5.4.1-19 through Table 5.4.1-21 list the percent probability of critical facilities sustaining the damage category as defined by the column heading and percent functionality after the event for the 100-, 500- and 2,500-year MRP earthquake events.

Table 5.4.1-19. Estimated Damage and Loss of Functionality for Critical Facilities and Utilities in for the 100-Year MRP Earthquake Event

Name	Percent Probability of Sustaining Damage					Percent Functionality			
	None	Slight	Moderate	Extensive	Complete	Day 1	Day 7	Day 30	Day 90
Critical Facilities									
Medical	97-100	<1	<1	<1	0	97-100	99-100	100	100
Police	97-100	<1	<1	<1	0	97-100	99-100	100	100
Fire	96-100	0-3	<1	<1	0	96-100	99-100	100	100
EOC	99.9	<1	0	0	0	100	100	100	100
School	96-100	0-3	<1	<1	0	96-100	99-100	100	100

Source: HAZUS-MH 3.1

Table 5.4.1-20. Estimated Damage and Loss of Functionality for Critical Facilities and Utilities for the 500-Year MRP Earthquake Event

Name	Percent Probability of Sustaining Damage					Percent Functionality			
	None	Slight	Moderate	Extensive	Complete	Day 1	Day 7	Day 30	Day 90
Critical Facilities									
Medical	82-98	2-12	0-6	<1	<1	82-98	93-100	99-100	99-100
Police	82-98	2-12	0-6	<1	<1	82-98	93-100	99-100	99-100
Fire	80-98	2-13	0-6	<1	<1	80-98	92-99	99-100	99-100
EOC	98	1.5	<1	0	0	98	100	100	100
School	80-98	1-13	0-6	<1	<1	80-98	92-100	99-100	99-100

Source: HAZUS-MH 3.1

Table 5.4.1-21. Estimated Damage and Loss of Functionality for Critical Facilities and Utilities for the 2,500-Year MRP Earthquake Event

Name	Percent Probability of Sustaining Damage					Percent Functionality			
	None	Slight	Moderate	Extensive	Complete	Day 1	Day 7	Day 30	Day 90
Critical Facilities									
Medical	47-89	7-25	3-20	0-7	<1	47-89	71-97	92-100	95-100
Police	47-89	7-25	3-20	0-7	<1	47-89	71-97	92-100	95-100
Fire	41-89	7-26	3-23	0-8	0-2	41-89	66-96	90-100	94-100
EOC	89	7	3	<1	0-2	89	97	100	100
School	41-91	6-26	2-23	0-8	0-2	41-91	66-97	90-100	94-100

Source: HAZUS-MH 3.1

Impact on 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. A Level 2 HAZUS-MH analysis estimates the total economic loss associated with each earthquake scenario, which includes building-

and lifeline-related losses (transportation and utility losses) based on the available inventory (facility [or GIS point] data only). 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 in this section. Lifeline-related losses include the direct repair cost to transportation and utility systems and are reported in terms of the probability of reaching or exceeding a specified level of damage when subjected to a given level of ground motion. Additionally, economic loss includes business interruption losses associated with the inability to operate a business due to the damage sustained during the earthquake as well as temporary living expenses for those displaced. These losses are discussed below.

For the 100-year event, HAZUS-MH 3.1 estimates $15.3 million in income loss (wage, rental, relocation and capital-related losses) and $36.7 million in capital stock losses (structural, non-structural, content and inventory losses. It is significant to note that for the 500-year event, HAZUS-MH 3.1 estimates the County will incur $152.8 million in income losses (wage, rental, relocation and capital-related losses) in addition to the 500–year event structural, non-structural, content and inventory losses ($544.7 million).

For the 2,500-year event, HAZUS-MH 3.1 estimates the County will incur approximately $1.1 billion in income losses, mainly to the residential and commercial occupancy classes associated with wage, rental, relocation and capital-related losses. In addition, the 2,500-year event structural, non-structural, content and inventory losses equate to greater than an estimated $4.2 billion.

Roadway segments and railroad tracks may experience damage due to ground failure and regional transportation and distribution of these materials will be interrupted as a result of an earthquake event. Losses to the community that result from damages to lifelines can be much greater than the cost of repair (HAZUS-MH 2.2 Earthquake User Manual, 2012).

Earthquake events can significantly impact road bridges. These are important because they often provide the only access to certain neighborhoods. Since softer soils can generally follow floodplain boundaries, bridges that cross watercourses should be considered vulnerable. A key factor in the degree of vulnerability will be the age of the facility or infrastructure, which will help indicate to which standards the facility was built. HAZUS-MH estimates the long-term economic impacts to the County for 15-years after the earthquake event. In terms of the transportation infrastructure, HAZUS-MH estimates $0.2 million in direct repair costs to highway bridges as a result of the 500- and $5 million in direct costs as a result of the 2,500-year event; HAZUS-MH estimates no long-term economic impacts as a result of the 100-year event.

HAZUS-MH 3.1 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 (HAZUS-MH Earthquake User's Manual).

For the 100-year MRP event, HAZUS-MH 3.1 estimates approximately 18 thousand tons of brick and wood debris and around 5 tons of concrete and steel debris will be generated. For the 500-year MRP event, HAZUS-MH 3.1 estimates greater than 190 thousand tons of debris will be generated. For the 2,500-year MRP event, HAZUS-MH 3.1 estimates approximately 1.2 million tons of debris will be generated.

Table 5.4.1-22. Estimated Debris Generated by the 500- and 2,500-year MRP Earthquake Events

Municipality	500-Year		2,500-Year	
	Brick/Wood (tons)	Concrete/Steel (tons)	Brick/Wood (tons)	Concrete/Steel (tons)
Argyle (T)-Argyle (V)	9,853	4,755	47,597	51,472
Cambridge (T)-Cambridge (V)	843	202	4,017	1,388
Dresden (T)-Putnam (T)	1,028	287	5,282	2,106
Easton (T)-Greenwich (V)	874	245	4,278	1,768
Fort Ann (T)-Fort Ann (V)	1,626	417	8,327	3,132
Fort Edward (T)-Fort Edward (V)	24,705	14,462	111,293	159,827
Granville (T)-Granville (V)	5,407	1,702	26,053	12,301
Greenwich (T)-Greenwich (V)	3,368	948	16,363	6,806
Hampton (T)-Whitehall (T)-Whitehall (V)	3,591	973	17,822	7,220
Hartford (T)	8,957	5,055	42,664	58,652
Hebron (T)	690	150	3,402	1,065
Hudson Falls (V)	35,028	14,843	141,670	127,242
Jackson (T)	805	207	3,863	1,420
Kingsbury (T)	29,486	15,896	136,791	178,695
Salem (T)	1,144	277	5,430	1,912
White Creek (T)-Cambridge (V)	2,161	591	9,879	3,911
Washington County	**129,565**	**61,009**	**584,731**	**618,916**

Source: HAZUS-MH 3.1

Future Growth and Development

It is anticipated that the human exposure and vulnerability to earthquake impacts in newly developed areas will be similar to those that currently exist within the County. 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.

New development located in areas with softer NEHRP soil classes may be more vulnerable to the earthquake hazard.

Change of Vulnerability

Washington County continues to be vulnerable to the earthquake hazard. The HAZUS-MH model was not used to estimate potential earthquake losses for the previous HMP. The best available data were used for the 2016 HMP update; probabilistic scenarios were evaluated using HAZUS-MH and updated critical facility inventories were developed and utilized.

Effect of Climate Change on Vulnerability

Providing projections of future climate change for a specific region is challenging. Some scientists feel 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. National Aeronautics and Space Administration (NASA) and USGS scientists found that retreating glaciers in southern Alaska might be opening the way for future earthquakes.

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

Additional Data and Next Steps

A Level 2 HAZUS-MH earthquake analysis was conducted for Washington County using the default model data, with the exception of the updated critical facility inventories which included user-defined data, and NEHRP soil data. Additional data needed to further refine the County's vulnerability assessment include: (1) updated demographic data to update the default data in HAZUS-MH; and (2) soil liquefaction data. Additionally, the County can identify un-reinforced masonry critical facilities and privately-owned buildings (i.e., residences) using local knowledge and/or pictometry/orthophotos. These buildings may not withstand earthquakes of certain magnitudes and plans to provide emergency response/recovery efforts for these properties can be set in place. Further mitigation actions include training of County and municipal personnel to provide post-hazard event rapid visual damage assessments, increase of County and local debris management and logistic capabilities, and revised regulations to prevent additional construction of non-reinforced masonry buildings.

5.4.2 FLOOD

The following section provides the hazard profile (hazard description, location, extent, previous occurrences and losses, probability of future occurrences, and impact of climate change) and vulnerability assessment for the flood hazard in Washington County.

5.4.2.1 Profile

Hazard Description

Floods are one of the most common natural hazards in the United States. They can develop slowly over a period of days or develop quickly, with disastrous effects that can be local (impacting a neighborhood or community) or regional (affecting entire river basins, coastlines and multiple counties or states) (Federal Emergency Management Agency [FEMA] 2008). Most communities in the United States have experienced some kind of flooding, after spring rains, heavy thunderstorms, coastal storms, or winter snow thaws (George Washington University, 2001).

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 New York State Hazard Mitigation Plan (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; and
- Coastal flooding (New York State Division of Homeland Security and Emergency Services [NYS DHSES] 2014)

For the purpose of this HMP and as deemed appropriate by the Washington County Steering Committee, riverine, ice jam, flash flood, dam failure and flooding due to beaver dams are the main flood types of concern for the County. These types of flooding are further discussed below.

Riverine (Inland) Flooding

Riverine floods are the most common flood type. They occur along a channel and include overbank and flash flooding. Channels are defined, ground features that carry water through and out of a watershed. They may be called rivers, creeks, streams, or ditches. When a channel receives too much water, the excess water flows over its banks and inundates low-lying areas (FEMA 2008; The Illinois Association for Floodplain and Stormwater Management 2006).

Flash floods are “a rapid and extreme flow of high water into a normally dry area, or a rapid water level rise in a stream or creek above a predetermined flood level, beginning within six hours of the causative event (e.g., intense rainfall, dam failure, ice jam). However, the actual time threshold may vary in different parts of the

country. Ongoing flooding can intensify to flash flooding in cases where intense rainfall results in a rapid surge of rising flood waters" (National Weather Service [NWS] 2009).

Stormwater flooding described below is due to local drainage issues and high groundwater levels. Locally, heavy precipitation may produce flooding in areas other than delineated floodplains or along recognizable channels. If local conditions cannot accommodate intense precipitation through a combination of infiltration and surface runoff, water may accumulate and cause flooding problems. During winter and spring, frozen ground and snow accumulations may contribute to inadequate drainage and localized ponding. Flooding issues of this nature generally occur in areas with flat gradients and generally increase with urbanization which speeds the accumulation of floodwaters because of impervious areas. Shallow street flooding can occur unless channels have been improved to account for increased flows (FEMA 1997).

High groundwater levels can be a concern and cause problems even where there is no surface flooding. Basements are susceptible to high groundwater levels. Seasonally high groundwater is common in many areas, while elsewhere high groundwater occurs only after a long period of above-average precipitation (FEMA 1997).

Urban drainage flooding is caused by increased water runoff due to urban development and drainage systems. Drainage systems are designed to remove surface water from developed areas as quickly as possible to prevent localized flooding on streets and other urban areas. They make use of a closed conveyance system that channels water away from an urban area to surrounding streams. This bypasses the natural processes of water filtration through the ground, containment, and evaporation of excess water. Since drainage systems reduce the amount of time the surface water takes to reach surrounding streams, flooding in those streams can occur more quickly and reach greater depths than prior to development in that area (FEMA 2007).

Ice Jam Flooding

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 (NWS 2011). The formation of ice jams depends on the weather and physical condition of the river and stream channels. They are most likely to occur where the channel slope naturally decreases, in culverts, and along shallows where channels may freeze solid. 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 (NYS DHSES 2014).

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 (NWS 2011; NYS DHSES 2014).

Ice jams are common in the northeast U.S. and New York is not an exception. In fact, according to the USACE, New York State ranks second in the U.S. for total number of ice jam events, with over 1,500 incidents documented between 1867 and 2015. Areas of New York State that include characteristics lending to ice jam flooding include the northern counties of the Finger Lakes region and far western New York, the Mohawk Valley of central and eastern New York State, and the North Country (NYS DHSES 2014).

The Ice Jam Database, maintained by the Ice Engineering Group at the USACE Cold Regions Research and Engineering Laboratory (CRREL), currently consists of over 19,000 records from across the U.S. According to

the USACE-CRREL, Washington County experienced 43 historic ice jam events between 1780 and 2015 (USACE 2016). Ice Jams typically have formed along the Batten Kill, Bond Creek, Hoosic River, Hudson River, and Mettawee River (USACE 2016). Historical events are further mentioned in the "Previous Occurrences" section of this hazard profile.

Dam Failure Flooding

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, 2010). 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 affect a dam's primary function of impounding water (FEMA 2015). 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);
- 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 2015).

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).

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 6 NYCRR Part 673.3 (NYSDEC, 2009). Dams are classified in terms of potential for downstream damage if the dam were to fail. 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 a dam that has been breached or removed, or has failed or otherwise no longer materially impounds waters, or 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.

According to the Dam Incident Notification (DIN) system maintained by the National Performance of Dam Program (NPDP), there are 27 dams in Washington County. Of the 27 dams, there are 15 classified as low hazard (Class A), 10 classified as significant hazard (Class B), one classified as high hazard (Class C), and one has an unknown classification (NPDP 2016). However, these numbers differ from the New York State Inventory of Dams, which identifies 81 dams in Washington County (55 Class A, 9 Class B, 3 Class C and 11 Class D). Please refer to Figure 4-19 in Section 4 (County Profile) for information regarding the location of these dams in the County.

Flooding Due to Beaver Dams

The beaver is the largest rodent in North America and has a long history in New York State. Beavers construct dams which result in the formation of ponds. Within and around the pond formed by dams, the beaver constructs canals for security and to transport food and building materials. Beaver dams provide wildlife habitat for different furbearer and waterfowl species. However, the beaver's dam building activity can result in widespread flooding of woodlands and agricultural land (NYS DEC 2015). Furthermore, beavers can plug culvert pipes and create dams that impound water against roadbeds which may flood or wash out roads. This can damage the roadbed when they become saturated with water and settle (Jensen and Curtis 1999).

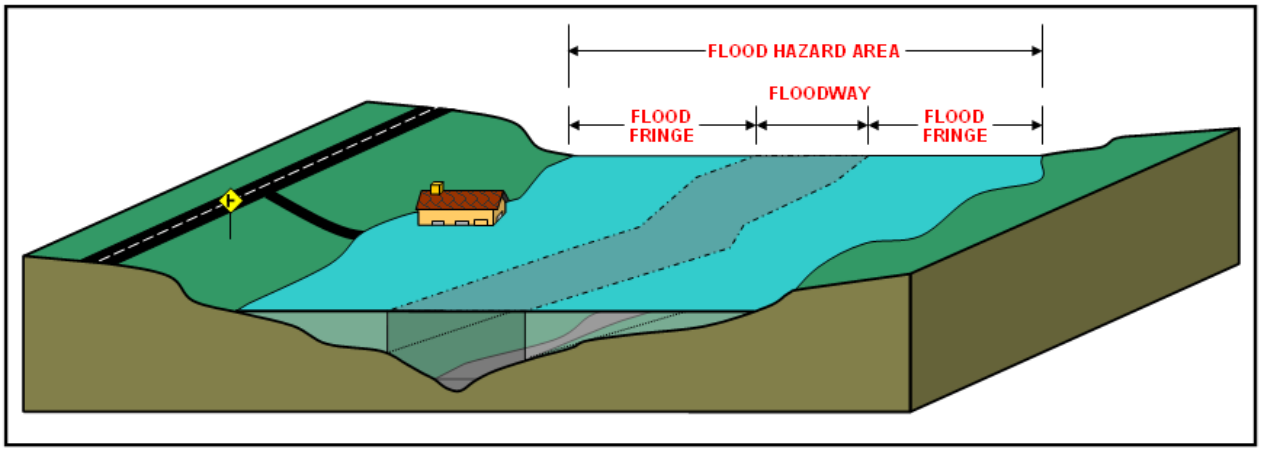
Location

Flooding in Washington County occurs along the Mettawee River, Hudson River, and White Creek, and around Lake Champlain and McDougal Lake. 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 blocked culverts, roadway flooding, roadway washouts, and erosion. The risk of flooding downstream of manmade dams is also present in the County. See Figure 4-19 in Section 4 (County Profile) for location of dams in Washington County.

A floodplain is defined as the land adjoining the channel of a river, stream, ocean, lake, or other watercourse or water body that becomes inundated with water during a flood. Most often floodplains are referred to as 100-year floodplains. A 100-year floodplain is not a flood that will occur once every 100 years, rather it is a flood that has a 1% chance of being equaled or exceeded each year. Thus, the 100-year flood could occur more than once in a relatively short period of time. Due to this misleading term, FEMA has properly defined it as the 1% annual chance flood. This 1% annual chance flood is now the standard used by most federal and state agencies and by the NFIP (FEMA 2002). Similarly, the 500-year flood is more properly defined as the 0.2% annual chance flood.

Figure 5.4.2-1 depicts the flood hazard area, the flood fringe, and the floodway areas of a floodplain.

Figure 5.4.2-1. Floodplain



Source: NJDEP, Date Unknown

In Washington County, floodplains line the rivers, streams and creeks 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.

Please refer to Section 9 (Jurisdictional Annexes) for information regarding specific areas of flooding for each participating municipality in Washington County.

White Creek

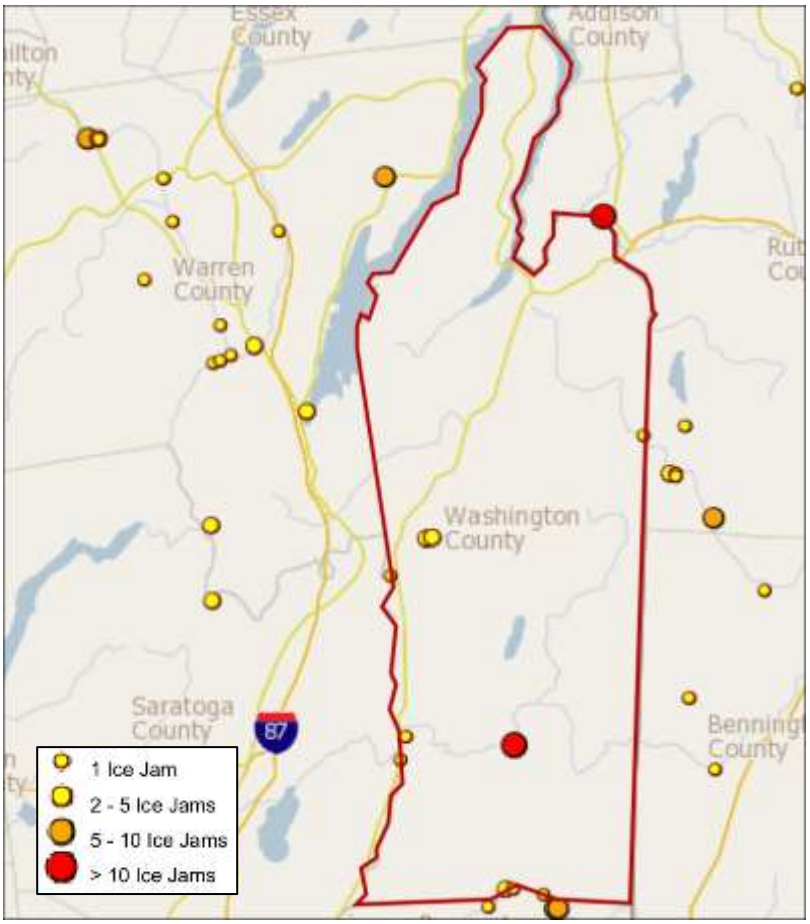
A flood vulnerability study was completed for the White Creek in 2016. The White Creek corridor has been historically manipulated along most of its length from West Rupert in Vermont into the Town/Village of Salem (Washington County) in New York State. It flows out of steep terrain in the Taconic Mountains of Vermont and descends into a broad valley in New York State. During large floods, the surge of floodwaters and sediment carried by White Creek poses a hazard to infrastructure and public safety along the river corridor from Rupert, Vermont to Salem, New York (Washington County). As White Creek enters into the Town of Salem, inundation hazards are prevalent, especially in the areas where out of bank flow occurs and is diverted around and along the rail bed. White Creek is a prominent feature in the Town of Salem, with several streets and homes located adjacent to the stream banks.

The study found that there are three undersized bridges in the Town of Salem: Route 22, Archibald Street, and the downstream railroad bridge (RR-1). These constrictions aggravate the problem of sediment aggradation in the channel by slowing floodwater velocity and causing gravel and sand bedload to deposit through the municipality. This increases the flood vulnerability to properties in this area. Several projects were recommended for the Town as a result of this study. Refer to the Town's annex in Section 9.23 of this plan.

Ice Jams

Ice jams in Washington County have been reported on Batten Kill, Bond Creek, Hoosic River, Hudson River and Mettawee River. Figure 5.4.2-2 illustrates the location of ice jams that have occurred in Washington County between 1904 and 2015.

Figure 5.4.2-2. Ice Jams in Washington County, 1904 to 2015



Source: CRREL 2016

Extent

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 (NWS 2011).

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.

Previous Occurrences and Losses

Many sources provided flooding information regarding previous occurrences and losses associated with flooding events throughout Washington County. With so many sources reviewed for the purpose of this Hazard Mitigation Plan (HMP) update, loss and impact information for many events could vary depending on the source. Therefore, the accuracy of monetary figures discussed is based only on the available information identified during research for this HMP update.

Between 1954 and 2016, FEMA included New York State in 43 flood-related major disaster (DR) or emergency (EM) declarations classified as one or a combination of the following disaster types: severe storms, flooding, hurricane, tropical depression, heavy rains, landslides, ice storm, high tides, Nor'Easter, tornado, snowstorm, severe winter storm, and inland/coastal flooding. Generally, these disasters cover a wide region of the State; therefore, they may have impacted many counties. Washington County was included in three of these flood-related declarations.

Table 5.4.2-1. FEMA Declarations for Flood Events in Washington County

FEMA Declaration Number	Date(s) of Event	Event Type	Counties Included
DR-515	July 21, 1976	Severe Storms & Flooding	7 counties including Washington
DR-1095	January 19-30, 1996	Severe Storms and Flooding	41 counties including Washington
DR-1534	May 13-June 17, 2004	Severe Storms and Flooding	All 62 counties in New York State

Source: FEMA 2016

For this 2016 Plan update, known flood events, including FEMA disaster declarations, which have impacted Washington County between 2007 and 2016 are identified in Table 5.4.2-2. For detailed information on damages and impacts to each municipality, refer to Section 9 (Jurisdictional Annexes). Please note that not all events that

have occurred in Washington County are included due to the extent of documentation and the fact that not all sources may have been identified or researched. Loss and impact information could vary depending on the source. Therefore, the accuracy of monetary figures discussed is based only on the available information identified during research for this plan.

Table 5.4.2-2. Flooding Events in Washington County, 2007 to 2016

Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
April 23, 2007	Heavy rain, snowmelt and flooding	N/A	N/A	Warm temperatures led to rapid melting of snow across the Adirondacks. The rapid melting led to flooding of many rivers that drain the Adirondacks. Releases from Sacandaga Lake caused flooding on some rivers through the end of April. In Washington County, significant snowmelt led to moderate flooding of the Hudson River at Schuylerville (Saratoga County), which is located across the river from the Towns of Greenwich and Easton. The river crested at 92.8 feet on April 25th and remained above its flood stage of 90 feet through April 30th.
February 13, 2008	Ice jam	N/A	N/A	The NWS issued a flood warning for Rensselaer and Washington Counties due to an ice jam on the Hoosic River. Rensselaer County Emergency Management officials reported that an ice jam on the Hoosic River was causing water to flow over the banks in the vicinity of Buskirk Bridge (Towns of Cambridge and White Creek), with flooding also noted on Route 103 in Rensselaer County and River Road (Town of White Creek) in Washington County. New York District Army Corps of Engineers reported that the water had receded by the following morning and all roads had reopened, and that the jam was still in place, but water was flowing past.
March 5, 2008	Heavy rain, snowmelt and flooding	N/A	N/A	Widespread, heavy rainfall fell across east central New York State and western New England. Rainfall totals ranged from one to three inches. The heavy rainfall, in combination with frozen ground and snowmelt, led to flooding in many areas in the Capital Region, Lake George and Saratoga Region, Schoharie Valley, eastern Catskills and mid-Hudson Valley. Portions of Washington County experienced flooding. Road closures were reported, particularly in the area of North Hebron. The County had approximately $1,000 in property damage.
February 13, 2009	Ice jam	N/A	N/A	An ice jam was reported on the Hoosic River near Buskirk in Rensselaer County. This is located at the southern boundaries of the Towns of Cambridge and White Creek in Washington County. The break-up ice jam resulted from warmer temperatures and rain that lasted a few days.
April 27 – May 2, 2011	Flood	DR-1993	No	A total of three to five inches of rain combined with significant snowmelt produced widespread flooding in northeastern New York State. The NWS reported a three-day rainfall total of 3.81 inches at North Lake Placid and a four-day rainfall total of 4.60 inches at Indian Lake. Major flooding was reported by the NWS in the following basins: Lake Champlain, Hudson River, Sacandaga River, West Canada Creek, Schroon River, and Ausable River. Ten USGS stream gages in the Hudson and St. Lawrence River basins recorded new record maximums during this event. Several lakes and reservoirs also recorded new record elevations as a result of this event. Great Sacandaga Lake, Hinkley Reservoir and Stillwater Reservoir all recorded new maximum water level elevations during this event. In and around Washington County, flooding began on April 28th along the Hudson River. The river gauge at Fort Edward fell below flood stage early on May 6th,

Table 5.4.2-2. Flooding Events in Washington County, 2007 to 2016

Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
				Schuylerville (Saratoga County), located across the river from the Towns of Greenwich and Easton, late in the evening on May 9th, Mechanicville (Saratoga County) late in the evening on May 2nd, and Troy (Rensselaer County) early in the morning on May 1st. The river gauge at Riverbank on Schroon River (Warren County) fell below flood stage early in the morning on May 7th. Along the Sacandaga River, the river gauge at Stewarts Bridge in Hadley (Saratoga County) fell below flood stage late in the morning on May 2nd and the Sacandaga Reservoir (Saratoga County) late in the evening on May 6th. The Lake Champlain river gauge north of the Town of Whitehall went over flood stage on April 13th and continued to rise with flooding in and near the Village of Whitehall beginning on April 28th. The river gauge crested at 103.57 feet on May 9th (major flood stage is 103 feet), and finally fell to flood stage on June 17th. The widespread clean-up process began on June 18th. Widespread flooding continued in and near the Village of Whitehall due to high water on Lake Champlain. Homes and businesses were evacuated. Road closures in the area of the river and lake occurred. Culverts were washed out. The Village was flooded north of Williams Street. Dozens of homes and businesses near Lock 12 on both sides of the Champlain Canal were under several feet of water. The worst flooding was reported along North Williams Streets and at the townhomes near the Whitehall Marina. Amtrak halted service between Albany and Montreal on May 4th due to flooding of tracks from heavy rainfall in the Adirondack Park's eastern boundary (two miles north of the Village of Whitehall). Service was restored on May 5th. In the Village of Whitehall, the American Red Cross established a shelter at the Skenesbourgh EMS building. The village mayor declared a state of emergency on Friday, May 20th. The New York State Canal System remained closed until late May due to high water levels, excessive flow and floating debris. On May 25th, the Erie Canal from Lock E-2 (Village of Waterford [Saratoga County]) to Lock E-23 (Brewerton [Onondaga County]) and the Champlain Canal from C-1 (Village of Waterford) to Lock C-12 (Town of Whitehall in Washington County) finally opened. In the Village of Fort Edward, properties were flooded on the east bank of the River and on Rogers Island. Sandbags were used to protect some homes. Widespread flooding occurred in and near the Village of Whitehall due to high water near Lake Champlain. Areas of flooding in the Village were reported on Lower and North

Table 5.4.2-2. Flooding Events in Washington County, 2007 to 2016

Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
				Main Street, North Williams Road, Doig Street (County Road 10), East Bay Road, and South Bay including Route 22. County Emergency Management Services reported the evacuation of approximately 16 homes due to rising waters. The County had approximately $53,000 in property damage from this event.
August 28-30, 2011	Hurricane Irene	DR-4020	Yes	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. In Washington County, flash flooding was reported in numerous locations which led to many road closures due to flooding and downed trees and power lines. Most of the road closures were in the eastern portion of the County, near the border of Vermont. This included State Route 22. The Village of Salem and parts of the Village of Whitehall were evacuated. This event damaged roadways and homes, debris blocked culverts, and bridges were damaged. Major flooding occurred on the Hoosic River. The Eagle Bridge river gage, located near the Town of White Creek's southern boundary, crested at 19.24 feet on August 29th (above its 11-foot flood state). This was considered major flooding on the river. Record flooding occurred on the Mettawee River. The Granville river gage crested at 15.04 feet (flood stage of 7 feet). Record flooding also occurred on the Battenkill. Route 29 over the Battenkill in Middle Falls (Town of Greenwich) was closed due to flooding. The Battenkill river gage crested at 14.27 feet (flood stage of 12 feet).
April 22-23, 2012	Flooding (Lake Champlain)	N/A	N/A	Flooding of Lake Champlain led to road closures throughout the County.
July 5, 2013	Severe storms and flooding	DR-4129	No	On July 5th, showers and thunderstorms tracked over Washington County. Small streams and creeks overflowed their banks as a result of heavy rainfall and caused flash flooding. Several roads in the county were closed. Several streets in Hudson Falls, including John Street and State Route 196, were closed due to flash flooding from heavy rainfall.
July 11, 2013	Flooding (caused by beaver dam failure)	N/A	N/A	A beaver dam broke along Foster Brook in Huletts Landing (Town of Dresden). Recent heavy rains and a persistent waterfall caused the sudden release of the dam. A pond above the dam was released which allowed a large amount of water to rush down the brook and flood portions of the Huletts Landing. Culverts washed out which led to roadway damage. Several homes along County Route 6A were

Table 5.4.2-2. Flooding Events in Washington County, 2007 to 2016

Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
				affected by flooding. A large amount of debris washed into Lake George. It took approximately two hours for the water to recede after the dam broke.
January 7, 2014	Ice jam	N/A	N/A	An ice jam was reported on the Hoosic River near the hamlet of Buskirk (Rensselaer County) that caused flooding along County Route 103 (Buskirk-West Hoosick Road), near the southern boundaries of the Towns of Cambridge and White Creek. The roadway was closed due to flooding. A flood advisory for ice jam flooding was issued for south central Washington County.
January 19-21, 2015	Ice jam	N/A	N/A	An ice jam caused minor flooding in Eagle Bridge (Town of White Creek) on the Hoosic River. Flood stage at this point is 11 feet and the gage measured 12.5 feet on January 19th due to the flood jam.
February 23-26, 2016	Heavy rain, flooding, snowfall and strong winds	N/A	N/A	Thunderstorms impacted eastern New York State, bringing periods of heavy rain. At times, rain fell at rates exceeding one inch per hour. The rainfall, combined with frozen ground and snowmelt, allowed for widespread flooding of urban, poor drainage and low-lying areas. Some streams and rivers exceeded flood stages. In Washington County, rainfall totals ranged from 1.8 inches in the Town of Hebron to 2.69 inches in the Town of Whitehall. Flooding was reported in the Town of Fort Edward, where a basement collapsed due to the flooding. Additionally, in the Town, Broadway Street (U.S. Route 4) was flooded and washed out. County Route 113 near the Town of Greenwich was closed due to flooding; the roadway was reported to have been washed out due to the flooding. Urban flooding was reported in the Town of Fort Edward due to heavy rainfall. The intersection of East and Wing Streets was reported to have been washed away due to the flooding. In the Town of Easton, between eight and 10 inches of water was flowing over Route 40. County Route 35 (Vaughn Road) near the Town of Hudson Falls was closed due to damage from a washout east of Tripoli Road. In the Town of Kingsbury, Route 196/St. James Road, Burgoyne Street, and Maynard Street were flooded and closed.

Sources: NYSDEC 2016; FEMA 2016; NOAA-NCDC 2016; NWS 2016; SPC 2016; CRREL 2016
COE Corps of Engineers
FEMA Federal Emergency Management Agency
Mph Miles per Hour
NCDC National Climatic Data Center
NOAA National Oceanic and Atmospheric Administration
NWS National Weather Service
N/A Not Applicable

Probability of Future Occurrences

Based on the historic and more recent flood events in Washington County, it is clear that the County will experience flooding and its impacts in the future. It is estimated that Washington County will continue to experience direct and indirect impacts of flooding events annually that may induce secondary hazards such as erosion, infrastructure deterioration or failure, utility failures, power outages, water quality and supply concerns, and transportation delays, accidents and inconveniences.

According to the NOAA National Climate Data Center (NCDC) and the CRREL database, Washington County experienced 111 flood events between 1950 and 2016, including 55 floods, 26 flash floods, and 30 ice jams. The table below shows these statistics, as well as the annual average number of events and the percent chance of these individual flood hazards occurring in Washington County in future years (NOAA NCDC 2016; CRREL 2016).

Table 5.4.2-3. Probability of Future Occurrence of Flooding Events

Hazard Type	Number of Occurrences Between 1950 and 2016	Rate of Occurrence	Recurrence Interval (in years)	Probability of Event Occurring in Any Given Year	% Chance of Occurring in Any Given Year
Flash Flood	26	0.40	2.54	0.39	39.39
Flood	55	0.85	1.20	0.83	83.33
Ice Jam	30	0.46	2.20	0.03	3.33

Source: NOAA-NCDC 2016; CRREL 2016

In Section 5.3 (Hazard Ranking), the identified hazards of concern for Washington County were ranked. The probability of occurrence, or likelihood of the event, is one parameter used for hazard rankings. Based on historical records and input from the Planning Committee, the probability of occurrence for flood in the County is considered 'frequent' (likely to occur within 25 years, as presented in Table 5.3-3).

Climate Change Impacts

The climate of Washington 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 (New York State Energy Research and Development Authority [NYSERDA], 2011).

Each region in New York State, as defined by ClimAID, has attributes that will be affected by climate change. Washington County is part of Region 5, East Hudson and Mohawk River Valleys. Some of the issues in this region, affected by climate change, include: saltwater front moving further up the Hudson River, potential contamination of New York City's back-up water supply, propagation of storm surge up the Hudson from the coast, and popular apple varieties decline (NYSERDA 2011).

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).

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 (NYSERDA 2014).

In Region 5, it is estimated that temperatures will increase by 3.5ºF to 7.1ºF by the 2050s and 4.1ºF to 11.4ºF by the 2080s (baseline of 47.6ºF). Precipitation totals will increase between 2 and 15% by the 2050s and 3 to 17% by the 2080s (baseline of 38.6 inches) (NYSERDA 2014). Table 5.4.2-4 displays the projected seasonal precipitation change for the East Hudson and Mohawk River Valleys ClimAID Region.

Table 5.4.2-4. Projected Seasonal Precipitation Change in Region 5, 2050s (% change)

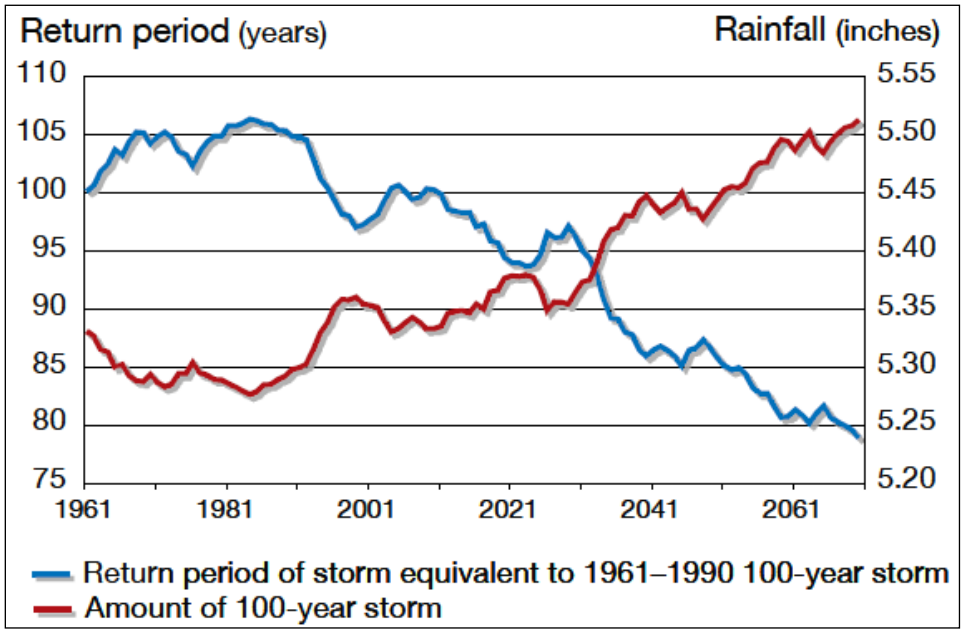
Winter	Spring	Summer	Fall
+5 to +15	-5 to +10	-5 to +5	-5 to +10

Source: NYSERDA 2011

The projected increase in precipitation is expected to fall in heavy downpours and less in light rains. The increase in heavy downpours 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).

Increasing air temperatures intensify the water cycle by increasing evaporation and precipitation. This can cause an increase in rain totals during events with longer dry periods in between those events. These changes can have a variety of effects on the State's water resources (NYSERDA 2011). Figure 5.4.2-3 displays the project rainfall and frequency of extreme storms in New York State. The amount of rain fall 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 2011).

Figure 5.4.2-3. Projected Rainfall and Frequency of Extreme Storms



Source: NYSERDA 2011

5.4.2.2 Vulnerability Assessment

To understand risk, a community must evaluate what assets are exposed and vulnerable in the identified hazard area. For the flood hazard, hazard areas include the 1-percent and 0.2-percent annual chance flood event boundaries. The following text evaluates and estimates the potential impact of flooding for Washington County including:

- Overview of vulnerability
- Data and methodology used for the evaluation
- Impact on: (1) life, health and safety of residents, (2) general building stock, (3) critical facilities, (4) economy, and (5) future growth and development
- Effect of climate change on vulnerability
- Change of vulnerability as compared to that presented in the 2010 Washington County HMP
- Further data collections that will assist understanding this hazard over time

Overview of Vulnerability

At this time, digitized flood maps for Washington County are unavailable. The flood hazard exposure and vulnerability assessment will be presented qualitatively and with available information from the 2014 New York State Hazard Mitigation Plan. From 1960 to 2012, the County experienced 52 flood events which resulted in approximately $52.5 million in property damages and 5 injuries; specifically, between 2010 and 2012, there were two events that resulted in $106,000 in property damages and no injuries (NYS HMP 2014).

Data and Methodology

As stated above, spatial floodplain data is unavailable for Washington County. Data regarding impacts to life, health, and safety and the general building stock was drawn from the 2014 State HMP. A HAZUS-MH flood model and estimated potential losses were not generated for this vulnerability assessment. To provide a vulnerability estimate to the general building stock and critical facilities, a 500-foot buffer was placed around named streams from the Linear Hydrography shapefile from the NYS GIS Clearinghouse. Buildings and facilities located within the 500-foot buffer may be vulnerable to flooding; once DFIRM maps are provided for the County, an analysis will be performed using the floodplain boundaries to determine an accurate exposure.

Impact on Life, Health and Safety

The impact 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 the hazard areas that could be impacted should an 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 cascading impacts 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).

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. Molds 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, 2015).

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-MH 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.

The State HMP utilized an incomplete digitized version of the floodplain maps to summarize potential impacts in the County. The exact location in the County included in this evaluation is not clear. The spatial dataset was not available at the time this HMP update was developed. The State HMP indicates that with utilizing the 2010 U.S. Census Bureau data, approximately 36 people are exposed to the 1-percent annual chance event in the small portion of the County that was evaluated. HAZUS-MH 2.1 was also run for the State HMP and resulted in an estimated 822 residents requiring sheltering as a result of 1-percent annual chance event.

Within the floodplain population, senior citizens and the population in poverty are two especially vulnerable groups that must be taken under special consideration when planning for disaster preparation, response, and recovery.

Impact on General Building Stock

After considering the population exposed and vulnerable to the flood hazard, the built environment was evaluated. Exposure to the flood hazard includes all buildings located in the flood zone. Potential damage is the modeled loss that could occur to the exposed inventory, including structural and content value.

As stated above, spatial floodplain data is unavailable for Washington County. According to the State HMP, HAZUS-MH 2.1 estimates approximately $52.5 million in building related economic losses (1.36% of exposure) and $550,000 in building related business losses as a result of the 1-percent annual chance flood event. Table 5.4.2-5 below shows the results of the exposure analysis using the 500-foot stream buffer to estimate flood vulnerability. Please note this analysis is for planning purposes only in the absence of FEMA DFIRMs and is provided for communities to consider when developing mitigation strategies.

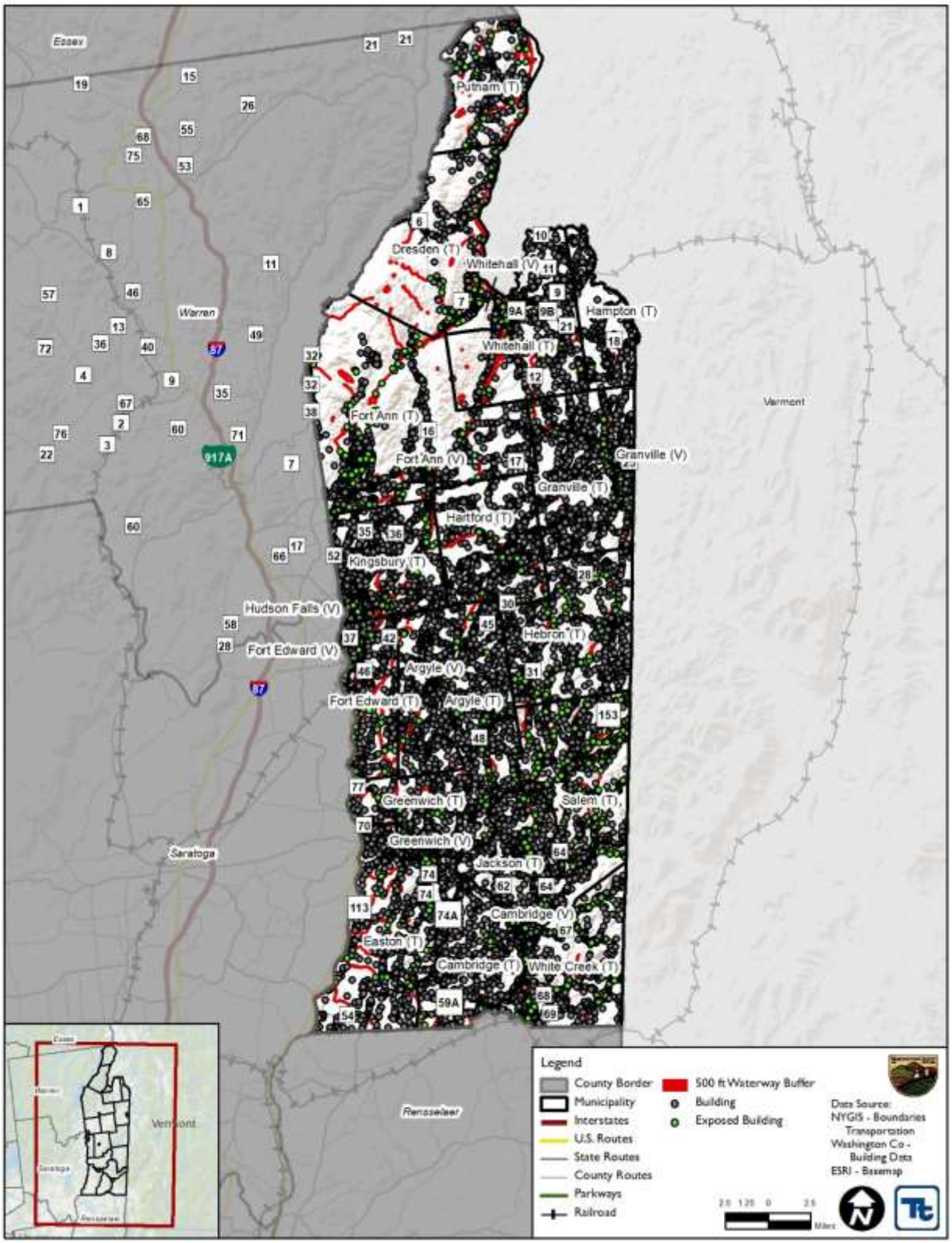
Table 5.4.2-5. General Building Stock Located in the 500-foot Stream Buffer

Municipality	Total Number of Buildings	Total RV (Structure and Contents)	Building RV Exposed			
			Total Number in Buffer	% of Total	Total RCV in Buffer	% of Total
Argyle (T)	1,902	$902,641,904	502	26.4%	$182,451,223	20.2%
Argyle (V)	147	$105,497,653	36	24.5%	$31,781,868	30.1%
Cambridge (T)	758	$500,184,564	111	14.6%	$71,216,463	14.2%
Cambridge (V)	961	$1,474,549,125	296	30.8%	$458,059,912	31.1%
Dresden (T)	662	$343,123,687	381	57.6%	$222,933,429	65.0%

Municipality	Total Number of Buildings	Total RV (Structure and Contents)	Building RV Exposed			
			Total Number in Buffer	% of Total	Total RCV in Buffer	% of Total
Easton (T)	1,047	$722,166,767	185	17.7%	$112,705,576	15.6%
Fort Ann (T)	2,109	$1,082,086,973	931	44.1%	$487,357,066	45.0%
Fort Ann (V)	216	$192,253,336	124	57.4%	$84,324,740	43.9%
Fort Edward (T)	1,458	$995,655,274	222	15.2%	$113,291,953	11.4%
Fort Edward (V)	1,853	$1,308,363,331	441	23.8%	$413,467,549	31.6%
Granville (T)	1,928	$1,185,762,623	232	12.0%	$166,357,497	14.0%
Granville (V)	1,398	$2,347,300,819	416	29.8%	$406,112,256	17.3%
Greenwich (T)	1,693	$1,161,751,834	465	27.5%	$313,455,577	27.0%
Greenwich (V)	980	$1,504,098,323	374	38.2%	$345,414,336	23.0%
Hampton (T)	544	$241,107,314	81	14.9%	$40,226,333	16.7%
Hartford (T)	1,092	$1,035,675,130	70	6.4%	$40,403,883	3.9%
Hebron (T)	1,174	$582,232,167	229	19.5%	$119,000,066	20.4%
Hudson Falls (V)	3,792	$7,181,239,900	899	23.7%	$5,100,247,400	71.0%
Jackson (T)	1,278	$640,798,344	527	41.2%	$233,940,997	36.5%
Kingsbury (T)	2,688	$1,838,974,710	117	4.4%	$65,166,753	3.5%
Putnam (T)	770	$422,773,863	435	56.5%	$240,177,421	56.8%
Salem (T)	1,038	$547,448,888	401	38.6%	$220,489,398	40.3%
Salem (V)*	419	$437,181,724	161	38.4%	$143,417,137	32.8%
White Creek (T)	969	$804,201,102	301	31.1%	$148,362,414	18.4%
Whitehall (T)	757	$446,240,581	77	10.2%	$73,212,640	16.4%
Whitehall (V)	1,660	$1,446,746,007	582	35.1%	$828,055,722	57.2%
Washington County	**33,293**	**$29,450,055,943**	**8,596**	**25.8%**	**$10,661,629,608**	**36.2%**

Source: Washington County, NYSGIS
Notes: RCV = Replacement cost value.
** The table displays data for the Village of Salem. It should be noted that in 2014, the Village of Salem dissolved and became part of the Town of Salem.*

Figure 5.4.2-4. General Building Stock Located within the 500-foot Stream Buffer



NFIP Statistics

In addition to total building stock modeling, individual data available on flood policies, claims, Repetitive Loss properties (RL) and Severe Repetitive Loss (SRL) properties were analyzed. FEMA Region 2 provided a list of properties with NFIP policies, past claims and multiple claims (RL/SRL) as of 4/30/2016.

According to the metadata provided: "The (*sic* National Flood Insurance Program) NFIP Repetitive Loss File contains losses reported from individuals who have flood insurance through the Federal Government. A property is considered a repetitive loss property when there are two or more losses reported which were paid more than $1,000 for each loss. The two losses must be within 10 years of each other & be as least 10 days apart. Only losses from (*sic* since) 1/1/1978 that are closed are considered."

According to section 1361A of the National Flood Insurance Act, as amended (NFIA), 42 U.S.C. 4102a, an SRL property is defined as a residential property that is covered under an NFIP flood insurance policy and:

- Has at least four NFIP claim payments (including building and contents) over $5,000 each, and the cumulative amount of such claims payments exceeds $20,000; or
- For which at least two separate claims payments (building payments only) have been made with the cumulative amount of the building portion of such claims exceeding the market value of the building.
- For both of the above, at least two of the referenced claims must have occurred within any 10- year period, and must be greater than 10 days apart.

Table 5.4.2-6 summarizes the NFIP policies, claims and repetitive loss statistics for Washington County as of April 30, 2016.

Table 5.4.2-6. NFIP Policies, Claims and Repetitive Loss Statistics

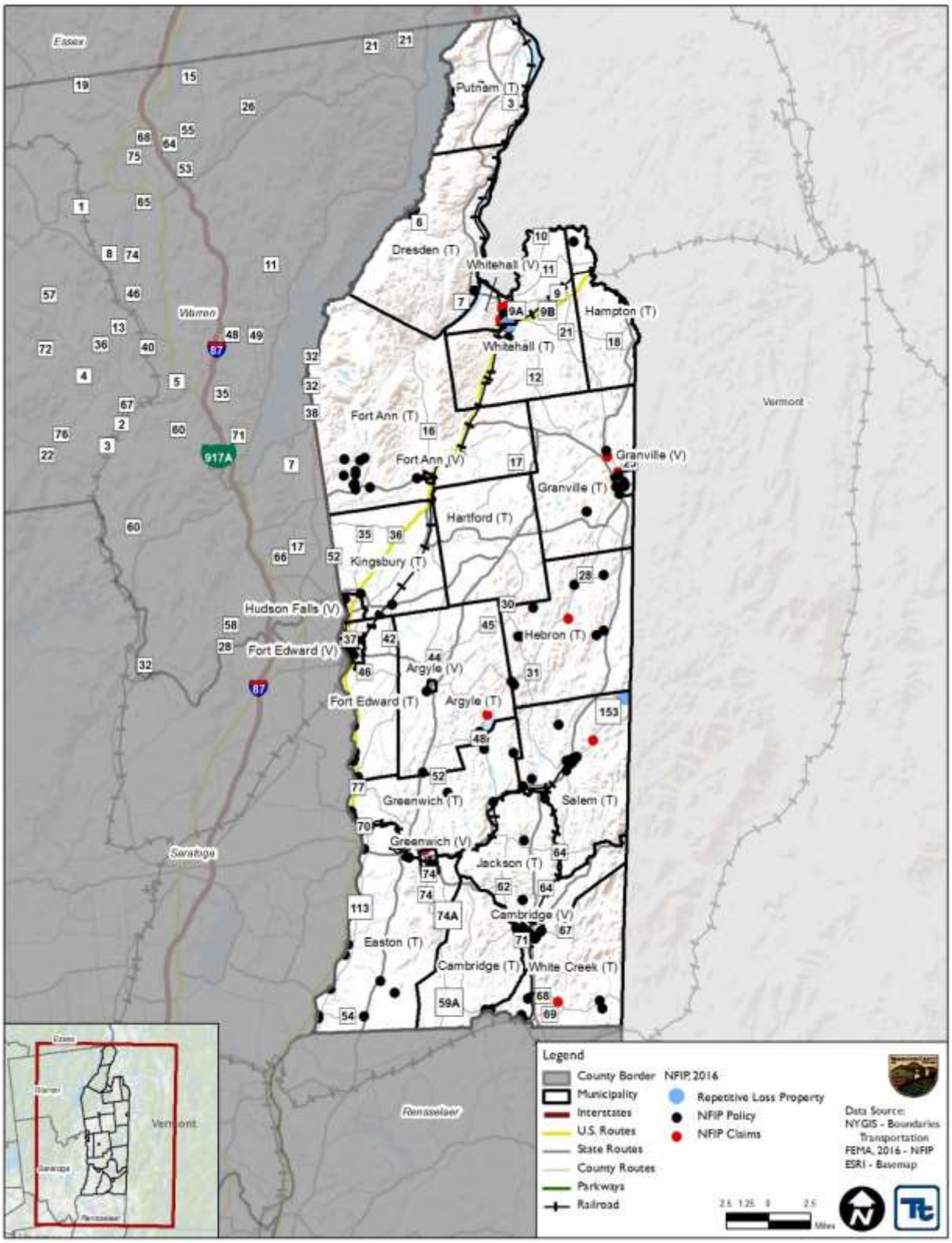
Municipality	# Policies (1)	# Claims (Losses) (1)	Total Loss Payments (2)	# Rep. Loss Prop. (1)	Severe Rep. Loss Prop. (1)
Argyle (T)	4	1	$7,454	0	0
Argyle (V)	1	1	$429	0	0
Cambridge (T)	1	5	$13,999	0	0
Cambridge (V)	13	0	$0	0	0
Dresden (T)	11	10	$154,154	0	0
Easton (T)	12	0	$0	0	0
Fort Ann (T)	13	3	$132,754	0	0
Fort Ann (V)	0	0	$0	0	0
Fort Edward (T)	6	3	$134,205	0	0
Fort Edward (V)	4	2	$9,953	0	0
Granville (T)	3	5	$156,319	0	0
Granville (V)	12	10	$165,198	0	0
Greenwich (T)	2	1	$3,745	0	0
Greenwich (V)	10	1	$7,633	0	0
Hampton (T)	2	1	$1,597	0	0
Hartford (T)	0	0	$0	0	0
Hebron (T)	9	2	$30,912	0	0
Hudson Falls (V)	1	0	$0	0	0

Municipality	# Policies (1)	# Claims (Losses) (1)	Total Loss Payments (2)	# Rep. Loss Prop. (1)	Severe Rep. Loss Prop. (1)
Jackson (T)	4	0	$0	0	0
Kingsbury (T)	4	0	$0	0	0
Putnam (T)	5	6	$9,832	0	0
Salem (T)	16	10	$169,438	1	0
Salem (V)	3	4	$43,466	0	0
White Creek (T)	8	5	$31,870	0	0
Whitehall (T)	11	8	$60,953	1	0
Whitehall (V)	5	20	$301,223	0	0
Washington County	**160**	**98**	**$1,435,133**	**2**	**0**

Source: FEMA, 2016
Note (1) Policies, claims, repetitive loss and severe repetitive loss statistics provided by FEMA and are current as of April 30, 2016 and are summarized by Community Name. Please note the total number of repetitive loss properties excludes the severe repetitive loss properties. The number of claims represents claims closed by 4/30/2016.
Note (2) Total building and content losses from the claims file provided by FEMA Region 2.
Note (3) The policies inside and outside of the flood zones is based on the latitude and longitude provided by FEMA Region 2 in the policy file.
Note (4) FEMA noted that where there is more than one entry for a property, there may be more than one policy in force or more than one GIS possibility.

The NFIP indicated the two RL properties are single-family. The location of the properties with policies, claims and repetitive and severe repetitive flooding were geocoded by FEMA with the understanding that there are varying tolerances between how closely the longitude and latitude coordinates correspond to the location of the property address, or that the indication of some locations are more accurate than others.

Figure 5.4.2-5. NFIP Repetitive Loss Areas – Washington County

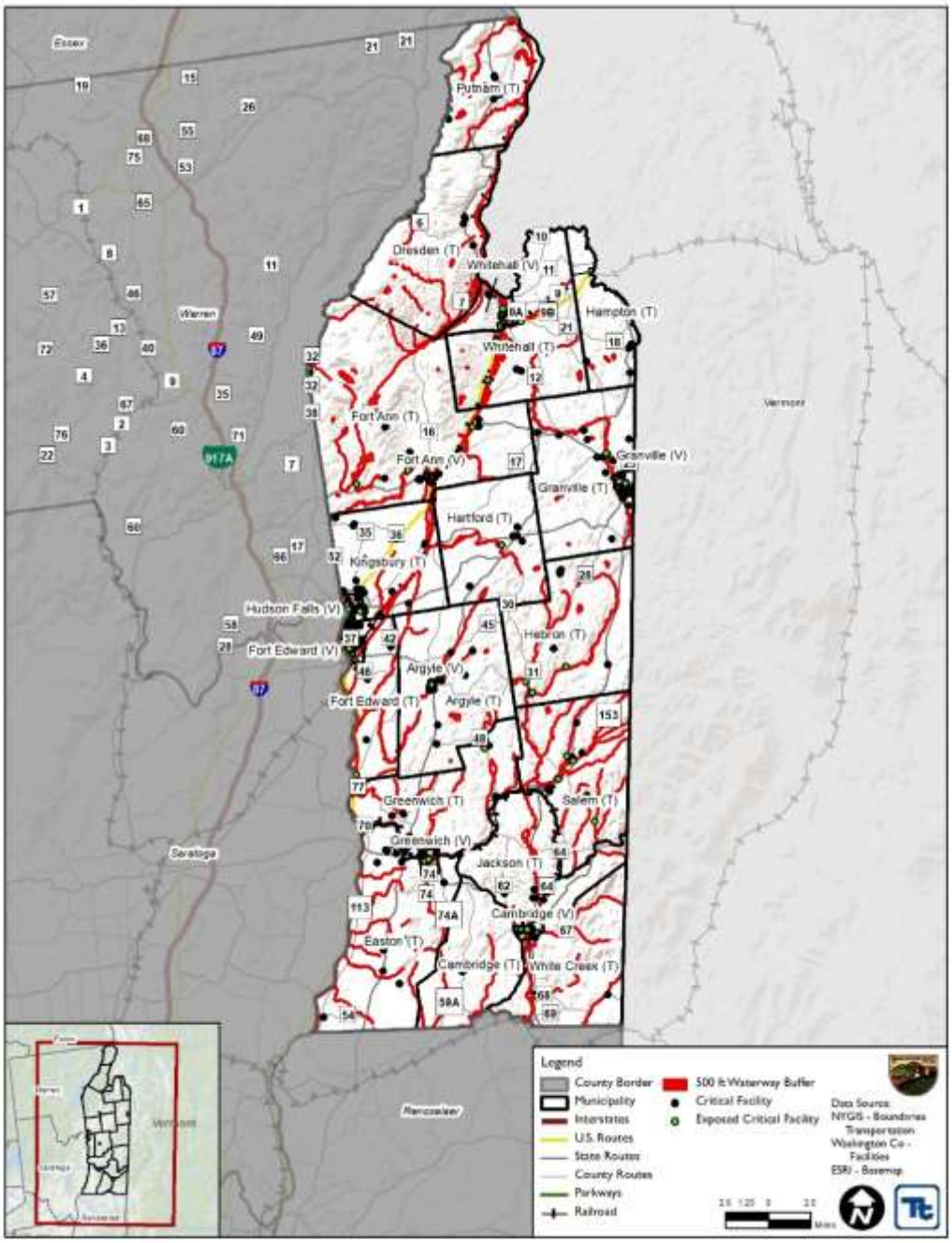


Sources: NYS GIS; FEMA NFIP 2016

Impact on Critical Facilities

As stated above, spatial floodplain data is unavailable for Washington County. The State HMP does not provide exposure or potential loss results for facilities at the County level; only State facilities. According to the State HMP, there are no State facilities located within Washington County. Refer to Appendix H (Critical Facilities) for the results of the exposure analysis using the 500-foot stream buffer to estimate flood vulnerability to critical facilities. Please note this analysis is for planning purposes only in the absence of FEMA DFIRMs and is provided for communities to consider when developing mitigation strategies.

Figure 5.4.2-6. Critical Facilities Located in the 500-foot Stream Buffer



Impact on the Economy

For impact on economy, estimated losses from a flood event are considered. Losses include but are not limited to general building stock damages, agricultural losses, business interruption, impacts to tourism and tax base to Washington County. Damages to general building stock can be quantified using HAZUS-MH. Other economic components such as loss of facility use, functional downtime and social economic factors are less measurable with a high degree of certainty.

Flooding can cause extensive damage to public utilities and disruptions to the delivery of services. Loss of power and communications may occur; and drinking water and wastewater treatment facilities may be temporarily out of operation. Flooded streets and road blocks make it difficult for emergency vehicles to respond to calls for service. Floodwaters can wash out sections of roadway and bridges (Foster, Date Unknown).

Direct building losses are the estimated costs to repair or replace the damage caused to the building. Refer to the 'Impact on General Building Stock' subsection which discusses these potential losses. These dollar value losses to the County's total building inventory replacement value, in addition to damages to roadways and infrastructure, would greatly impact the local economy.

HAZUS-MH 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. According to the State HMP, Washington County may experience an estimated 8,472 tons of debris as a result of the 1-percent annual chance flood event.

Effect of Climate Change on Vulnerability

Climate is defined not simply as average temperature and precipitation but also by the type, frequency and intensity of weather events. Both globally and at the local scale, climate change has the potential to alter the prevalence and severity of extremes such as flood events. While predicting changes of flood events under a changing climate is difficult, understanding vulnerabilities to potential changes is a critical part of estimating future climate change impacts on human health, society and the environment (U.S. Environmental Protection Agency [EPA] 2013).

Change of Vulnerability

Washington County and its municipalities continue to be vulnerable to the flood hazard. However, there are several differences between the exposure and potential loss estimates between this plan update to the results in the 2010 HMP. The original HMP did not provide exposure or losses estimates for the municipalities or County as a whole. Where available, historic FIRM maps were displayed based on their availability at the municipal level. This vulnerability assessment utilized more accurate and updated data for Washington County from the 2014 New York State HMP. Additionally, this HMP conducted an exposure analysis on the general building stock and critical facilities to provide an approximate estimate of flood vulnerability for those assets.

Future Growth and 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 flood hazard if located within the identified hazard areas. It is the intention of the County to discourage development in vulnerable areas or to encourage higher regulatory standards on the local level.

Additional Data and Next Steps

When digitized spatial flood data becomes available, an exposure and HAZUS-MH flood analysis should be conducted for Washington County using the most current and best available data including updated building and critical facility inventories. Specific mitigation actions addressing improved data collection and further vulnerability analysis is included in Volume II, Section 9 (Jurisdictional Annexes) of this plan.

5.4.3 SEVERE STORM

The following section provides the hazard profile (hazard description, location, extent, previous occurrences and losses, probability of future occurrences, and impact of climate change) and vulnerability assessment for the severe storm hazard in Washington County.

5.4.3.1 Profile

Hazard Description

For the purpose of this Hazard Mitigation Plan (HMP) Update and as deemed appropriated by the Washington County Steering and Planning Committees, the severe storm hazard includes: hail, high winds, hurricanes/tropical storms, Nor'Easters, tornadoes, and thunderstorms, which are defined below.

Hailstorms

Hail forms inside a thunderstorm where there are strong updrafts of warm air and downdrafts of cold water. If a water droplet is picked up by the updrafts, it can be carried well above the freezing level. Water droplets freeze when temperatures reach 32°F or colder. As the frozen droplet begins to fall, it may thaw as it moves into warmer air toward the bottom of the thunderstorm. However, the droplet may be picked up again by another updraft and carried back into the cold air and re-freeze. With each trip above and below the freezing level, the frozen droplet adds another layer of ice. The frozen droplet, with many layers of ice, falls to the ground as hail. Most hail is small and typically less than two inches in diameter (National Weather Service [NWS] 2010).

High Winds

High winds, other than tornadoes, are experienced in all parts of the United States. Areas that experience the highest wind speeds are coastal regions from Texas to Maine, and the Alaskan coast; however, exposed mountain areas experience winds at least as high as those along the coast (Federal Emergency Management Agency [FEMA] 1997; Robinson 2013). Wind begins with differences in air pressures. It is rough horizontal movement of air caused by uneven heating of the earth's surface. Wind occurs at all scales, from local breezes lasting a few minutes to global winds resulting from solar heating of the earth (Ilicak 2005). High winds have the potential to down trees, tree limbs and power lines which lead to widespread power outages and damaging residential and commercial structures throughout Washington County. High winds are often associated by other severe storm events such as thunderstorms, tornadoes, hurricanes and tropical storms (all discussed further in this section). The following table provides the descriptions of winds used by the NWS.

Table 5.4.3-1. NWS Wind Descriptions

Descriptive Term	Sustained Wind Speed (mph)
Strong, dangerous, or damaging	≥40
Very Windy	30-40
Windy	20-30
Breezy, brisk, or blustery	15-25
None	5-15 or 10-20
Light or light and variable wind	0-5

Source: NWS 2015
mph miles per hour

Hurricanes/Tropical Storms

A hurricane is a tropical storm that attains hurricane status when its wind speed reaches 74 or more miles an hour. Tropical systems may develop in the Atlantic between the Lesser Antilles and the African coast, or may develop in the warm tropical waters of the Caribbean and Gulf of Mexico. These storms may move up the Atlantic coast of the United States and impact the eastern seaboard, or move into the United States through the states along the Gulf Coast, bringing wind and rain as far north as New England before moving offshore and heading east.

A tropical storm system is characterized by a low-pressure center and numerous thunderstorms that produce strong winds and heavy rain (winds are at a lower speed than hurricane-force winds, thus gaining its status as tropical storm versus hurricane). Tropical storms strengthen when water evaporated from the ocean is released as the saturated air rises, resulting in condensation of water vapor contained in the moist air. They are fueled by a different heat mechanism than other cyclonic windstorms such as Nor'Easters and polar lows. The characteristic that separates tropical cyclones from other cyclonic systems is that at any height in the atmosphere, the center of a tropical cyclone will be warmer than its surroundings; a phenomenon called "warm core" storm systems (National Oceanic and Atmospheric Administration [NOAA] 1999).

The NWS issues hurricane and tropical storm watches and warnings. These watches and warnings are issued or will remain in effect after a tropical cyclone becomes post-tropical, when such a storm poses a significant threat to life and property. The NWS allows the National Hurricane Center (NHC) to issue advisories during the post-tropical stage. The following are the definitions of the watches and warnings:

- *Hurricane/Typhoon Warning* is issued when sustained winds of 74 mph or higher are expected somewhere within the specified area in association with a tropical, subtropical, or post-tropical cyclone. Because hurricane preparedness activities become difficult once winds reach tropical storm force, the warning is issued 36 hours in advance of the anticipated onset of tropical storm force winds. The warning can remain in effect when dangerously high water or combination of dangerously high water and waves continue, even though winds may be less than hurricane force.
- *Hurricane Watch* is issued when sustained winds of 74 mph or higher are possible within the specified area in association with a tropical, subtropical, or post-tropical cyclone. Because hurricane preparedness activities become difficult once winds reach tropical storm force, the hurricane watch is issued 48 hours prior to the anticipated onset of tropical storm force winds.
- *Tropical Storm Warning* is issued when sustained winds of 39 to 73 mph are expected somewhere within the specified area within 36 hours (24 hours for the western north Pacific) in association with a tropical, subtropical, or post-tropical storm.
- *Tropical Storm Watch* is issued when sustained winds of 39 to 73 mph are possible within the specified area within 48 hours in association with a tropical, sub-tropical, or post-tropical storm (NWS 2013).

Nor'Easters

A Nor'Easter is a cyclonic storm that moves along the East Coast of North America. It is called a Nor'Easter because the damaging winds over coastal areas blow from a northeasterly direction. Nor'Easters can occur any time of the year, but are most frequent and strongest between September and April. These storms usually develop between Georgia and New Jersey within 100 miles of the coastline and typically move from southwest to northeast along the Atlantic Coast of the United States (NOAA 2013).

In order to be called a Nor'Easter, a storm must have the following conditions, as per the Northeast Regional Climate Center (NRCC):

- Must persist for at least a 12-hour period
- Have a closed circulation
- Be located within the quadrilateral bounded at 45°N by 65° and 70°W and at 30°N by 85°W and 75°W
- Show general movement from the south-southwest to the north-northeast
- Contain wind speeds greater than 23 miles per hour (mph)

A Nor'Easter event can cause storm surges, waves, heavy rain, heavy snow, wind, and coastal flooding. Nor'Easters have diameters that can span 1,200 miles, impacting large areas of coastline. The forward speed of a Nor'Easter is usually much slower than a hurricane, so with the slower speed, a Nor'Easter can linger for days and cause tremendous damage to those areas impacted. Approximately 20 to 40 Nor'Easters occur in the northeastern United States every year, with at least two considered severe (Storm Solution, 2014). The intensity of a Nor'Easter can rival that of a tropical cyclone in that, on occasion, it may flow or stall off the mid-Atlantic coast resulting in prolonged episodes of precipitation, coastal flooding, and high winds.

Tornadoes

Tornadoes are nature's most violent storms and can cause fatalities and devastate neighborhoods in seconds. A tornado appears as a rotating, funnel-shaped cloud that extends from a thunderstorm to the ground with whirling winds that can reach 300 mph. Damage paths can be greater than one mile in width and 50 miles in length. Tornadoes typically develop from either a severe thunderstorm or hurricane as cool air rapidly overrides a layer of warm air. The average speed of a tornado is 30 mph but may vary from nearly stationary to 70 mph. The lifespan of a tornado rarely is longer than 30 minutes (FEMA 1997; NWS 2010).

Thunderstorms

A thunderstorm is a local storm produced by a cumulonimbus cloud and accompanied by lightning and thunder (NWS 2009). 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 are common 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 2010).

Lighting 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. It ranks as one of the top weather killers in the United States and kills approximately 50 people and injures hundreds each year. Lightning can occur anywhere there is a thunderstorm.

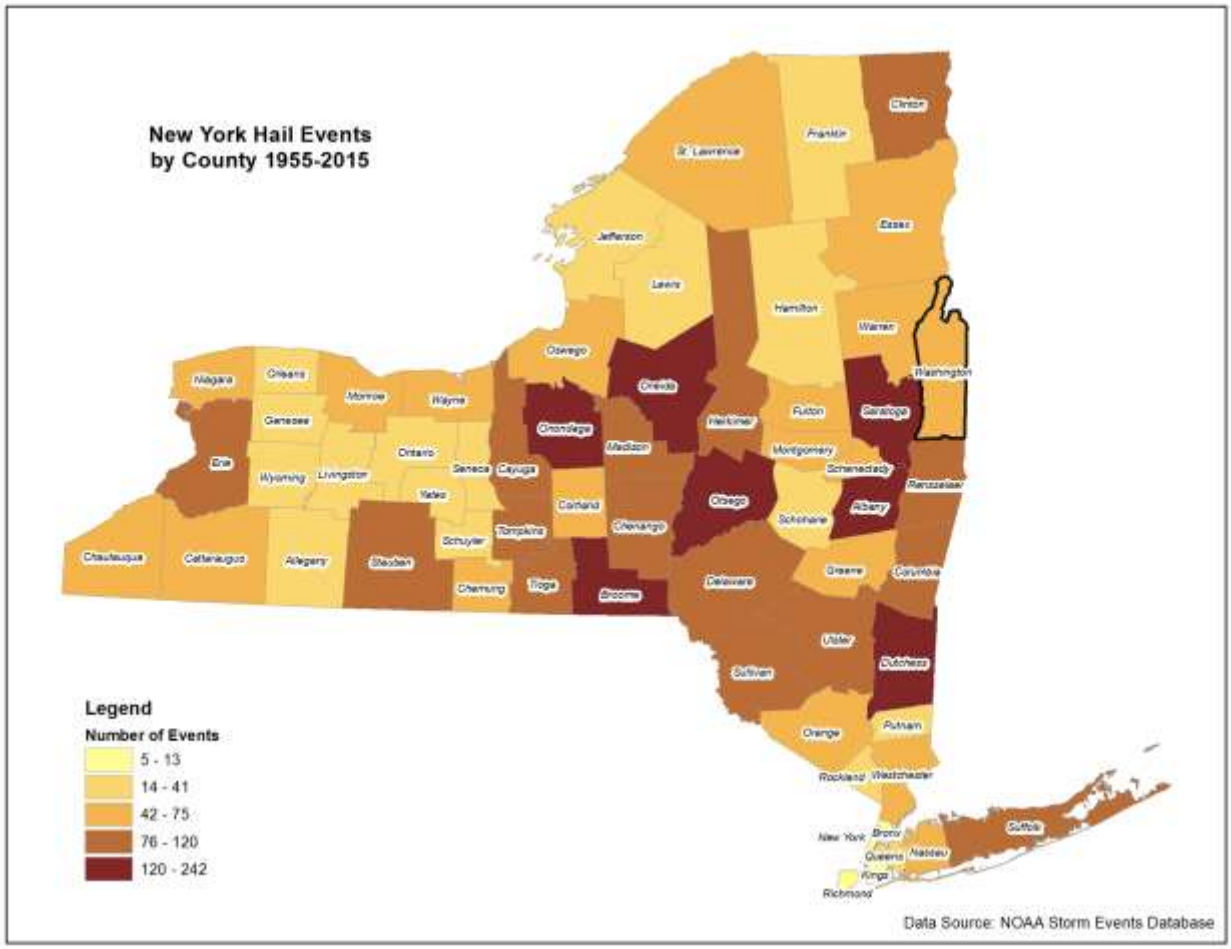
Thunderstorms can lead to flooding, landslides, strong winds, and lightning. Roads may become impassable from flooding, downed trees or power lines, or landslides. Downed power lines can lead to utility losses, such as water, phone and electricity. Lightning can damage homes and injure people. In the United States, an average of 300 people are injured and 50 people are killed by lightning each year. Typical thunderstorms are 15 miles in diameter and last an average of 30 minutes. An estimated 100,000 thunderstorms occur each year in the United States, with approximately 10% of them classified as severe. During the warm season, thunderstorms are responsible for most of the rainfall.

Location

Hailstorms

Hailstorms are most frequent in the southern and central plains states in the United States, where warm moist air off of the Gulf of Mexico and cold dry air from Canada collide, and thereby spawning violent thunderstorms. This area of the United States is known as hail alley and lies within the states of Texas, Oklahoma, Colorado, Kansas, Nebraska, and Wyoming. In New York State, hailstorms can occur anywhere within the State independently or during a tornado, thunderstorm or lightning event. Figure 5.4.3-1 shows the number of hail events from 1960 to 2015 across New York State. The figure indicates that Washington County experienced 63 hail events during this timeframe (NOAA).

Figure 5.4.3-1. New York Hail Events by County 1960-2015

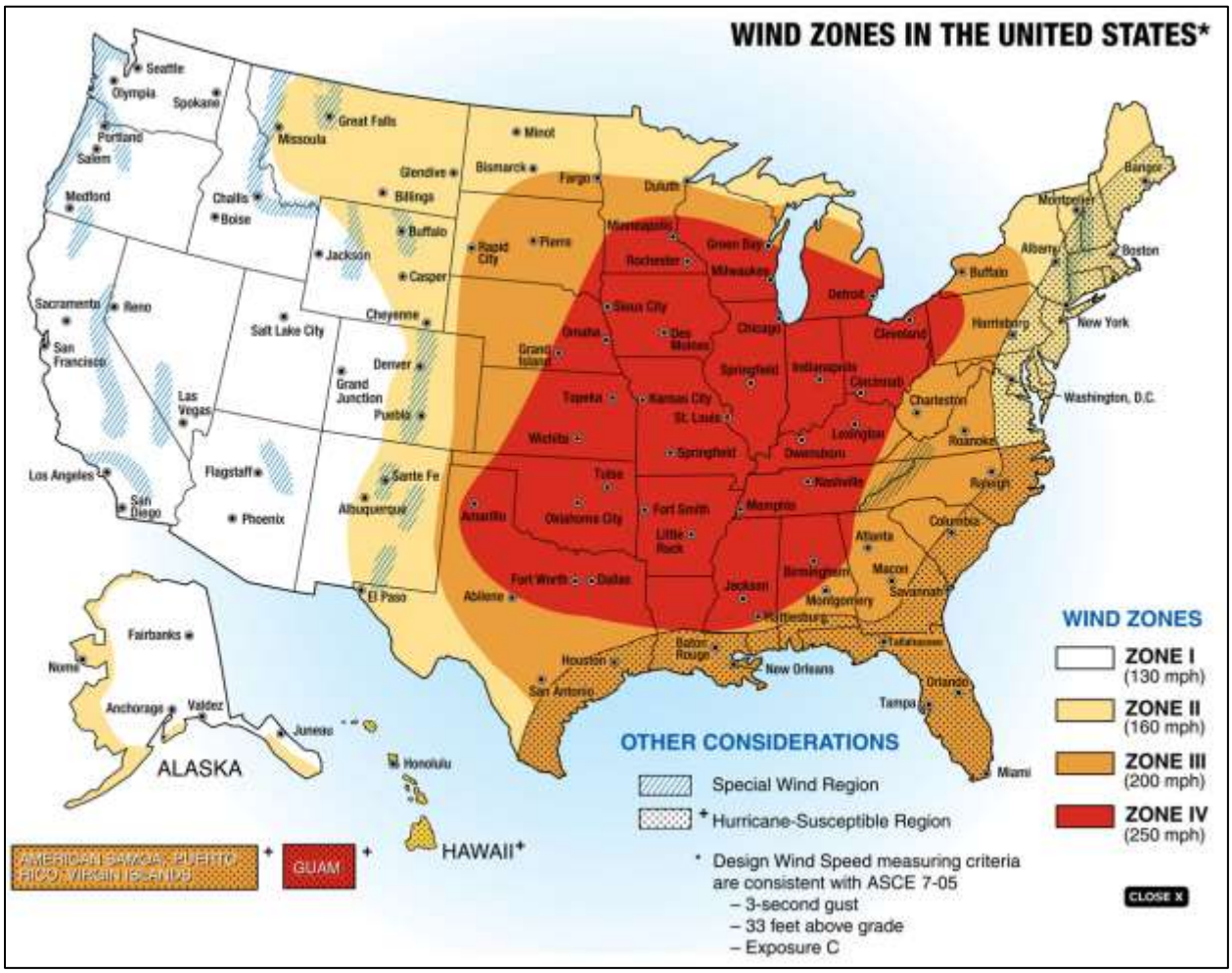


Source: NOAA Storm Events Database

High Winds

All of Washington County is subject to high winds from thunderstorms, hurricanes/tropical storms, tornadoes, and other severe storm events. According to Figure 5.4.3-2, the FEMA Winds Zones of the United States map, Washington County is located in Wind Zone II, where wind speeds can reach up to 160 mph. A portion of the County is also located in the Hurricane Susceptible Region, which extends along the entire east coast from Maine to Florida, the Gulf Coast, and Hawaii. This figure indicates how the frequency and strength of windstorms impacts the United States and the general location of the most wind activity. This is based on 40 years of tornado data and 100 years of hurricane data, collected by FEMA.

Figure 5.4.3-2. Wind Zones in the United States



Source: FEMA, 2001

Hurricanes/Tropical Storms

Hurricanes and tropical storms can impact New York State from June to November, the official eastern U.S. hurricane season. However, late July to early October is the period hurricanes and tropical storms are most likely to impact New York State, due to the coolness of the North Atlantic Ocean waters (NYS DHSES, 2014).

Washington County is vulnerable to the impacts of hurricanes and tropical storms. However, it depends on the storm's track. Inland areas, like Washington County, are at risk for flooding due to the heavy rain and winds produced by hurricanes and tropical storms. The majority of damage from these events often results from residual wind damage and inland flooding, most recently experienced during Hurricane Irene in August 2011.

NOAA's Historical Hurricane Tracks tool is a public interactive mapping application that displays Atlantic Basin and East-Central Pacific Basin tropical cyclone data. This interactive tool catalogs tropical cyclones that have occurred from 1842 to 2014 (latest date available from data source). Between 1990 and 2014, one tropical cyclone tracked within 65 nautical miles of Washington County. Figure 5.4.3-3 displays the tropical cyclone track for Washington County that tracked with 65 nautical miles between 1990 and 2014. Please note that the figure does not show Hurricane Sandy passing within 65 nautical miles of the County.

Figure 5.4.3-3. Historical Tropical Storm and Hurricane Tracks 1990 to 2014

Source: NOAA NHC 2016

Nor'Easters

Nor'Easters threaten the entire east coast of the United States, where the coastal ears are the most susceptible because these areas are directly exposed; however, the impacts of these storms are often felt far inland as well. According to the New York State Hazard Mitigation Plan, the coastal region of New York State is extremely vulnerable to Nor'Easters; however, these storms can impact the entire state.

Tornadoes

Tornadoes can occur anywhere in New York State and Washington County. Since 1952, over 350 tornadoes ranging from F0 to F4 have occurred throughout the State (NYS DHSES 2014). Based on statistics from 1991 to 2010, New York State has experienced an average of 10 tornadoes annually (NOAA 2013). For Washington County, between 1950 and 2016, the County experienced four tornadoes, which averages approximately 0.06 tornadoes each year (SPC 2016).

Thunderstorms

Thunderstorms affect relatively small localized areas, rather than large regions like winter storms and hurricane events. Thunderstorms can strike in all regions of the United States; however, they are most common in the central and southern states. The atmospheric conditions in these regions of the country are ideal for generating

these powerful storms. It is estimated that there are as many as 40,000 thunderstorms each day worldwide. The most thunderstorms are seen in the southeast United States, with Florida having the highest incidences (80 to over 100 thunderstorm days each year). According to NOAA, Washington County can experience between 20 and 30 thunderstorms each year (NWS 2010).

Extent

Hailstorms

The severity of hail is measured by duration, hail size, and geographic extent. All of these factors are directly related to thunderstorms, which creates hail. There is wide potential variation in these severity components. The most significant impact of hail is damage to crops. Hail also has the potential to damage structures and vehicles during hailstorms.

Hail can be produced from many different types of storms. Typically, hail occurs with thunderstorm events. The size of hail is estimated by comparing it to a known object. Most hailstorms are made up of a variety of sizes, and only the very largest hail stones pose serious risk to people, when exposed. Table 5.4.3-2 shows the different sizes of hail and the comparison to real-world objects.

Table 5.4.3-2. Hail Size

Size	Inches in Diameter
Pea	0.25 inch
Marble/mothball	0.50 inch
Dime/Penny	0.75 inch
Nickel	0.875 inch
Quarter	1.0 inch
Ping-Pong Ball	1.5 inches
Golf Ball	1.75 inches
Tennis Ball	2.5 inches
Baseball	2.75 inches
Tea Cup	3.0 inches
Grapefruit	4.0 inches
Softball	4.5 inches

Source: NWS 2015; NYS DHSES 2014

High Winds

The following table provides the descriptions of winds used by the NWS during wind-producing events.

Table 5.4.3-3. NWS Wind Descriptions

Descriptive Term	Sustained Wind Speed (mph)
Strong, dangerous, or damaging	≥40
Very Windy	30-40
Windy	20-30
Breezy, brisk, or blustery	15-25
None	5-15 or 10-20
Light or light and variable wind	0-5

Source: NWS 2010
mph miles per hour

The NWS issues advisories and warnings for winds. Issuance is normally site-specific. High wind advisories, watches and warnings are products issued by the NWS when wind speeds may pose a hazard or is life threatening. The criterion for each of these varies from state to state. Wind warnings and advisories for New York State are as follows:

- High Wind Warnings are issued when sustained wind speeds of 40 mph or greater lasting for one hour or longer or for winds of 58 mph or greater for any duration or widespread damage are possible.
- Wind Advisories are issues when sustained winds of 30 to 39 mph are forecast for one hour or longer, or wind gusts of 46 to 57 mph for any duration (NWS 2015).

Hurricanes/Tropical Storms

The extent of a hurricane is categorized in accordance with the Saffir-Simpson Hurricane Scale. The Saffir-Simpson Hurricane Wind Scale is a 1-to-5 rating based on a hurricane's sustained wind speed. This scale estimates potential property damage. Hurricanes reaching Category 3 and higher are considered major hurricanes because of their potential for significant loss of life and damage. Category 1 and 2 storms are still dangerous and require preventative measures (NOAA 2013). presents this scale, which is used to estimate the potential property damage and flooding expected when a hurricane makes landfall.

Table 5.4.3-4. The Saffir-Simpson Scale

Category	Wind Speed (mph)	Expected Damage
1	74-95 mph	Very dangerous winds will produce some damage: Homes with well-constructed frames could have damage to roof, shingles, vinyl siding, and gutters. Large branches of trees will snap and shallowly rooted trees may be toppled. Extensive damage to power lines and poles likely will result in power outages that could last a few to several days.
2	96-110 mph	Extremely dangerous winds will cause extensive damage: Homes with well-constructed frames could sustain major roof and siding damage. Many shallowly rooted trees will be snapped or uprooted and block numerous roads. Near-total power loss is expected with outages that could last from several days to weeks.
3 (major)	111-129 mph	Devastating damage will occur: Homes with well-built frames may incur major damage or removal of roof decking and gable ends. Many trees will be snapped or uprooted, blocking numerous roads. Electricity and water will be unavailable for several days to weeks after the storm passes.
4 (major)	130-156 mph	Catastrophic damage will occur: Homes with well-built frames can sustain severe damage with loss of most of the roof structure and/or some exterior walls. Most trees will be snapped or uprooted and power poles downed. Fallen trees and power poles will isolate residential areas. Power outages will last weeks to possibly months. Most of the area will be uninhabitable for weeks or months.
5 (major)	>157 mph	Catastrophic damage will occur: A high percentage of framed homes will be destroyed, with total roof failure and wall collapse. Fallen trees and power poles will isolate residential areas. Power outages will last for weeks to possibly months. Most of the area will be uninhabitable for weeks or months.

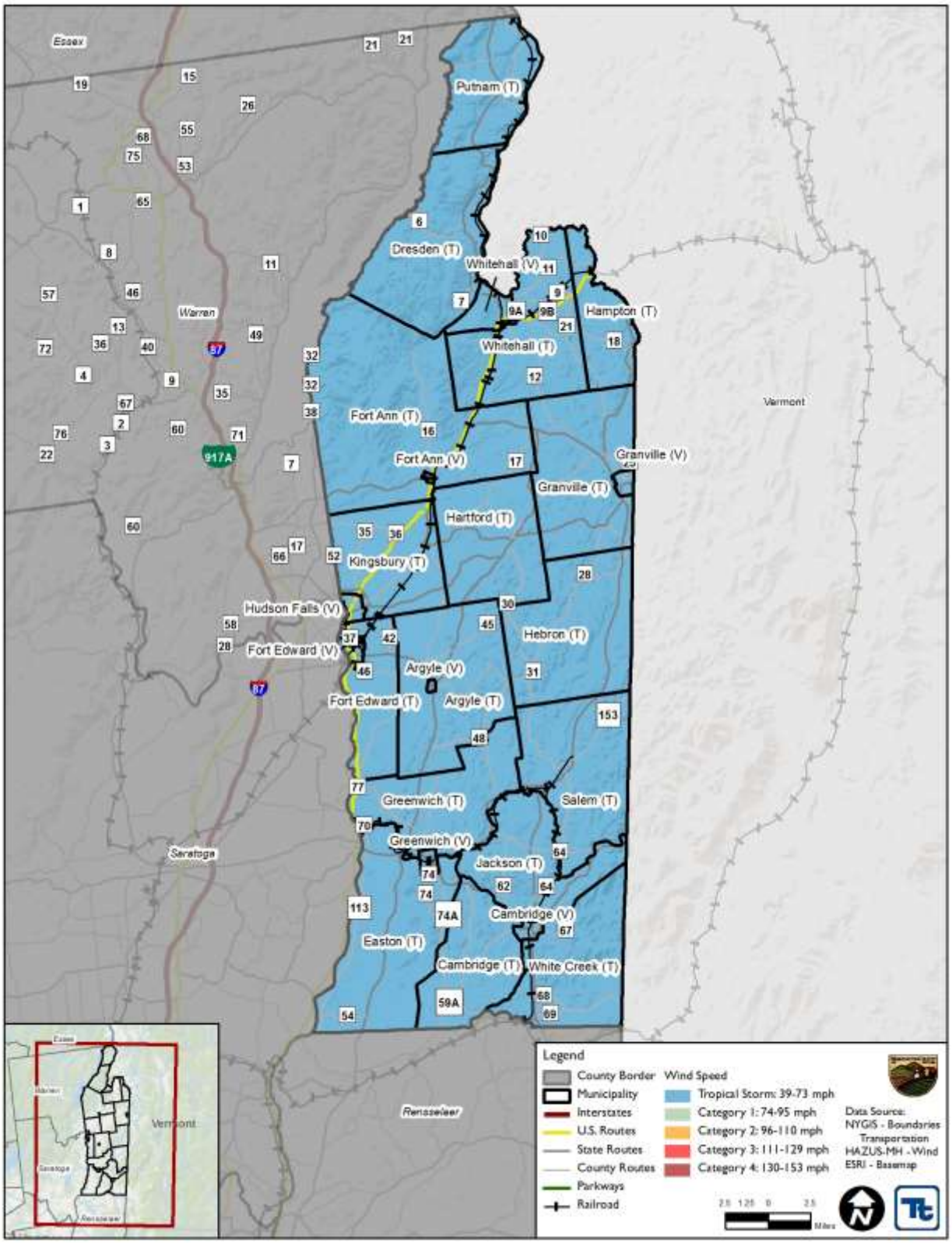
Source: NOAA 2013
Notes: mph = Miles per hour
> = Greater than

Mean Return Period

In evaluating the potential for hazard events of a given magnitude, a mean return period (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).

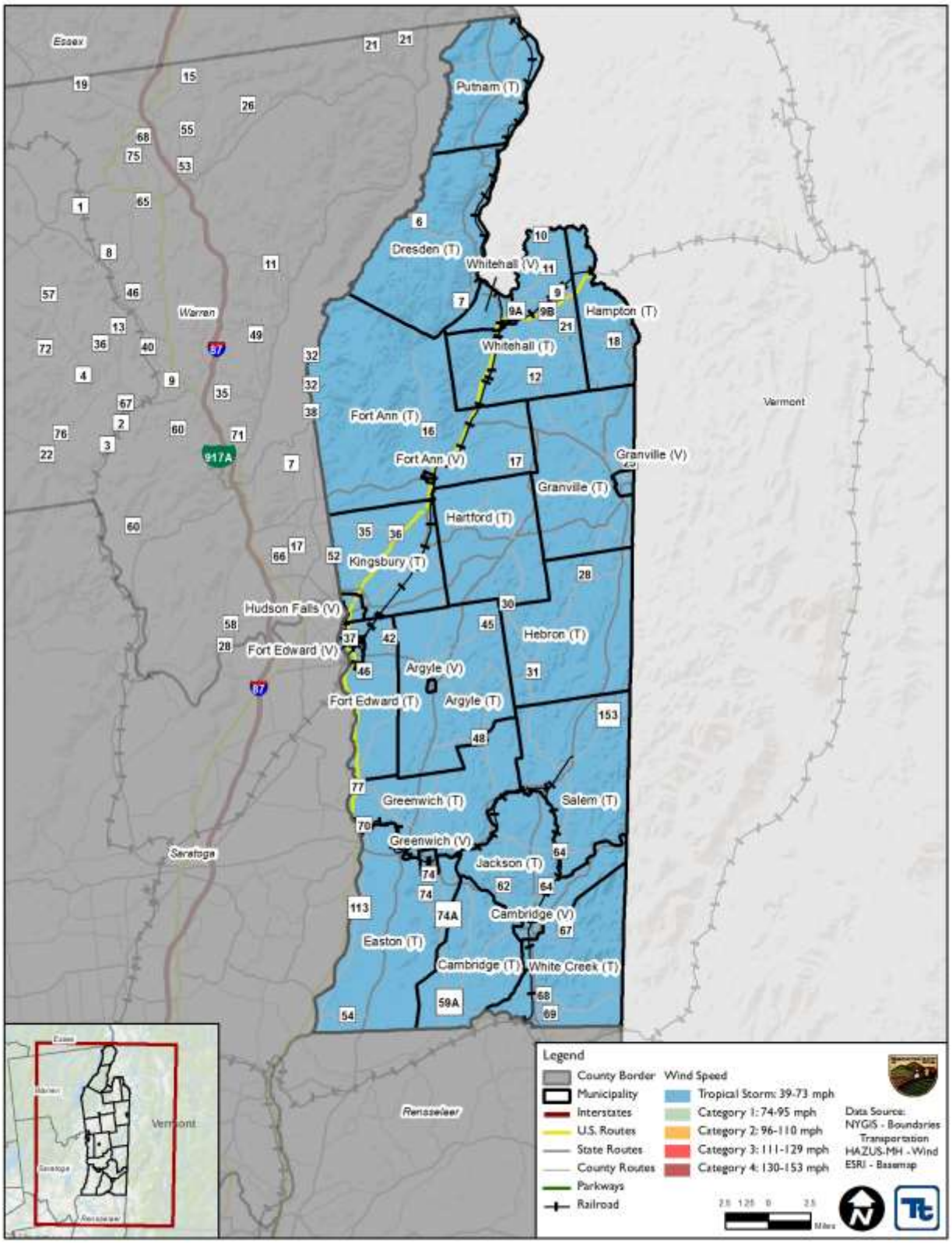
Figure 5.4.3-4 and Figure 5.4.3-5 show the estimated maximum 3-second gust wind speeds that can be anticipated in the study area associated with the 100- and 500-year MRP events. These peak wind speed projections were generated using Hazards U.S. Multi-Hazard (HAZUS-MH) model runs. HAZUS-MH 3.1 did not generate the hurricane track for the 100- and 500-year event. The maximum 3-second gust wind speeds for Washington County range from 45 to 58 mph for the 100-year MRP event. The maximum 3-second gust wind speeds for Washington County range from 66 to 71 mph for the 500-year MRP event. The associated impacts and losses from these 100-year and 500-year MRP hurricane event model runs are reported in the Vulnerability Assessment.

Figure 5.4.3-4. Wind Speeds for the 100-Year Mean Return Period Event



Source: HAZUS-MH 3.1

Figure 5.4.3-5. Wind Speeds for the 500-Year Mean Return Period Event



Source: HAZUS-MH 3.1

Nor'Easter

The extent of a Nor'Easter can be classified by meteorological measurements and by evaluating its societal impacts. NOAA's National Climatic Data Center (NCDC) is currently producing the Regional Snowfall Index (RSI) for significant snowstorms that impact the eastern two-thirds of the U.S. The RSI ranks snowstorm impacts on a scale from 1 to 5. It is based on the spatial extent of the storm, the amount of snowfall, and the interaction of the extent and snowfall totals with population (based on the 2000 U.S. Census). The NCDC has analyzed and assigned RSI values to over 500 storms since 1900 (NOAA-NCDC 2011). Table 5.4.3-5 lists the five categories.

Table 5.4.3-5. 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+

Source: NOAA-NCDC 2011
RSI Regional Snowfall Index

Nor'Easters have the potential to impact society to a greater extent than hurricanes and tornadoes. These storms often have a diameter three to four times larger than a hurricane and therefore, impact much larger areas. More homes and properties become susceptible to damage as the size and strength of a Nor'Easter intensifies (Storm Solution 2013). The severity of a Nor'Easter depends on several factors including a region's climatological susceptibility to snowstorms, snowfall amounts, snowfall rates, wind speeds, temperatures, visibility, storm duration, topography, time of occurrence during the day (e.g., weekday versus weekend), and season.

Tornadoes

The Enhanced Fujita Scale (EF-Scale) is the standard used to measure the strength of a tornado. It is used to assign tornadoes a 'rating' based on estimated wind speeds and related damage. When tornado-related damage is surveyed, it is compared to a list of Damage Indicators (DI) and Degree of Damage (DOD), which help better estimate the range of wind speeds produced by the tornado. From that, a rating is assigned, similar to that of the F-Scale, with six categories from EF0 to EF5, representing increasing degrees of damage. The EF-Scale was revised from the original F-Scale to reflect better examinations of tornado damage surveys. This new scale considers how most structures are designed (NOAA 2008). Table 5.4.3-6 displays the EF-Scale and each of its six categories.

Table 5.4.3-6. Enhanced Fujita Damage Scale

EF-Scale Number	Intensity Phrase	Wind Speed (mph)	Type of Damage Done
EF0	Light tornado	65–85	**Light damage**. Peels surface off some roofs; some damage to gutters or siding; branches broken off trees; shallow-rooted trees pushed over.
EF1	Moderate tornado	86-110	**Moderate damage**. Roofs severely stripped; mobile homes overturned or badly damaged; loss of exterior doors; windows and other glass broken.
EF2	Significant tornado	111-135	**Considerable damage**. Roofs torn off well-constructed houses; foundations of frame homes shifted; mobile homes completely destroyed; large trees snapped or uprooted; light-object missiles generated; cars lifted off ground.

EF-Scale Number	Intensity Phrase	Wind Speed (mph)	Type of Damage Done
EF3	Severe tornado	136-165	**Severe damage**. Entire stories of well-constructed houses destroyed; severe damage to large buildings such as shopping malls; trains overturned; trees debarked; heavy cars lifted off the ground and thrown; structures with weak foundations blown away some distance.
EF4	Devastating tornado	166-200	**Devastating damage**. Well-constructed houses and whole frame houses completely leveled; cars thrown and small missiles generated.
EF5	Incredible tornado	>200	**Incredible damage**. Strong frame houses leveled off foundations and swept away; automobile-sized missiles fly through the air in excess of 100 meters (109 yards); high-rise buildings have significant structural deformation; incredible phenomena occur.

Source: SPC Date Unknown
EF-Scale Enhanced Fujita Scale
mph miles per hour

Tornado watches and warning are issued by the local NWS office. A tornado watch is released when tornadoes are possible in an area. A tornado warning means a tornado has been sighted or indicated by weather radar. The current average lead time for tornado warnings is 13 minutes. Occasionally, tornadoes develop so rapidly, that little, if any, advance warning is possible (NOAA 2013; FEMA 2013).

Thunderstorms

Severe thunderstorm watches and warnings are issued by the local NWS office and SPC. The NWS and SPC will update the watches and warnings and will notify the public when they are no longer in effect. Watches and warnings for thunderstorms in New York State are as follows:

- Severe Thunderstorm Warnings are issued when there is evidence based on radar or a reliable spotter report that a thunderstorm is producing, or forecast to produce, wind gusts of 58 mph or greater, structural wind damage, and/or hail one-inch in diameter or greater. A warning will include where the storm was located, what municipalities will be impacted, and the primary threat associated with the severe thunderstorm warning. After it has been issued, the NWS office will follow up periodically with Severe Weather Statements which contain updated information on the severe thunderstorm and will let the public know when the warning is no longer in effect (NWS 2009; NWS 2010).
- Severe Thunderstorm Watches are issued by the SPC when conditions are favorable for the development of severe thunderstorms over a larger-scale region for a duration of at least three hours. Tornadoes are not expected in such situations, but isolated tornado development may also occur. Watches are normally issued well in advance of the actual occurrence of severe weather. During the watch, the NWS will keep the public informed on what is happening in the watch area and also let the public know when the watch has expired or been cancelled (NWS 2009; NWS 2010).
- Special Weather Statements for Near Severe Thunderstorms are issued for strong thunderstorms that are below severe levels, but still may have some adverse impacts. Usually, they are issued for the threat of wind gusts of 40 to 58 mph or small hail less than one-inch in diameter (NWS 2010).

Previous Occurrences and Losses

Many sources provided historical information regarding previous occurrences and losses associated with severe storm events throughout Washington County. With so many sources reviewed for the purpose of this Hazard Mitigation Plan (HMP) update, loss and impact information for many events could vary depending on the source. Therefore, the accuracy of monetary figures discussed is based only on the available information identified during research for this HMP update.

Between 1954 and 2015, New York State was included in 54 FEMA declared severe storm-related disasters (DR) or emergencies (EM) classified as one or a combination of the following hazards: coastal storm, high tides, heavy rain, flooding, hurricane, ice storm, severe storms, thunderstorms, tornadoes, tropical storm, straight-line winds, and landslides. Generally, these disasters cover a wide region of the State; therefore, they may have impacted many counties. Of those declarations, Washington County has been included in five declarations (FEMA 2016).

Table 5.4.3-7. FEMA Declarations for Severe Storm Events in Washington County

FEMA Declaration Number	Date(s) of Event	Event Type	Counties Included
DR-515	July 21, 1976	Severe Storms & Flooding	7 counties including Washington
DR-1095	January 19-30, 1996	Severe Storms and Flooding	41 counties including Washington
DR-1534	May 13-June 17, 2004	Severe Storms and Flooding	All 62 counties in New York State
DR-4020	August 26-September 5, 2011	Hurricane Irene	32 counties including Washington
EM-3351	October 27-November 8, 2012	Hurricane Sandy	All 62 counties in New York State

Source: FEMA 2016

For this 2018 Plan update, known severe storm events, including FEMA disaster declarations, which have impacted Washington County between 2007 and 2016 are identified in Table 5.4.3-8. For detailed information on damages and impacts to each municipality, refer to Section 9 - Annexes. Please note that not all events that have occurred in Washington County are included due to the extent of documentation and the fact that not all sources may have been identified or researched. Loss and impact information could vary depending on the source. Therefore, the accuracy of monetary figures discussed is based only on the available information identified during research for this plan.

Table 5.4.3-8. Severe Storm Events in Washington County between 2007 and 2016

Dates of Event	Event Type	FEMA Declaration Number (if applicable)	Location / County Designated?	Losses / Impacts
April 23, 2007	Heavy rain, snowmelt and flooding	N/A	N/A	Warm temperatures led to rapid melting of snow across the Adirondacks. The rapid melting led to flooding of many rivers that drain the Adirondacks. Releases from Sacandaga Lake caused flooding on some rivers through the end of April. In Washington County, significant snowmelt led to moderate flooding of the Hudson River at Schuylerville (Saratoga County), located across the river from the Towns of Greenwich and Easton. The river crested at 92.8 feet on April 25th and remained above its flood stage of 90 feet through April 30th.
September 27, 2007	Severe thunderstorms and lightning	N/A	N/A	Strong to isolated severe thunderstorms developed across portions of eastern New York State. In Washington County, in the Village of Hudson Falls, lighting struck a home which started a fire that spread. This caused approximately $200,000 in damages to the home.
March 5, 2008	Heavy rain, snowmelt and flooding	N/A	N/A	Widespread, heavy rainfall fell across east central New York State and western New England. Rainfall totals ranged from one to three inches. The heavy rainfall, in combination with frozen ground and snowmelt, led to flooding in many areas in the Capital Region, Lake George and Saratoga Region, Schoharie Valley, eastern Catskills and mid-Hudson Valley. Portions of Washington County experienced flooding. Road closures were reported, particularly in the area of North Hebron (Town of Hebron). The County had approximately $1,000 in property damage.
September 6-7, 2008	Hurricane Hanna	N/A	N/A	Remnants of tropical cyclone Hanna caused widespread heavy rain across the mid-Hudson Valley of eastern New York State and southwest New England. Rainfall totals ranged from three to six inches which led to flooding in some areas.
December 7, 2008	Strong wind	N/A	N/A	A system caused strong west to northwest winds in eastern New York State. The winds had sustained speeds of 15 to 30 mph and gusts of up to 55 mph. The strong winds led to downed trees and scattered power outages across the region. Damages in Washington County were approximately $2,000.
December 25-26, 2008	Strong wind	N/A	N/A	Strong winds developed immediately ahead of a low-pressure system and brought wind gusts of 40 to 50 mph. The strongest winds extended from the immediate Capital District into the Mohawk Valley and southern Adirondacks. Washington County had approximately $6,000 in damages.
December 30-31, 2008	Strong wind	N/A	N/A	Strong winds impacted areas across eastern New York State and western New England. Wind gusts of 45 to 55 mph occurred that resulted in scattered power outages and downed trees and limbs. Approximately 7,200 were without power in eastern New York State, mostly across northern portions of the Capital region into Saratoga County. Washington County had approximately $6,000 in damages.
June 30, 2009	Thunderstorms	N/A	N/A	Thunderstorms impacted areas of eastern New York State with some producing flash flooding. In Washington County, multiple trees were reported down near Granville due to strong winds from the storms. Damage to siding was reported at a

Dates of Event	Event Type	FEMA Declaration Number (if applicable)	Location / County Designated?	Losses / Impacts
				local senior citizen home. In Comstock (Town of Fort Ann) and the Town of Whitehall, trees and power lines were reported down from the winds.
April 27 – May 2, 2011	Flood	DR-1993	No	A total of three to five inches of rain combined with significant snowmelt produced widespread flooding in northeastern New York State. The NWS reported a three-day rainfall total of 3.81 inches at North Lake Placid and a four-day rainfall total of 4.60 inches at Indian Lake. Major flooding was reported by the NWS in the following basins: Lake Champlain, Hudson River, Sacandaga River, West Canada Creek, Schroon River, and Ausable River. Ten USGS stream gages in the Hudson and St. Lawrence River basins recorded new record maximums during this event. Several lakes and reservoirs also recorded new record elevations as a result of this event. Great Sacandaga Lake, Hinkley Reservoir and Stillwater Reservoir all recorded new maximum water level elevations during this event. In and around Washington County, flooding began on April 28th along the Hudson River. The river gauge at Fort Edward fell below flood stage early on May 6th, Schuylerville (Saratoga County), located across the river from the Towns of Greenwich and Easton, late in the evening on May 9th, Mechanicville (Saratoga County) late in the evening on May 2nd, and Troy (Rensselaer County) early in the morning on May 1st. The river gauge at Riverbank on Schroon River (Warren County) fell below flood stage early in the morning on May 7th. Along the Sacandaga River, the river gauge at Stewarts Bridge in Hadley (Saratoga County) fell below flood stage late in the morning on May 2nd and the Sacandaga Reservoir (Saratoga County) late in the evening on May 6th. The Lake Champlain river gauge north of the Town of Whitehall went over flood stage on April 13th and continued to rise with flooding in and near the Village of Whitehall beginning on April 28th. The river gauge crested at 103.57 feet on May 9th (major flood stage is 103 feet), and finally fell to flood stage on June 17th. The widespread clean-up process began on June 18th. Widespread flooding continued in and near the Village of Whitehall due to high water on Lake Champlain. The Village was flooded north of Williams Street. Dozens of homes and businesses near Lock 12 on both sides of the Champlain Canal were under several feet of water. The worst flooding was reported along North Williams Streets and at the townhomes near the Whitehall Marina. Amtrak halted service between Albany and Montreal on May 4th due to flooding of tracks from heavy rainfall in the Adirondack Park's eastern boundary (two miles north of the Village of Whitehall). Service was restored on May 5th. In the Village of Whitehall, the American Red Cross established a shelter at the

Dates of Event	Event Type	FEMA Declaration Number (if applicable)	Location / County Designated?	Losses / Impacts
				Skenesbourgh EMS building. The village mayor declared a state of emergency on Friday, May 20th. The New York State Canal System remained closed until late May due to high water levels, excessive flow and floating debris. On May 25th, the Erie Canal from Lock E-2 (Village of Waterford [Saratoga County]) to Lock E-23 (Brewerton [Onondaga County]) and the Champlain Canal from C-1 (Village of Waterford) to Lock C-12 (Town of Whitehall in Washington County) finally opened. In the Village of Fort Edward, properties were flooded on the east bank of the River and on Rogers Island. Sandbags were used to protect some homes. Widespread flooding occurred in and near the Village of Whitehall due to high water near Lake Champlain. Areas of flooding in the Village were reported on Lower and North Main Street, North Williams Road, Doig Street (County Road 10), East Bay Road, and South Bay including Route 22. County Emergency Management Services reported the evacuation of approximately 16 homes due to rising waters. The County had approximately $53,000 in property damage from this event.
May 26, 2011	Thunderstorms	N/A	N/A	Two rounds of severe thunderstorms occurred across east central New York State during the afternoon and evening of May 26th. The storms caused wind damage and power outages. Washington County was impacted by these storms as well. In the Town of Cambridge, trees were reported down on Center Cambridge Road. In the Towns of Fort Ann, Hampton and Granville, trees and wires were reported down. The estimated wind gusts in the County reached 58 mph.
June 1, 2011	Severe thunderstorms and hail	N/A	N/A	Severe thunderstorms affected portions of east central New York particularly from the Mohawk Valley and eastward across Saratoga, Washington and Rensselaer counties. Large and historic hail occurred with only a few strong wind reports. Hail sizes of greater than one inch in diameter were common. In Washington County, 1.5-inch diameter hail was reported in the Town of Cambridge. Penny size hail was reported in the Town of Easton. In Eagle Bridge (Town of White Creek), penny to nickel size hail was reported and a spotter reported a funnel cloud.
August 28-30, 2011	Hurricane Irene	DR-4020	Yes	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.

Dates of Event	Event Type	FEMA Declaration Number (if applicable)	Location / County Designated?	Losses / Impacts
				In Washington County, flash flooding was reported in numerous locations which led to many road closures due to flooding and downed trees and power lines. Most of the road closures were in the eastern portion of the County, near the border of Vermont. This included State Route 22. The Village of Salem and parts of the Village of Whitehall were evacuated. This event damaged roadways and homes, debris blocked culverts, and bridges were damaged. Major flooding occurred on the Hoosic River. The Eagle Bridge river gage, located near the Town of White Creek's southern boundary, crested at 19.24 feet on August 29th (above its 11-foot flood state). This was considered major flooding on the river. Record flooding occurred on the Mettawee River. The Granville river gage crested at 15.04 feet (flood stage of 7 feet). Record flooding also occurred on the Battenkill. Route 29 over the Battenkill in Middle Falls (Town of Greenwich) was closed due to flooding. The Battenkill river gage crested at 14.27 feet (flood stage of 12 feet).
September 5-8, 2011	Remnants of Tropical Storm Lee	DR-4031	No	Remnants of Tropical Storm Lee brought heavy rainfall across eastern New York State, with totals ranging from four to eight inches, with the greatest amounts occurring across portions of the eastern Catskills. The heavy rain, combined with the saturated soils from Hurricane Irene, led to widespread minor to moderate flooding on rivers, small streams and creeks across eastern New York State. In addition, flash flooding occurred across portions of the eastern Catskills and western Mohawk River Valley. In Washington County, rainfall totals ranged from 2.24 inches in Whitehall to 5.54 inches in North Hebron (Town of Hebron). Moderate flooding occurred on the Hoosic River at Eagle Bridge. The gage at Eagle Bridge, located near the Town of White Creek's southern boundary, exceeded its 11-foot flood stage on September 7th as it crested at 14.05 feet (moderate flooding is 13 feet).
May 16, 2012	Hail storms	N/A	N/A	Severe thunderstorms moved across east central New York State. Most areas impacted by the storms reported hail. In Washington County, penny size hail was reported west of the Town of Salem. Quarter size hail was reported just north of the Town of Salem. Downed trees were also reported in the Town of Salem. Golf ball size hail was reported in Huletts Landing (Town of Dresden). In the Town of Cambridge, downed trees were reported as a result of the storm.
October 27 – November 8, 2012	Hurricane Sandy	EM-3351	Yes	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.

Dates of Event	Event Type	FEMA Declaration Number (if applicable)	Location / County Designated?	Losses / Impacts
				In Washington County, high winds downed trees and power lines in White Creek, Argyle, Shushan (Town of Salem), Salem, Greenwich, and Cambridge. Shelters were open across the County in preparation for Sandy.
June 17-19, 2013	Severe thunderstorms / hail	N/A	N/A	In the Towns of Argyle and Greenwich, multiple trees were knocked down as a result of the storm. Quarter size hail was reported one mile south of the Town of Argyle.
July 5, 2013	Severe storms and flooding	DR-4129	No	On July 5th, showers and thunderstorms tracked over Washington County. Small streams and creeks overflowed their banks as a result of heavy rainfall and caused flash flooding. Several roads in the county were closed. Several streets in Hudson Falls, including John Street and State Route 196, were closed due to flash flooding from heavy rainfall.
September 11-12, 2013	Severe storms	N/A	N/A	In the Town of Argyle, there were multiple downed trees and power lines. In the Towns of Fort Ann and Hartford, there were reports of downed trees. In the Town of Granville, there were downed trees and many roads were closed.
June 17-18, 2014	Thunderstorms and wind	N/A	N/A	Thunderstorms in Washington County downed trees and power lines in the towns of Fort Ann, Hudson Falls, Kingsbury, Easton, and Whitehall.
July 24, 2015	Thunderstorms and hail	N/A	N/A	Hail up to one inch in size and downed trees were reported in the Town of Hudson Falls. Downed trees were reported in the Town of Fort Edward. Downed trees and power lines were reported in the Town of Greenwich.
February 23-26, 2016	Heavy rain, flooding, snowfall and strong winds	N/A	N/A	Thunderstorms impacted eastern New York State, bringing periods of heavy rain. At times, rain fell at rates exceeding one inch per hour. The rainfall, combined with frozen ground and snowmelt, allowed for widespread flooding of urban, poor drainage and low-lying areas. Some streams and rivers exceeded flood stages. In Washington County, rainfall totals ranged from 1.8 inches in the Town of Hebron to 2.69 inches in the Town of Whitehall. Flooding was reported in the Town of Fort Edward, where a basement collapsed due to the flooding. Additionally, in the Town of Fort Edward, Broadway Street (U.S. Route 4) was flooded and washed out. County Route 113 near the Town of Greenwich was closed due to flooding; the roadway was reported to have been washed out due to the flooding. Urban flooding was reported in the Town of Fort Edward due to heavy rainfall. The intersection of East and Wing Streets was reported to have been washed away due to the flooding. In the Town of Easton, between eight and 10 inches of water was flowing over Route 40. County Route 35 (Vaughn Road) near the Town of Hudson Falls was closed due to damage from a washout east of Tripoli Road. In the Town of Kingsbury, Route 196/St. James Road, Burgoyne Street, and Maynard Street were flooded and closed.

Sources: NYSDEC 2016; FEMA 2016; NOAA-NCDC 2016; NWS 2016; SPC 2016

FEMA Federal Emergency Management Agency

Mph	*Miles Per Hour*
NCDC	*National Climatic Data Center*
NOAA	*National Oceanic and Atmospheric Administration*
NWS	*National Weather Service*
N/A	*Not Applicable*

Probability of Future Occurrences

Predicting future severe storm events in a constantly changing climate has proven to be a difficult task. Predicting extremes in New York State is particularly difficult because of the region's geographic location. It is positioned roughly halfway between the equator and the North Pole and is exposed to both cold and dry airstreams from the south. The interaction between these opposing air masses often leads to turbulent weather across the region (Keim, 1997). It is estimated that Washington County will continue to experience direct and indirect impacts of severe storms annually that may induce secondary hazards such as flooding, infrastructure deterioration or failure, utility failures, power outages, water quality and supply concerns, and transportation delays, accidents and inconveniences.

According to the NOAA NCDC, Washington County experienced 395 severe storms events between 1950 and 2016. Based on historic occurrences, thunderstorm events are the most common severe storm events in Washington County. The table below shows these statistics, as well as the annual average number of events and the percent chance of these individual severe storm hazards occurring in Washington County in future years (NOAA NCDC 2016).

Table 5.4.3-9. Probability of Occurrence of Severe Storm Events

Hazard Type	Number of Occurrences Between 1950 and 2016	Rate of Occurrence or Annual Number of Events (average)	Recurrence Interval (in years) (# Years/Number of Events)	Probability of Event in any given year	% chance of occurrence in any given year
Hail	65	1.00	1.02	0.98	98.48
Heavy Rain	18	0.28	3.67	0.27	27.27
High or Strong Wind	36	0.55	1.83	0.03	2.78
Hurricane	0	0.00	0.00	0.00	0.00
Lightning	7	0.11	9.43	0.11	10.61
Thunderstorm	263	4.05	0.25	1	100
Tornado	4	0.06	16.50	0.06	6.06
Tropical Storm / Depression	2	0.03	33.00	0.03	3.03

Source: NOAA-NCDC 2016
Note: Probability was calculated using the available data provided in the NOAA-NCDC storm events database.

In Section 5.3 – Hazard Ranking, the identified hazards of concern for Washington County were ranked. The probability of occurrence, or likelihood of the event, is one parameter used for ranking hazards. Based on historical records and input from the Planning Committee, the probability of occurrence for severe storms in the County is considered 'frequent' (likely to occur more than once every 25 years, as presented in Table 5.3-3).

Climate Change Impacts

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 (New York State Energy Research and Development Authority [NYSERDA], 2011).

Each region in New York State, as defined by ClimAID, has attributes that will be affected by climate change. Washington County is part of Region 5, East Hudson and Mohawk River Valleys. Region 5 includes the following counties: Madison, Oneida, Herkimer, Fulton, Montgomery, Schenectady, Saratoga, Washington, Albany, Rensselaer, Columbia, Dutchess, Putnam, and Westchester. Some of the issues in this region, affected by climate change, include: saltwater front moves further up the Hudson River; potential contamination of New York City's back-up water supply; propagation of storm surge up the Hudson from the coast; and popular apple varieties decline (NYSERDA 2011).

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).

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 (NYSERDA 2014).

In Region 5, it is estimated that temperatures will increase by 3.5ºF to 7.1ºF by the 2050s and 4.1ºF to 11.4ºF by the 2080s (baseline of 47.6ºF). Precipitation totals will increase between 2 and 15% by the 2050s and 3 to 17% by the 2080s (baseline of 38.6 inches) (NYSERDA 2014). Table 5.4.3-10 displays the projected seasonal precipitation change for the East Hudson and Mohawk River Valleys ClimAID Region.

Table 5.4.3-10. Projected Seasonal Precipitation Change in Region 5, 2050s (% change)

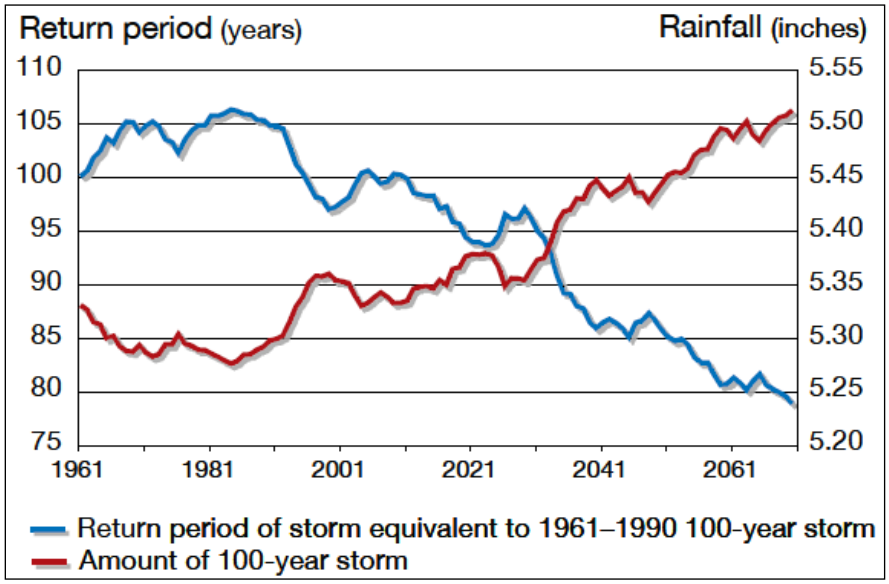
Winter	Spring	Summer	Fall
+5 to +15	-5 to +10	-5 to +5	-5 to +10

Source: NYSERDA 2011

The projected increase in precipitation is expected to fall in heavy downpours and less in light rains. The increase in heavy downpours 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).

Increasing air temperatures intensify the water cycle by increasing evaporation and precipitation. This can cause an increase in rain totals during events with longer dry periods in between those events. These changes can have a variety of effects on the State's water resources (NYSERDA 2011). Figure 5.4.3-6 displays the project rainfall and frequency of extreme storms in New York State. The amount of rain fall 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 2011).

Figure 5.4.3-6. Projected Rainfall and Frequency of Extreme Storms



Source: NYSERDA 2011

5.4.3.2 VULNERABILITY ASSESSMENT

To understand risk, a community must evaluate what assets are exposed or vulnerable in the identified hazard area. For the severe storm hazard, all of Washington County is exposed and vulnerable. Therefore, all assets in the County (population, structures, critical facilities and lifelines), as described in Section 4 - County Profile, are exposed and potentially vulnerable. The following text evaluates and estimates the potential impact of severe storm on the County including:

- Overview of vulnerability
- Data and methodology used for the evaluation
- Impact on: (1) life, health and safety of residents, (2) general building stock, (3) critical facilities, (4) economy, and (5) future growth and development
- Effect of climate change on vulnerability
- Change of vulnerability as compared to that presented in the 2010 Washington County Hazard Mitigation Plan
- Further data collections that will assist understanding this hazard over time

Overview of Vulnerability

The high winds and air speeds of a hurricane or any severe storm often result in power outages, disruptions to transportation corridors and equipment, loss of workplace access, significant property damage, injuries and loss of life, and the need to shelter and care for individuals impacted by the events. A large amount of damage can be inflicted by trees, branches, and other objects that fall onto power lines, buildings, roads, vehicles, and, in some cases, people. The risk assessment for severe storms evaluates available data for a range of storms included in this hazard category.

Losses from wind are primarily associated with severe thunderstorm or tropical depression/storm-related winds and rain (see flooding discussion in Section 5.4.2 - Flood). Secondary flooding associated with the torrential downpours during severe storms is also a primary concern in Washington County. The County has experienced flooding in association with numerous severe storms in the past.

The entire inventory of the county is at risk of being damaged or lost due to impacts from severe wind storms. Certain areas, infrastructure, and types of buildings are at greater risk than others due to proximity to falling hazards and their manner of construction. Potential losses associated with high wind events were calculated for the county for two probabilistic hurricane events, the 100-year and 500-year MRP hurricane events. The impacts on population, existing structures, critical facilities and the economy are presented below, following a summary of the data and methodology used.

Data and Methodology

After reviewing historic data, the HAZUS-MH methodology and model were used to analyze the severe storm hazard for Washington County. Data used to assess this hazard include data available in the HAZUS-MH hurricane model, professional knowledge, information provided by the Steering Committee, and input from the public.

A probabilistic scenario was run for Washington County for the 100- and 500-year MRPs for the wind/severe storm hazard. The maximum peak gust wind speeds for both the 100-year MRP event is between 45 and 58 mph and the 500-year MRP event is between 66 and 71 mph. The results for the 100-year and 500-year MRP hurricane events are shown in Figure 5.4.3-5 and 5.4.3-6, which shows the HAZUS-MH maximum peak gust wind speeds that can be anticipated in the study area.

HAZUS-MH 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. Hurricane and inventory data available in HAZUS-MH were used to evaluate potential losses from the 100- and 500-year MRP events (severe wind impacts). Updated critical facility inventories and general building stock data were used in this evaluation.

Impact on Life, Health and Safety

For the purposes of this HMP, the entire population of Washington County (63,216 people) is exposed to severe storm events (U.S. Census 2010). Residents may be displaced or require temporary to long-term sheltering due to severe storm events. 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-MH currently estimates that no people will be displaced and that no people will require temporary shelter due to either a 100-year or a 500-year MRP event.

Economically disadvantaged populations are more 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 more vulnerable and, physically, they may have more difficulty evacuating. The elderly are considered most 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. Section 4 (County Profile) provides for the statistics for these populations.

People located outdoors (i.e., recreational activities and farming) are considered most vulnerable to hailstorms, thunderstorms and tornadoes. This is because there is little to no warning and shelter may not be available. Moving to a lower risk location will decrease a person's vulnerability.

Impact on General Building Stock

After considering the population exposed to the severe storm hazard, the general building stock replacement value exposed to and damaged by 100- and 500-year MRP events was examined. Wind-only impacts from a

severe storm are reported based on the probabilistic hurricane runs in HAZUS-MH. Potential damage is the modeled loss that could occur to the exposed inventory, including damage to structural and content value based on the wind-only impacts associated with a hurricane (using the methodology described in Section 5.1 – Methodology and Tools).

It is assumed that the entire county's general building stock is exposed to the severe storm wind hazard (greater than $18.3 billion structure only). Expected building damage was evaluated by HAZUS across the following wind damage categories: no damage/very minor damage, minor damage, moderate damage, severe damage, and total destruction. Table 5.4.3-11 summarizes the definition of the damage categories.

Table 5.4.3-11. 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
No Damage or Very Minor Damage Little of 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
Minor Damage 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
Moderate Damage Major roof cover damage, moderate window breakage. Minor roof sheathing failure. Some resulting damage to interior of building from water.	> 15% and ≤ 50%	> the larger of 20% & 3 and ≤ 50%	1 to 3 Panels	Typically 5 to 10 Impacts	No	No
Severe Damage Major window damage or roof sheathing loss. Major roof cover loss. Extensive damage to interior from water.	> 50%	> one and ≤ the larger of 20% & 3	> 3 and ≤ 25%	Typically 10 to 20 Impacts	No	No
Destruction 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-MH Hurricane Technical Manual

Wind speeds between 45 and 58 mph were estimated for the 100-year MRP event, which resulted in an estimated $2.7 million in damage to the general building stock (structure only). HAZUS estimates the 500-year MRP peak gust wind speeds for Washington County to range from 66 to 71 mph. This equates to a tropical storm and to nearly $100 million in damage to the general building stock (structure only), which is an extremely small percentage of the county's building inventory. The residential buildings are estimated to experience the majority of the damage.

Table 5.4.3-12 summarizes the building value damage (structure only) estimated for the 100- and 500-year MRP wind-only events for each municipality and Table 5.4.3-13 summarizes the building value damage (structure only) estimated for the 100- and 500-year MRP wind-only events by occupancy class.

Table 5.4.3-12. Estimated Building Replacement Value (Structure Only) Damaged by the 100-Year and 500-Year Mean Return Period Hurricane-Related Winds for All Occupancy Classes

Municipality	Total RCV (Structure Only)	Estimated Total Damages*		Percent of Total Building Replacement Cost Value	
		100-Year	500-Year	100-Year	500-Year
Argyle (T)	$576,531,170	$198,205	$5,192,925	<1%	<1%
Argyle (V)	$65,043,242	$57	$624,392	<1%	<1%
Cambridge (T)	$321,942,647	$340,240	$3,580,075	<1%	1.1%
Cambridge (V)	$866,931,466	$400,167	$4,022,623	<1%	<1%
Dresden (T)	$222,767,880	$0	$1,180,139	0.0%	<1%
Easton (T)	$428,651,434	$68,216	$3,082,166	<1%	<1%
Fort Ann (T)	$683,732,151	$0	$4,421,687	0.0%	<1%
Fort Ann (V)	$112,735,922	$0	$482,689	0.0%	<1%
Fort Edward (T)	$589,828,331	$36,006	$3,795,374	<1%	<1%
Fort Edward (V)	$798,007,966	$54,445	$4,316,261	<1%	<1%
Granville (T)	$726,726,420	$275,940	$5,928,157	<1%	<1%
Granville (V)	$1,425,360,201	$41,424	$4,400,081	<1%	<1%
Greenwich (T)	$709,842,151	$167,579	$5,520,447	<1%	<1%
Greenwich (V)	$958,006,019	$7,307	$3,410,034	<1%	<1%
Hampton (T)	$154,795,015	$0	$1,390,967	0.0%	<1%
Hartford (T)	$593,643,366	$101,965	$3,905,677	<1%	<1%
Hebron (T)	$377,213,241	$86,141	$3,354,595	<1%	<1%
Hudson Falls (V)	$4,654,636,264	$0	$12,161,645	0.00%	<1%
Jackson (T)	$408,557,404	$274,073	$4,157,440	<1%	1.0%
Kingsbury (T)	$1,127,227,042	$0	$6,596,196	0.0%	<1%
Putnam (T)	$274,281,086	$0	$1,804,793	0.0%	<1%
Salem (T)	$611,582,427	$161,696	$5,574,906	<1%	1.0%
White Creek (T)	$466,903,053	$498,257	$3,588,635	<1%	<1%
Whitehall (T)	$269,674,131	$0	$2,216,274	0.0%	<1%
Whitehall (V)	$891,698,335	$0	$4,463,429	0.0%	<1%
Washington County	**$18,316,318,362**	**$2,711,718**	**$99,171,606**	**<1%**	**<1%**

Source: Washington County, HAZUS-MH 3.1

Table 5.4.3-13. Estimated Residential and Commercial Building Value (Structure Only) Damaged by the 100-Year and 500-Year MRP Wind Events

Municipality	Total RCV (Structure Only)	Estimated Residential Damage		Estimated Commercial Damage	
		100-Year	500-Year	100-Year	500-Year
Argyle (T)	$576,531,170	$198,205	$5,122,709	$0	$12,455
Argyle (V)	$65,043,242	$57	$608,528	$0	$10,302
Cambridge (T)	$321,942,647	$340,240	$3,548,304	$0	$4,508
Cambridge (V)	$866,931,466	$400,167	$3,677,997	$0	$240,234
Dresden (T)	$222,767,880	$0	$1,162,197	$0	$6,071
Easton (T)	$428,651,434	$68,216	$2,924,185	$0	$36,485

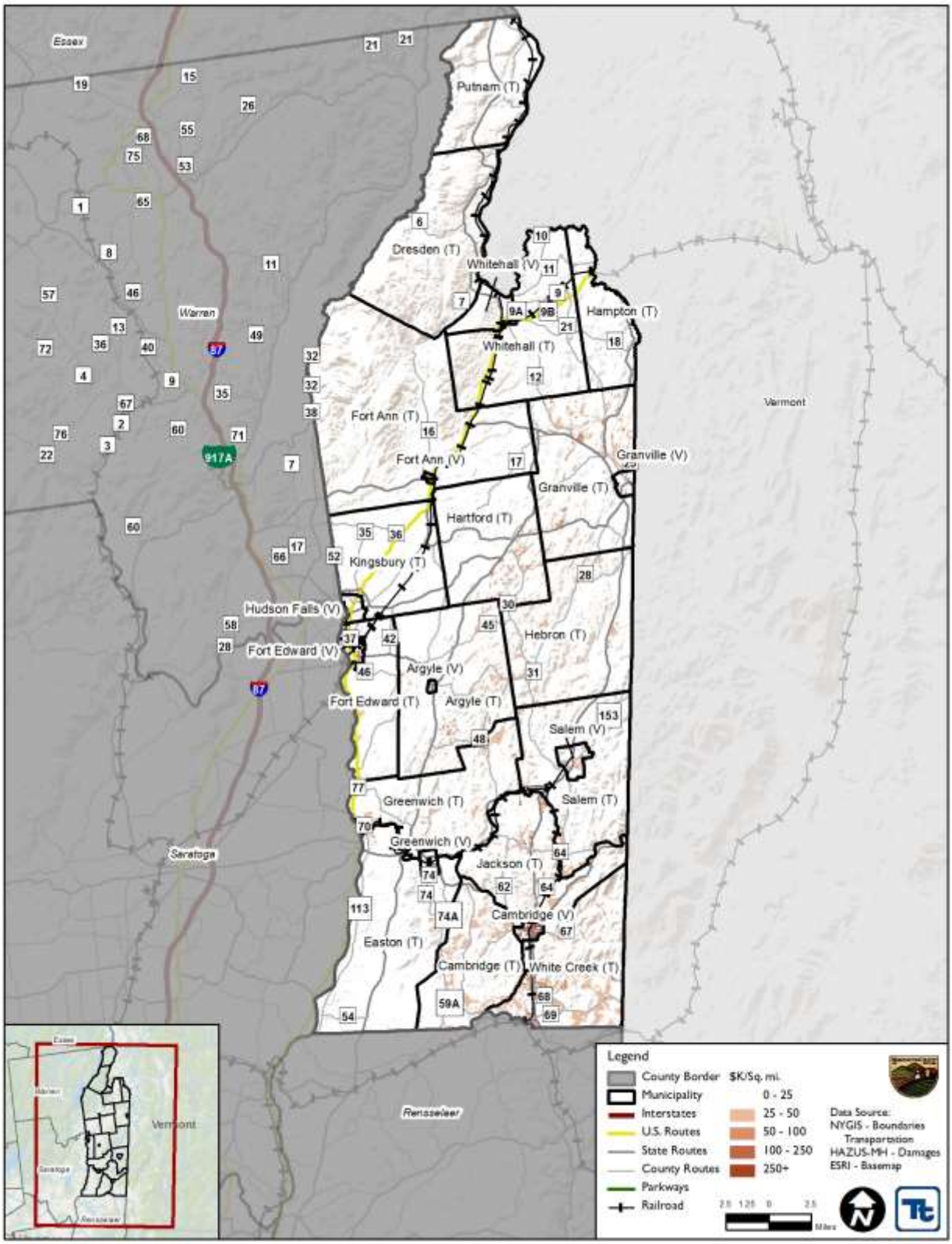
Municipality	Total RCV (Structure Only)	Estimated Residential Damage		Estimated Commercial Damage	
		100-Year	500-Year	100-Year	500-Year
Fort Ann (T)	$683,732,151	$0	$4,322,134	$0	$69,854
Fort Ann (V)	$112,735,922	$0	$436,391	$0	$10,512
Fort Edward (T)	$589,828,331	$36,006	$3,571,735	$0	$143,050
Fort Edward (V)	$798,007,966	$54,445	$4,091,864	$0	$122,630
Granville (T)	$726,726,420	$275,940	$5,746,343	$0	$106,976
Granville (V)	$1,425,360,201	$41,424	$3,981,566	$0	$117,941
Greenwich (T)	$709,842,151	$167,579	$5,337,836	$0	$110,334
Greenwich (V)	$958,006,019	$7,307	$3,274,908	$0	$84,030
Hampton (T)	$154,795,015	$0	$1,377,599	$0	$5,733
Hartford (T)	$593,643,366	$101,965	$3,616,538	$0	$14,596
Hebron (T)	$377,213,241	$86,141	$3,327,629	$0	$9,516
Hudson Falls (V)	$4,654,636,264	$0	$11,763,083	$0	$185,519
Jackson (T)	$408,557,404	$274,073	$4,109,316	$0	$22,814
Kingsbury (T)	$1,127,227,042	$0	$6,309,753	$0	$168,365
Putnam (T)	$274,281,086	$0	$1,782,431	$0	$6,310
Salem (T)	$611,582,427	$161,696	$5,448,132	$0	$56,196
White Creek (T)	$466,903,053	$496,976	$3,383,621	$358	$17,551
Whitehall (T)	$269,674,131	$0	$2,135,067	$0	$24,022
Whitehall (V)	$891,698,335	$0	$4,244,390	$0	$195,408
Washington County	**$18,316,318,362**	**$2,710,438**	**$95,304,257**	**$358**	**$1,781,410**

Source: Washington County, HAZUS-MH 3.1

Because of differences in building construction, residential structures are generally more susceptible to wind damage than commercial and industrial structures. Wood and masonry buildings in general, regardless of their occupancy class, tend to experience more damage than concrete or steel buildings. The damage counts include buildings damaged at all severity levels from minor damage to total destruction. Total dollar damage reflects the overall impact to buildings at an aggregate level.

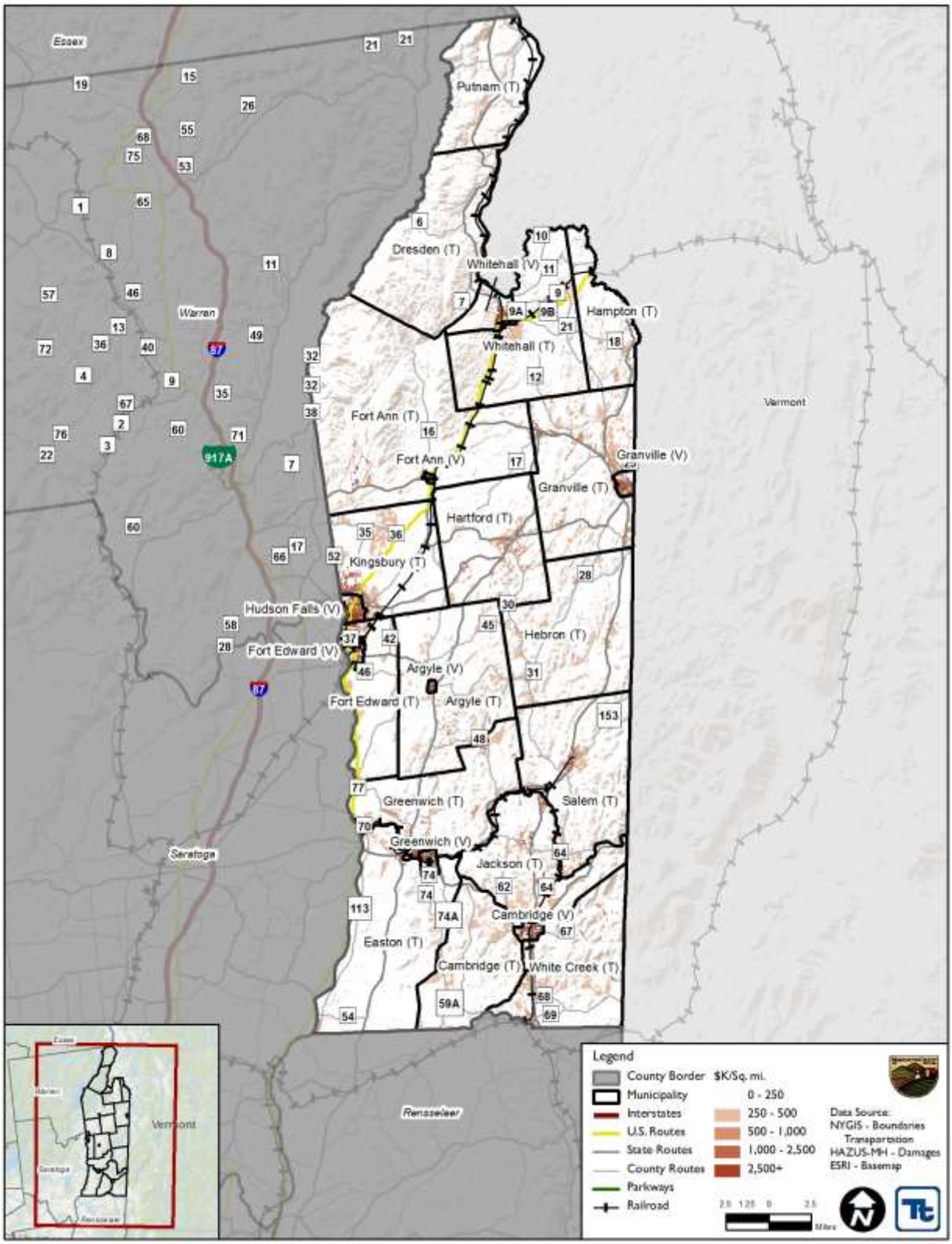
Of the exceeding $14 billion in total residential replacement value (structure) for the entire county, approximately $2.7 million in damages is anticipated for the 100-year event and less than $100 million in residential building damage can be anticipated for the 500-year event. Residential building damage accounts for nearly 100 percent of the damage associated with the 100-year wind-only events. Residential structures are the largest component of the Washington County building inventory.

Figure 5.4.3-7. Density of Losses for Structures (All Occupancies) for the 100-Year MRP Wind Event



Source: HAZUS-MH 3.1

Figure 5.4.3-8. Density of Losses for Structures (All Occupancies) for the 500-Year MRP Wind Event



Source: HAZUS-MH 3.1

Impact on Critical Facilities

Overall, all critical facilities are exposed to the wind hazard. HAZUS-MH 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) may sustain damage as a result of 100- and 500-year MRP wind-only events. Additionally, HAZUS-MH 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. Overall, HAZUS-MH estimates no damage to the critical facilities as a result of the 100-year event.

Table 5.4.3-14 summarizes the potential damages to the critical facilities in Washington County as a result of the 500-year MRP wind event. The percent probability that each facility type may experience damage by category is indicated below.

Table 5.4.3-14. Estimated Impacts to Critical Facilities for the 500-Year Mean Return Period Hurricane-Related Winds

Facility Type	500-Year Event				
	Loss of Days	Percent-Probability of Sustaining Damage			
		Minor	Moderate	Severe	Complete
EOC	0	0	0	0	0
Medical	0	0	0	0	0
Police	0	0-1	0	0	0
Fire	0	0	0	0	0
Schools	0	0-1	0	0	0

Source: HAZUS-MH 3.1

At this time, HAZUS-MH 3.1 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.

Utility structures could suffer damage associated with falling tree limbs or other debris, resulting in the loss of power, which can impact business operations and can impact heating or cooling provision to citizens (including the young and elderly, who are particularly vulnerable to temperature-related health impacts).

Impact on Economy

Severe storms also impact the economy, including: 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. HAZUS-MH 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" section discussed earlier. Business interruption losses include 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.

For the 100-year MRP wind event, HAZUS-MH estimates approximately $7,000 in business interruption losses, but no losses to inventory. For the 500-year MRP wind only event, HAZUS-MH estimates greater than $500

thousand in business interruption losses for Washington County which includes loss of income, relocation costs, rental costs and lost wages. Further HAZUS-MH estimates less than $500 in loss of inventory.

HAZUS-MH 3.0 also estimates the amount of debris that may be produced a result of the 100- and 500-year MRP wind events. Because the estimated debris production does not include flooding, this is likely a conservative estimate and may be higher if multiple impacts occur. According to the HAZUS-MH Hurricane User Manual: '*The Eligible Tree Debris columns provide estimates of the weight and volume of downed trees that would likely be collected and disposed at public expense. As discussed in Chapter 12 of the HAZUS-MH Hurricane Model Technical Manual, the eligible tree debris estimates produced by the Hurricane Model tend to underestimate reported volumes of debris brought to landfills for a number of events that have occurred over the past several years. This indicates that that there may be other sources of vegetative and non-vegetative debris that are not currently being modeled in HAZUS. For landfill estimation purposes, it is recommended that the HAZUS debris volume estimate be treated as an approximate lower bound. Based on actual reported debris volumes, it is recommended that the HAZUS results be multiplied by three to obtain an approximate upper bound estimate. It is also important to note that the Hurricane Model assumes a bulking factor of 10 cubic yards per ton of tree debris. If the debris is chipped prior to transport or disposal, a bulking factor of 4 is recommended. Thus, for chipped debris, the eligible tree debris volume should be multiplied by 0.4*'.

Table 5.4.3-15. Debris Production for 100- and 500-Year Mean Return Period Wind Events

Municipality	Brick and Wood (tons)		Concrete and Steel (tons)		Tree (tons)		Eligible Tree Volume (cubic yards)	
	100 Year	500 Year	100 Year	500 Year	100 Year	500 Year	100 Year	500 Year
Argyle (T)	0	192	0	0	58	2,929	39	1,602
Argyle (V)	0	40	0	0	0	24	0	111
Cambridge (T)	0	106	0	0	3	1,958	5	958
Cambridge (V)	18	304	0	0	30	124	200	629
Dresden (T)	0	46	0	0	0	2,987	0	1,018
Easton (T)	0	140	0	0	19	3,038	23	1,457
Fort Ann (T)	0	35	0	0	0	3,439	0	1,501
Fort Ann (V)	0	19	0	0	0	11	0	95
Fort Edward (T)	0	222	0	0	0	1,493	0	1,308
Fort Edward (V)	0	480	0	0	0	106	0	632
Granville (T)	0	210	0	0	4	2,680	5	1,579
Granville (V)	0	416	0	0	0	103	0	528
Greenwich (T)	0	213	0	0	5	2,162	5	1,522
Greenwich (V)	0	308	0	0	0	83	0	406
Hampton (T)	0	34	0	0	0	1,393	0	665
Hartford (T)	0	210	0	0	0	2,708	0	1,046
Hebron (T)	0	83	0	0	126	1,511	44	867
Hudson Falls (V)	0	1,446	0	0	0	64	0	650
Jackson (T)	1	175	0	0	165	1,952	79	1,288
Kingsbury (T)	0	537	0	0	0	1,900	0	1,152
Putnam (T)	0	42	0	0	0	2,080	0	975
Salem (T)	0	207	0	0	206	1,991	108	1,523
White Creek (T)	0	122	0	0	953	1,993	469	1,037

Table 5.4.3-15. Debris Production for 100- and 500-Year Mean Return Period Wind Events

Municipality	Brick and Wood (tons)		Concrete and Steel (tons)		Tree (tons)		Eligible Tree Volume (cubic yards)	
	100 Year	500 Year	100 Year	500 Year	100 Year	500 Year	100 Year	500 Year
Whitehall (T)	0	74	0	0	0	3,187	0	1,135
Whitehall (V)	0	576	0	0	0	289	0	566
Washington County	**19**	**6,237**	**0**	**0**	**1,569**	**40,205**	**978**	**24,249**

Source: HAZUS-MH 3.1

Future Growth and Development

As discussed and illustrated in Section 4 – County Profile, areas targeted for future growth and development have been identified across Washington County. Any areas of growth could be potentially impacted by the severe storm hazard because the entire county is exposed and vulnerable to the wind hazard associated with severe storms.

Additional Data and Next Steps

Over time, Washington County will obtain additional data to support the analysis of this hazard. Such data may include additional details on past hazard events and impacts; specific building information, such as type of construction; and details on protective features (for example, hurricane straps). Information on particular buildings or infrastructure age or year built would also be helpful in future analysis of this hazard. Mitigation strategies to reduce vulnerability to severe storms are provided in Section 6 – Mitigation Strategy (Volume 1) and Section 9 – Annexes (Volume II) of this plan.

5.4.4 SEVERE WINTER STORM

The following section provides the hazard profile (hazard description, location, extent, previous occurrences and losses, probability of future occurrences, and impact of climate change) and vulnerability assessment for the severe winter storm hazard in Washington County.

5.4.4.1 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 (National Severe Storms Laboratory 2014).

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 Washington County, winter storms include blizzards, snow storms, and ice storms. Extreme cold temperatures and wind chills are also associated with winter storms; however, based on input from the Planning Committee, these events are not discussed in the 2018 HMP.

Heavy Snow

According to the National Snow and Ice Data Center (NSIDC), snow is precipitation in the form of ice crystals. It originates in clouds when temperatures are below the freezing point (32°F), 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 crystals or snow pallet, which then falls to the earth. Snow falls in different forms: snowflakes, snow pellets, or sleet. Snowflakes are clusters of ice crystals that form from a cloud. Snow pellets are opaque ice particles in the atmosphere. They form as ice crystals fall through super-cooled cloud droplets, which are below freezing but remain a liquid. The cloud droplets then freeze to the crystals. Sleet is made up of drops of rain that freeze into ice as they fall through colder air layers. They are usually smaller than 0.30 inches in diameter (NSIDC 2013).

Blizzards

A blizzard is a winter snowstorm with sustained or frequent wind gusts of 35 mph or more, accompanied by falling or blowing snow reducing visibility to or below 0.25 mile. These conditions must be the predominant over a 3-hour period. Extremely cold temperatures are often associated with blizzard conditions, but are not a formal part of the definition. The hazard, created by the combination of snow, wind, and low visibility, significantly increases when temperatures are below 20°F. A severe blizzard is categorized as having temperatures near or below 10°F, winds exceeding 45 mph, and visibility reduced by snow to near zero. Storm systems powerful enough to cause blizzards usually form when the jet stream dips far to the south, allowing cold air from the north to clash with warm, moister air from the south. Blizzard conditions often develop on the northwest side of an intense storm system. The difference between the lower pressure in the storm and the higher

pressure to the west creates a tight pressure gradient, resulting in strong winds and extreme conditions caused by the blowing snow (The Weather Channel 2012).

Ice Storms

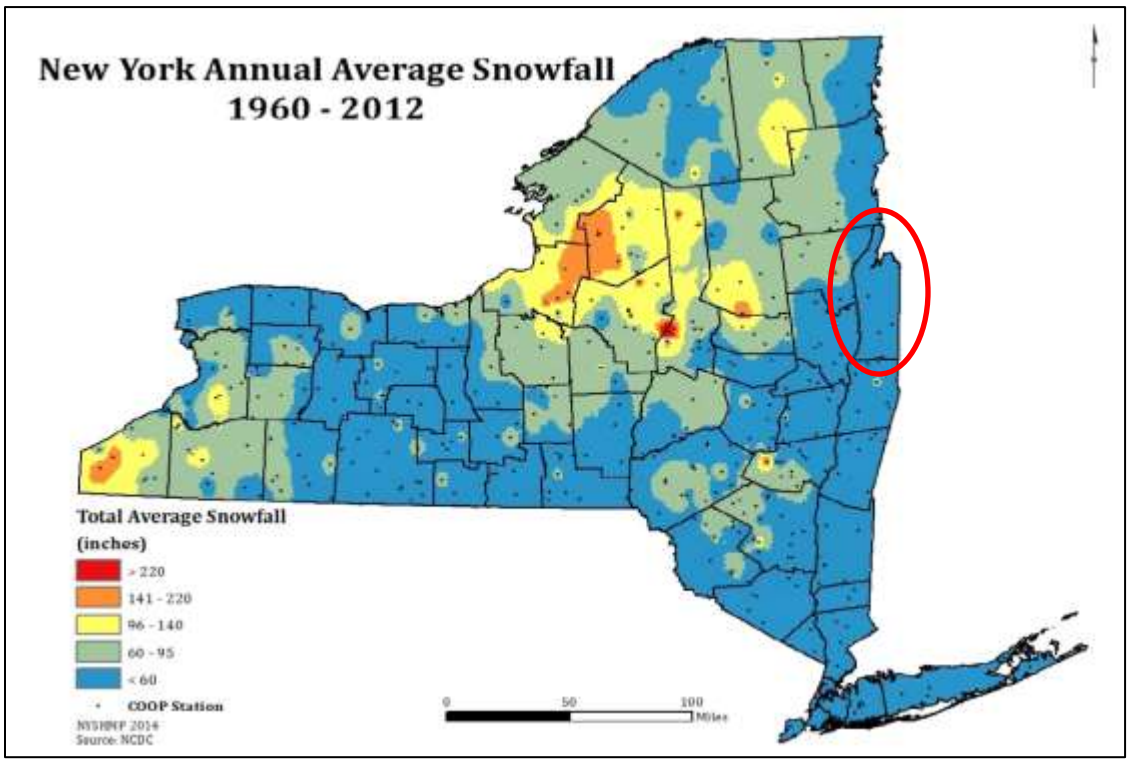
An ice storm describes those events when damaging accumulations of ice are expected during freezing rain situations. Significant ice accumulations are typically accumulations of 0.25-inches or greater (NWS 2013). Heavy accumulations of ice can bring down trees, power lines and utility poles, and communication towers. Icing of utility lines can disrupt communications and power for days. Even small accumulations of ice can be extremely dangerous to motorists and pedestrians (NWS 2008).

Location

Snow and Blizzards

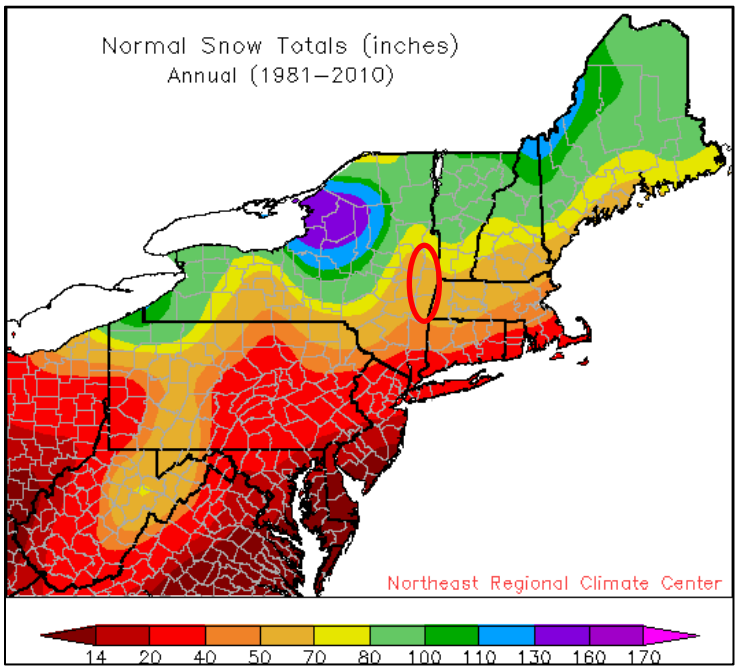
On average, New York State receives more snowfall than any other states within the United States, with the easternmost and west-central portions of the State most likely to suffer under severe winter storm occurrences than the southern portion. Average snowfall in the State is about 65 inches, but varies greatly in the different regions of the State. Between 1960 and 2012, Washington County had a total average annual snowfall of less than 60 inches. Figure 5.4.4-1 and Figure 5.4.4-2 below show annual average snowfall in New York State from 1960-2012, and normal snow totals (inches), annually, from 1981 through 2010 in the northeastern United States, respectively.

Figure 5.4.4-1. New York annual average snowfall



Source: NYS DHSES 2014

Figure 5.4.4-2. Normal Snow Totals



Source: *NRCC 2016*
Note: *Red circle indicates the location of Washington County.*

Ice Storms

The Midwest and Northeast are prime areas for freezing rain and ice storm events. Ice storms can occur anytime between November and April, with most events occurring in December and January. On average, Washington County can experience between five and six ice storms/freezing rain events each year (MRCC 2016).

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.

The extent of a severe winter storm can be classified by meteorological measurements and by evaluating its societal impacts. NOAA's National Climatic Data Center (NCDC) is currently producing the Regional Snowfall Index (RSI) for significant snowstorms that impact the eastern two-thirds of the United States. The RSI ranks snowstorm impacts on a scale from 1 to 5. It is based on the spatial extent of the storm, the amount of snowfall, and the interaction of the extent and snowfall totals with population (based on the 2000 Census). The NCDC has analyzed and assigned RSI values to over 500 storms since 1900 (NOAA-NCDC 2011). Table 5.4.4-1 presents the five RSI ranking categories.

Table 5.4.4-1. RSI Ranking Categories

Category	Description	RSI Value
1	Notable	1-3
2	Significant	3-6
3	Major	6-10
4	Crippling	10-18

Category	Description	RSI Value
5	Extreme	18.0+

Source: NOAA-NCDC 2011
Note: RSI = Regional Snowfall Index

The NWS operates a widespread network of observing systems such as geostationary satellites, Doppler radars, and automated surface observing systems that feed into the current state-of-the-art numerical computer models to provide a look into what will happen next, ranging from hours to days. The models are then analyzed by NWS meteorologists who then write and disseminate forecasts (NWS 2013).

The NWS uses winter weather watches, warnings and advisories to ensure that people know what to expect in the coming hours and days. A winter storm watch means that severe winter conditions (heavy snow, ice, etc.) may affect a certain area, but its occurrence, location and timing are uncertain. A winter storm watch is issued when severe winter conditions (heavy rain and/or significant ice accumulations) are possible within in the next day or two. A winter storm warning is issued when severe winter conditions are expected (heavy snow seven inches or greater in 12 hours or nine inches or greater in 24 hours; ice storm with ½ inch or more). A winter weather advisory is used when winter conditions (snow, sleet and/or freezing rain/ice) are expected to cause significant inconvenience and may be hazardous (snow and/or sleet with amounts of four to six inches; freezing rain and drizzle in any accretion of ice on roads but less than ½ inch). A blizzard warning is issued when snow and strong winds will combine to produce a blinding snow, visibility near zero/whiteouts, and deep snow drifts (NWS 2015).

Previous Occurrences and Losses

Many sources provided winter storm information regarding previous occurrences and losses associated with winter storm events throughout Washington County. With so many sources reviewed for the purpose of this Hazard Mitigation Plan (HMP) update, loss and impact information for many events may vary. Therefore, the accuracy of monetary figures discussed is based only on the available information identified during research for this HMP.

Between 1954 and 2016, FEMA included New York State in 24 winter-storm related major disaster (DR) or emergency (EM) declarations. These events were classified as one or a combination of the following incidents: ice storm, severe storms, flooding, snowstorms, severe winter storm, severe blizzard, blizzard, snow, and winter storm. Generally, these disasters cover a wide region of the State; therefore, they may have impacted many counties. Washington County was included in three of these declarations (refer to Table 5.4.4-2).

Table 5.4.4-2. FEMA Declarations for Severe Winter Storm Events in Washington County

FEMA Declaration Number	Date(s) of Event	Event Type	Counties Included
DR-801	October 4, 1987	Severe Winter Storm	Albany, Columbia, Dutchess, Greene, Putnam, Rensselaer, Saratoga, Schenectady, and Washington
EM-3107	March 13-17, 1993	Severe Blizzard	All 62 counties in New York State
DR-1827	December 11-31, 2008	Severe Winter Storm	Albany, Columbia, Delaware, Greene, Rensselaer, Saratoga, Schenectady, Schoharie, and Washington

Source: FEMA 2016

For this 2016 HMP update, winter weather events were summarized from 2007 to 2016. These events, along with FEMA disaster declarations, are identified in Table 5.4.4-3. For information regarding severe winter storm events prior to 2007, refer to the 2010 Washington County HMP. For detailed information on damages and impacts to each municipality, refer to Section 9 - Annexes.

Table 5.4.4-3. Severe Winter Storm Events in Washington County, 2007 to 2016

Dates of Event	Event Type	FEMA Declaration Number (if applicable)	Location / County Designated?	Losses / Impacts
January 15-16, 2007	Ice storm / blizzard	N/A	N/A	An ice storm caused significant impact on travel and economy across the region. This included areas immediately north of the Mohawk River, including Saratoga Springs and Lake George regions, and the western Mohawk Valley being the hardest hit. The storm produced ice accretions of half an inch to up to one inch. This led to widespread power outages due to downed trees and limbs. Approximately 85,000 customers were without power for several days. In Washington County, several barns collapsed due to the weight of the snow.
December 11-12, 2008	Winter weather	DR-1827	Yes	A cold front moved across eastern New York State and western New England, bringing a significant mixed precipitation event. The precipitation was heavy at times, with hourly rates of one quarter to one third of an inch of freezing rain reported for several hours. The precipitation changed to snow before it ended. Total ice accretion from freezing rain ranged from one half of an inch to one inch across portions of the Capital District and the Berkshires. Areas north and west of the Capital District, including Washington County, experienced colder temperatures and the precipitation fell as snow and sleet. Snow and sleet totals ranged from two to four inches north and west of the Capital District and up to eight to 12 inches of snow and some sleet across portions of the southern Adirondacks. The storm resulted in widespread damage to trees which led to power outages across eastern New York State. Many schools and businesses were closed. States of emergency were declared in the impacted areas. In Washington County, three to five inches of snow and sleet, along with up to one quarter of an inch of ice accretion from freezing rain fell across the northern portion of the County. There were power outages throughout the County and in some rural areas, power was out for several days. Several barns collapsed in the County due to the weight of snow. Numerous vehicle accidents were reported as a result of fallen trees and snow. In the southern portion of the County, snow and sleet accumulations of two to five inches, along with ice accretion of one half inch, led to numerous reports of downed trees and power lines, especially near the Town of Greenwich.
December 26-27, 2010	Winter storm / Nor'Easter	N/A	N/A	A major Nor'Easter brought significant snowfall and blizzard conditions to must of east-central New York State. Bands of heavy snow with rates of one to three inches an hour occurred across the region. Snowfall totals of one to two feet occurred mainly east of the Hudson River with lower amounts northwest of the Capital District. In addition to the heavy snow, strong and gusty winds of 35 to 45 mph caused significant blowing and drifting of snow. Snow emergencies were declared in areas of Albany, Greene, Rensselaer, and Saratoga Counties.
February 1-2, 2011	Winter storm	N/A	N/A	Snow fell across parts of east-central New York State with totals ranging from four to 15 inches, with a majority of areas reporting between eight and 12 inches. The heavy, wet snow resulted in some roof collapses in the impacted areas. In Washington

Dates of Event	Event Type	FEMA Declaration Number (if applicable)	Location / County Designated?	Losses / Impacts
				County, in the Town of Greenwich, a barn roof collapsed trapping some animals. Snow emergencies were declared in several municipalities in the state.
February 25, 2011	Winter storm	N/A	N/A	Heavy, wet snow fell across the greater Capital District and surrounding area, the Lake George Saratoga Region, the Mohawk River Valley, Schoharie Valley, and southern Adirondacks. Snowfall rates of one to two inches per hour occurred. Overall totals ranged between 12 and 15 inches across northern portions of the Capital Region extending into the east central Mohawk River Valley and Lake George Saratoga Region, with eight to 12 inches across southern portions of the Capital Region and eastern Catskills. The heavy snow caused poor travel conditions with many accidents reported, including along portions of the Adirondack Northway and Interstate 90. Many schools and businesses were closed as a result of this storm.
February 23-26, 2016	Heavy rain, flooding, snowfall and strong winds	N/A	N/A	Thunderstorms impacted eastern New York State, bringing periods of heavy rain. At times, rain fell at rates exceeding one inch per hour. The rainfall, combined with frozen ground and snowmelt, allowed for widespread flooding of urban, poor drainage and low-lying areas. Some streams and rivers exceeded flood stages. In Washington County, rainfall totals ranged from 1.8 inches in the Town of Hebron to 2.69 inches in the Town of Whitehall. Flooding was reported in the Town of Fort Edward, where a basement collapsed due to the flooding. Broadway Street (U.S. Route 4) was flooded and washed out. County Route 113 near the Town of Greenwich was closed due to flooding; the roadway was reported to have been washed out due to the flooding. Urban flooding was reported in the Town of Fort Edward due to heavy rainfall. The intersection of East and Wing Streets was reported to have been washed away due to the flooding. In the Town of Easton, between eight and 10 inches of water was flowing over Route 40. County Route 35 (Vaughn Road) near the Town of Hudson Falls was closed due to damage from a washout east of Tripoli Road. In the Town of Kingsbury, Route 196/St. James Road, Burgoyne Street, and Maynard Street were flooded and closed.

Sources: FEMA 2016; NYS DHSES 2014; NOAA-NCDC 2016
DR Major declaration (FEMA)
FEMA Federal Emergency Management Agency
Mph miles per hour
NCDC National Climatic Data Center
NOAA National Oceanic and Atmospheric Administration
N/A Not Applicable / Not Available

Probability of Future Occurrences

Winter storm hazards in New York State are virtually guaranteed yearly since the State is located at relatively high latitudes resulting in winter temperatures that range between 0°F and 32°F for a good deal of the fall through early spring season (late October until mid-April). In addition, the State is exposed to large quantities of moisture from both the Great Lakes and the Atlantic Ocean. While it is almost certain that a number of significant winter storms will occur during the winter and fall season, what is not easily determined is how many such storms will occur during that time frame (NYS DHSES 2014).

According to the 2014 New York State HMP Update, between 1960 and 2012, Washington County had 153 severe winter storm events and resulted in eight fatalities, 55 injuries, over $47 million in property damage and over $181,000 in crop damage. These statistics show that the County had a 100% chance of severe winter storm events occurring with a recurrence interval of 0.34 (NYS DHSES 2014).

According to the NOAA-NCDC storm events database, between 1950 and 2015, Washington County has been impacted by 134 winter weather-related events (blizzard, heavy snow, ice storm, winter storm, and winter weather). The table below shows the probability of future occurrences for each type of severe winter storm event to occur in Washington County. Based on data from NOAA-NCDC, Washington County can expect an average of 2.06 winter storm-related events each year.

Table 5.4.4-4. Probability of Future Occurrence of Severe winter storm Events

Hazard Type	Number of Occurrences Between 1950 and 2016	Annual Number of Events (average)	Recurrence Interval* (in years)	Probability of Event Occurring in Any Given Year	% Chance of Occurring in Any Given Year
Blizzard	2	0.03	34.00	0.03	2.94
Heavy Snow	32	0.49	2.06	0.48	48.48
Ice Storm	4	0.06	16.50	0.25	25.00
Winter Storm	23	0.35	2.87	0.35	34.85
Winter Weather	75	1.15	0.88	1	100

Source: NOAA-NCDC Storm Events Database 2016
**Estimate of the likelihood of an event to occur*

In Section 5.3 – Hazard Ranking, the identified hazards of concern for Washington County were ranked. The probability of occurrence, or likelihood of the event, is one parameter used for hazard rankings. Based on historical records and input from the Planning Committee, the probability of occurrence for severe winter storms in the county is considered 'frequent' (likely to occur within 25 years, as presented in Table 5.3-3).

The New York State HMP includes a similar ranking process for hazards that affect the State. Based on historical records and input from the Planning Committee, the probability of at least one winter snow storm of emergency declaration proportions, occurring during any given calendar year is virtually certain in the State. Based on historical snow related disaster declaration occurrences, New York State can expect a snow storm of disaster declaration proportions, on average, once every three to five years. Similarly, for ice storms, based on historical disaster declarations, it is expected that on average, ice storms of disaster proportions will occur once every seven to 10 years within the State (NYS DHSES 2014). It is estimated that Washington County will continue to experience direct and indirect impacts of severe winter storms annually.

Climate Change Impacts

New York State averages more than 40 inches of snow each year. Snowfall varies regionally, based on topography and the proximity to large lakes and the Atlantic Ocean. Maximum snowfall is more than 175 inches

in parts of the Adirondacks and Tug Hill Plateau, as well as in the westernmost parts of the State. The warming influence of the Atlantic Ocean keeps snow in the New York City and Long Island areas below 36 inches each year.

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 (New York State Energy Research and Development Authority [NYSERDA] 2011).

Each region in New York State, as defined by ClimAID, has attributes that will be affected by climate change. Washington County is part of Region 5, East Hudson and Mohawk River Valleys. Region 5 includes the following counties: Madison, Oneida, Herkimer, Fulton, Montgomery, Schenectady, Saratoga, Washington, Albany, Rensselaer, Columbia, Dutchess, Putnam, and Westchester. Some of the issues in this region, affected by climate change, include: saltwater front moves further up the Hudson River; potential contamination of New York City's back-up water supply; propagation of storm surge up the Hudson from the coast; and popular apple varieties decline (NYSERDA 2011).

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).

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. The results for future time periods are compared to the model results for the baseline period (1971 to 2000). By the end of the century, the greatest increases in precipitation are projected to be in the northern areas of the State (NYSERDA 2014).

In Region 5, it is estimated that temperatures will increase by 3.5ºF to 7.1ºF by the 2050s and 4.1ºF to 11.4ºF by the 2080s (baseline of 47.6ºF). Precipitation totals will increase between 2 and 15% by the 2050s and 3 to 17% by the 2080s (baseline of 38.6 inches) (NYSERDA 2014). 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 Washington County.

It is uncertain how climate change will impact winter storms. Based on historical data, it is expected that the following will occur at least once per 100 years:

- Up to eight inches of rain fall in the rain band near the coast over a 36-hour period
- Up to four inches of freezing rain in the ice band near central New York State, of which between one and two inches of accumulated ice, over a 24-hour period
- Up to two feet of accumulated snow in the snow band in northern and western New York State over a 48-hour period (NYSERDA 2011).

New York State is already experiencing the effects of climate change during the winter season. Winter snow cover is decreasing and spring comes, on average, about a week earlier than it did a few years ago. Nighttime temperatures are measurably warmer, even during the colder months (NYSDEC Date Unknown). Overall winter temperatures in New York State are almost five degrees warmer than in 1970 (NYSDEC Date Unknown). The State has seen a decrease in the number of cold winter days (below 32°F) and can expect to see a decrease in snow cover, by as much as 25 to 50% by end of the next century. The lack of snow cover may jeopardize

opportunities for skiing, snowmobiling and other types of winter recreation; and natural ecosystems will be affected by the changing snow cover (Cornell University College of Agriculture and Life Sciences 2011).

Some climatologists believe that climate change may play a role in the frequency and intensity of Nor'Easters. Two ingredients are needed to produce strong Nor'Easters and intense snowfall: (1) temperatures which are just below freezing, and (2) massive moisture coming from the Gulf of Mexico. When temperatures are far below freezing, snow is less likely. As temperatures increase in the winter months they will be closer to freezing rather than frigidly cold. Climate change is expected to produce more moisture, thus increasing the likelihood that these two ingredients (temperatures just below freezing and intense moisture) will cause more intense snow events.

5.4.4.2 VULNERABILITY ASSESSMENT

To understand risk, a community must evaluate what assets are exposed or vulnerable to the identified hazard. For the severe winter storm hazard, all of Washington County has been identified as exposed and potentially vulnerable; therefore, all assets in the county (population, structures, critical facilities and lifelines), as described in Section 4 - County Profile, are exposed and vulnerable to a winter storm. The following text evaluates and estimates the potential impact of the severe winter storm hazard on the county including:

- Overview of vulnerability
- Data and methodology used for the evaluation
- Impact on: (1) life, health and safety of residents, (2) general building stock, (3) critical facilities, (4) economy, and (5) future growth and development
- Effect of climate change on vulnerability
- Change of vulnerability as compared to that presented in the 2010 Washington County HMP
- Further data collections that will assist understanding this hazard over time

Overview of Vulnerability

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.

Data and Methodology

Updated population and general building stock data were used to support an evaluation of assets exposed to this hazard and the potential impacts associated with this hazard. Additionally, as available economic losses were provided by the Planning Committee to support this vulnerability assessment.

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 (NSSL, 2006).

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 (NSSL, 2006).

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 (NSSL, 2006).

For the purposes of this HMP update, the entire population of Washington County (63,216 people) is exposed to severe winter storm events (U.S. Census, 2010). 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. Table 5.4.4-5 presents the total replacement cost value for general building stock (structure only) for each participating municipality.

Current modeling tools are not available to estimate specific losses for this hazard. As an alternate approach, this plan considers percentage damages that could result from severe winter storm conditions. Table 5.4.4-5 below summarizes percent damages that could result from severe winter storm conditions for the Planning Area's total general building stock. Given professional knowledge and the currently available information, the potential loss for this hazard is many times considered to be overestimated because of varying factors (building structure type, age, load distribution, building codes in place, etc.). Therefore, the following information should be used as estimates only for planning purposes with the knowledge that the associated losses for severe winter storm events vary greatly.

Table 5.4.4-5. General Building Stock Exposure and Estimated Losses from Severe Winter Storm Events

Municipality	Total (All Occupancies)	1% Damage Loss Estimate	5% Damage Loss Estimate	10% Damage Loss Estimate
Argyle (T)	$576,531,170	$5,765,312	$28,826,559	$57,653,117
Argyle (V)	$65,043,242	$650,432	$3,252,162	$6,504,324
Cambridge (T)	$321,942,647	$3,219,426	$16,097,132	$32,194,265
Cambridge (V)	$866,931,466	$8,669,315	$43,346,573	$86,693,147
Dresden (T)	$222,767,880	$2,227,679	$11,138,394	$22,276,788

Municipality	Total (All Occupancies)	1% Damage Loss Estimate	5% Damage Loss Estimate	10% Damage Loss Estimate
Easton (T)	$428,651,434	$4,286,514	$21,432,572	$42,865,143
Fort Ann (T)	$683,732,151	$6,837,322	$34,186,608	$68,373,215
Fort Ann (V)	$112,735,922	$1,127,359	$5,636,796	$11,273,592
Fort Edward (T)	$589,828,331	$5,898,283	$29,491,417	$58,982,833
Fort Edward (V)	$798,007,966	$7,980,080	$39,900,398	$79,800,797
Granville (T)	$726,726,420	$7,267,264	$36,336,321	$72,672,642
Granville (V)	$1,425,360,201	$14,253,602	$71,268,010	$142,536,020
Greenwich (T)	$709,842,151	$7,098,422	$35,492,108	$70,984,215
Greenwich (V)	$958,006,019	$9,580,060	$47,900,301	$95,800,602
Hampton (T)	$154,795,015	$1,547,950	$7,739,751	$15,479,501
Hartford (T)	$593,643,366	$5,936,434	$29,682,168	$59,364,337
Hebron (T)	$377,213,241	$3,772,132	$18,860,662	$37,721,324
Hudson Falls (V)	$4,654,636,264	$46,546,363	$232,731,813	$465,463,626
Jackson (T)	$408,557,404	$4,085,574	$20,427,870	$40,855,740
Kingsbury (T)	$1,127,227,042	$11,272,270	$56,361,352	$112,722,704
Putnam (T)	$274,281,086	$2,742,811	$13,714,054	$27,428,109
Salem (T)	$611,582,427	$6,115,824	$30,579,122	$61,158,243
White Creek (T)	$466,903,053	$4,669,031	$23,345,153	$46,690,305
Whitehall (T)	$269,674,131	$2,696,741	$13,483,707	$26,967,413
Whitehall (V)	$891,698,335	$8,916,983	$44,584,917	$89,169,833
Washington County	**$18,316,318,362**	**$183,163,184**	**$915,815,918**	**$1,831,631,836**

Source: Washington County

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 Section 5.4.2 - Flood. 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

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 Economy

The cost of snow and ice removal and repair of roads from the freeze/thaw process can drain local financial resources. 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.

Future Growth and Development

As discussed in Section 4 – County Profile and Section 9 - Annexes, areas targeted for future growth and development have been identified across the County. 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. Refer to the jurisdictional annexes in Volume II of this HMP.

Current New York State land use and building codes incorporate standards that address and mitigate snow accumulation. Some local municipalities in the State have implemented the following activities to eliminate loss of life and property and infrastructure damages during winter storm events:

- Removal of snow from roadways
- Removal of dead trees and trim trees/brush from roadways to lessen falling limbs and trees
- Ensure proper road signs are visible and installed properly
- Bury electrical and telephone utility lines to minimize downed lines
- Removal of debris/obstructions in waterways and develop routine inspections/maintenance plans to reduce potential flooding
- Replace substandard roofs of critical facilities to reduce exposure to airborne germs resulting from leakage
- Purchase and install backup generators in evacuation facilities and critical facilities to essential services to residents
- Install cell towers in areas where limited telecommunication is available to increase emergency response and cell phone coverage (NYS DHSES, 2014)

Effect of Climate Change on Vulnerability

Climate is defined not simply as average temperature and precipitation but also by the type, frequency and intensity of weather events. Both globally and at the local scale, climate change has the potential to alter the prevalence and severity of extremes such winter storms. While predicting changes of winter storm events under a changing climate is difficult, understanding vulnerabilities to potential changes is a critical part of estimating future climate change impacts on human health, society and the environment (U.S. Environmental Protection Agency [EPA], 2013).

The 2011 'Responding to Climate Change in New York State' report was prepared for New York State Energy Research and Development Authority to study the potential impacts of global climate change on New York State. According to the synthesis report, it is uncertain how climate change will influence extreme winter storm events. Winter temperatures are projected to continue to increase. In general, warmer winters may lead to a decrease in snow cover and an earlier arrival in spring; all of which have numerous cascading effects on the environment and economy. Annual average precipitation is also projected to increase. The increase in precipitation is likely to occur during the winter months as rain, with the possibility of slightly reduced precipitation projected for the late summer and early fall. Increased rain on snowpack may lead to increased flooding and related impacts on water quality, infrastructure, and agriculture in the State. Overall, it is anticipated that winter storms will continue to pass through New York State (NYSERDA, 2011). Future enhancements in climate modeling will provide an improved understanding of how the climate will change and impact the Northeast.

Change of Vulnerability

Overall, the entire County remains vulnerable to severe winter storms.

Additional Data and Next Steps

The assessment above identifies vulnerable populations and economic losses associated with this hazard of concern. Historic data on structural losses to general building stock are not adequate to predict specific losses to this inventory; therefore, the percent of damage assumption methodology was applied. This methodology is based on FEMA's How to Series (FEMA 386-2), Understanding Your Risks, Identifying and Estimating Losses (FEMA, 2001) and FEMA's Using HAZUS-MH for Risk Assessment (FEMA 433) (FEMA, 2004). The collection of additional/actual valuation data for general building stock and critical infrastructure losses would further support future estimates of potential exposure and damage for the general building stock inventory. Mitigation strategies addressing early warning, dissemination of hazard information, provisions for snow removal and back-up power are included in Volume II, Section 9 - Annexes of this plan.

5.4.5 WILDFIRE

The following section provides the hazard profile (hazard description, location, extent, previous occurrences and losses, probability of future occurrences, and impact of climate change) and vulnerability assessment for the wildfire hazard in Washington County.

5.4.5.1 Profile

Hazard Description

According to the New York State Hazard Mitigation Plan (NYS HMP), wildfire is defined as an uncontrolled fire spreading through natural or unnatural vegetation that often has the potential to threaten lives and property if not contained. Wildfires that burn in or threaten to burn buildings and other structures are referred to as wildland urban interface fires. Wildfires include common terms such as forest fires, brush fires, grass fires, wildland urban interface fires, range fires or ground fires. Wildfires do not include those fires, either naturally or purposely ignited, that are controlled for a defined purpose of managing vegetation for one or more benefits (New York State Division of Homeland Security and Emergency Services [NYS DHSES] 2014).

Wildfire in New York State is based on the same science and environmental factors as any wildfire in the world. Fuels, weather, and topography are the primary factors that determine the natural spread and destruction of every wildfire. New York State, including Washington County, has large tracts of diverse forest lands, many of which are the result of historic destructive wildfires. Although destructive fires do not occur on an annual basis, the State's fire history shows a cycle of fire occurrence that result in human death, property loss, forest destruction, and air pollution (NYS DHSES, 2014).

There are three different classes of wildfires: surface fires, ground fires, and crown fires. Surface fires are the most common type and burns along the forest floor, moving slowly and killing or damaging trees. Ground fires are usually started by lightning and burn on or below the forest floor. Crown fires spread rapidly by wind and move quickly by jumping along the tops of trees.

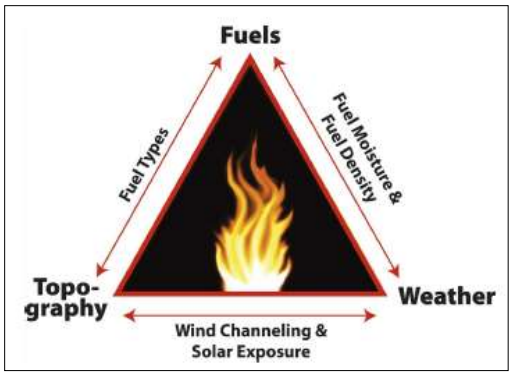
The Federal Emergency Management Agency (FEMA) indicates that there are four categories of wildfires that are experienced throughout the United States. These categories are defined as follows:

- Wildland fires – fueled almost exclusively by natural vegetation. They typically occur in national forests and parks, where Federal agencies are responsible for fire management and suppression.
- Interface or intermix fires – urban/wildland fires in which vegetation and the built-environment provide fuel
- Firestorms – events of such extreme intensity that effective suppression is virtually impossible. Firestorms occur during extreme weather and generally burn until conditions change or the available fuel is exhausted.
- Prescribed fires and prescribed natural burns – fires that are intentionally set or selected natural fires that are allowed to burn for beneficial purposes (FEMA, 1997).

Fire Ecology and Wildfire Behavior

The "wildfire behavior triangle" illustrates how three primary factors influence wildfire behavior: fuel, topography, and weather. Each point of the triangle represents one of the three factors; the sides represent the interplay between the factors. For example, drier and warmer weather combined with dense fuel loads and steeper slopes will cause more hazardous fires than light fuels on flat ground.

A fire needs all of the following three elements in the right combination to start and grow: a heat source, fuel, and oxygen. The growth of the fire primarily depends on the characteristics of available fuel, weather conditions, and terrain. Climate change is also considered a potential source of influence. These four factors are described below:



- Fuel
  - Lighter fuels such as grasses, leaves, and needles quickly expel moisture and burn rapidly, while heavier fuels such as tree branches, logs, and trunks take more time to warm and ignite.
  - Snags and hazard trees–especially those that are diseased, dying, or dead—are quickly engulfed and allow fires to spread quickly.
- Weather
  - Strong winds within the vicinity of the flames produce extreme fire conditions. Of particular concern are wind events that potentially persist for longer periods of time, or ones with significant wind speeds, which can sustain and quickly promote the spread of fire through movement of embers or exposure within tree crowns.
  - Spring and summer months, which can experience drought-like conditions extending beyond the normal season, also expand the average fire season. Likewise, the passage of a dry, cold front through the region can result in a sudden increase in wind speeds and a change in wind direction affecting fire spread.
  - Thunderstorm activity, which typically begins with wet storms, turns dry with little or no precipitation reaching the ground as the seasons progress.
- Terrain
  - Regional and local topography influence the amount and moisture of fuel.
  - Barriers such as highways and lakes can affect the spread of fire.
  - Elevation and slope of landforms affect fire spread; flames move more easily uphill than downhill.
- Changes to Environment
  - Without an increase in summer precipitation (greater than any predicted by climate models), areas susceptible to future burning are very likely to increase.
  - Infestation from insects is also of concern as it may impact forest health. Potential insect populations may increase with warmer temperatures. Infested, stressed trees increase the fuel load.
  - Tree species composition will change as species respond uniquely to a changing climate.
  - Wildfires cause both short-term and long-term losses. Short-term losses can include destruction of timber, wildlife habitat, scenic vistas, and watersheds. Long-term effects include smaller timber harvests, reduced access to affected recreational areas, and the destruction of cultural and economic resources and community infrastructure.

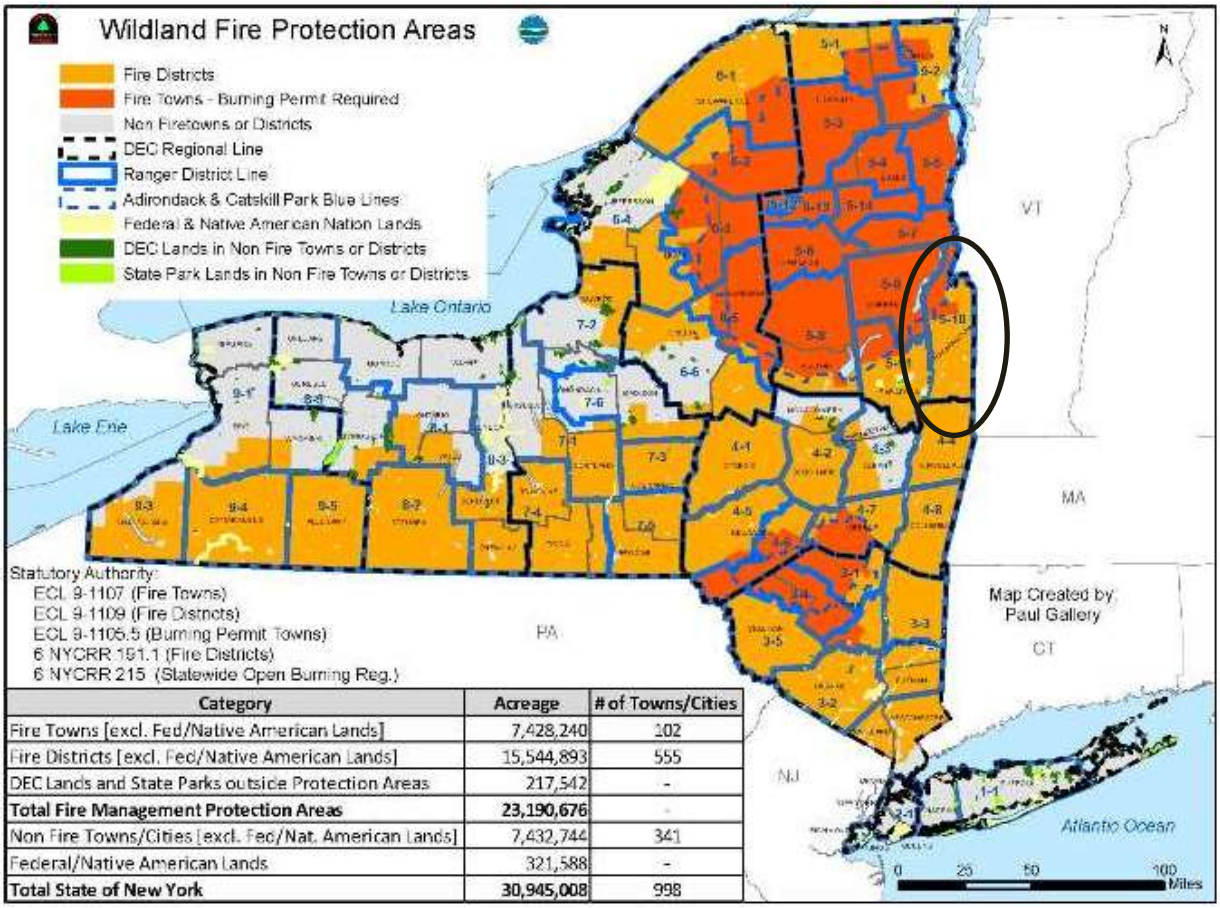
Location

According to the U.S. Fire Administration (USFA), the fire problem in the U.S. varies from region to region. This often is a result of climate, poverty, education, demographics, and other causal factors (USFA, 2013). Wildfires do occur in New York State. Many areas in the State, particularly those that are heavily forested or contain large tracts of brush and shrubs, are prone to fires. New York State has over 18 million acres of non-Federal forested land, along with an undetermined amount of open space and wetlands. The Adirondacks, Catskills, Hudson Highlands, Shawangunk Ridge, and Long Island Pine Barrens are examples of fire-prone areas (New York State Department of Environmental Conservation [NYSDEC] 2013).

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. It includes cities and villages and cover 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 included in the statutory requirement.

Figure 5.4.5-1 displays the fire protection areas in New York State. This figure indicates that, as of 2015, Washington County is located in Ranger District 5-10, which includes Saratoga and Washington Counties. Combined, both counties have 36,636 acres of forest preserve, 1,058 acres of wildlife management areas, 7,073 acres of state forest, and 31,811 acres of conservation easement lands (NYSDEC 2015).

Figure 5.4.5-1. Forest Ranger Division Wildfire Protection Areas



Category	Acreage	# of Towns/Cities
Fire Towns [excl. Fed/Native American Lands]	7,428,240	102
Fire Districts [excl. Fed/Native American Lands]	15,544,893	555
DEC Lands and State Parks outside Protection Areas	217,542	-
Total Fire Management Protection Areas	**23,190,676**	-
Non Fire Towns/Cities [excl. Fed/Nat. American Lands]	7,432,744	341
Federal/Native American Lands	321,588	-
Total State of New York	**30,945,008**	998

Source: NYSDEC 2015
Note: Washington County is indicated by the black oval.

New York State is divided into 10 fire danger rating areas (FDRAs). FDRAs are defined by areas of similar vegetation, climate, and topography in conjunction with agency regional boundaries, National Weather Service (NWS) fire weather zones, political boundaries, fire occurrence history, and other influences. The Forest Ranger Division issues daily fire danger warnings when the fire danger rating is at high or above in one or more FDRAs. Washington County is located in the Upper Hudson Valley/Champlain FDRA.

Adirondack Park

The Adirondack Park Agency (APA) is a New York State government agency, created in 1971 by the State Legislature to develop long-range land use plans for both public and private lands within the Adirondack Park, including the 200,000-acre Lake George Park in Warren, Washington, and Essex Counties. The Agency classifies state lands in the Park according to the physical characteristics of the land or water which have a direct bearing upon the capacity of the land to accept human use. The following nine basic categories result from this classification: Wilderness, Primitive, Canoe, Wild Forest, Intensive Use, Historic, State Administrative, Wild, Scenic and Recreational Rivers, Travel Corridors.

According to the 2014 Adirondack Park State Land Master Plan, Washington County contains areas within the park designated as Wild Forest and Intensive Use.

There are two main fire seasons in the Adirondack region, one in the spring and the other in the fall. The spring fire season stretches from the time that the snow melts until green leaves start to appear, usually from April until late May. During this time there is an abundance of dead leaves and vegetation on the ground from the previous autumn. Spring winds dry out this material, creating fuel for fires. Once foliage appears in late May the risk of fire decreases because of a greater amount of moisture held in at ground level.

The Adirondack Park Invasive Plant Program (APIPP) serves as the Adirondack Partnership for Regional Invasive Species Management, one of eight regional partnerships across New York whose mission is to protect the Adirondack region from the negative impacts of invasive species. According to APIPP, a number of terrestrial invasive species that are or have been present in the Adirondack region may impact Washington County's susceptibility to the wildfire hazard. Table 5.4.5-1 shows the species of concern, whether or not they are present within the Adirondack Park, and the impacts they may have on Washington County relative to the wildfire hazard.

Table 5.4.5-1. APIPP Terrestrial Invasive Species Hazard Assessment

Invasive Species	Adirondack Park Status	Potential Impact	Potential Hazard
Terrestrial Invasive Insects			
Sirex Wood Wasp	Present	Sick, Dead or Dying Trees in abundance	Human Health Hazard, Wildfire Hazard, Storm Hazard, Water Quality Hazard
Balsam Woolly Adelgid	Present		
Asian Gypsy Moth	Present		
Hemlock Woolly Adelgid	Absent		
Emerald Ash Borer	Absent		
Asian Long-horned Beetle	Absent		
Terrestrial Invasive Plants			
Phragmites	Present	Large, Dense Thickets of Dead Plant Stems Blocked signage and line of sight distances	Fire Hazard, Human Health Hazard
Knotweed species	Present	Large, Dense Thickets of Dead Plant Stems Damaged Infrastructure Blocked signage and line of sight distances	Fire Hazard Human Health Hazard
Oriental Bittersweet	Present	Tree destabilization and fragmentation	Human Health Hazard, Fire Hazard, Storm Hazard

Source: APIPP, 2015

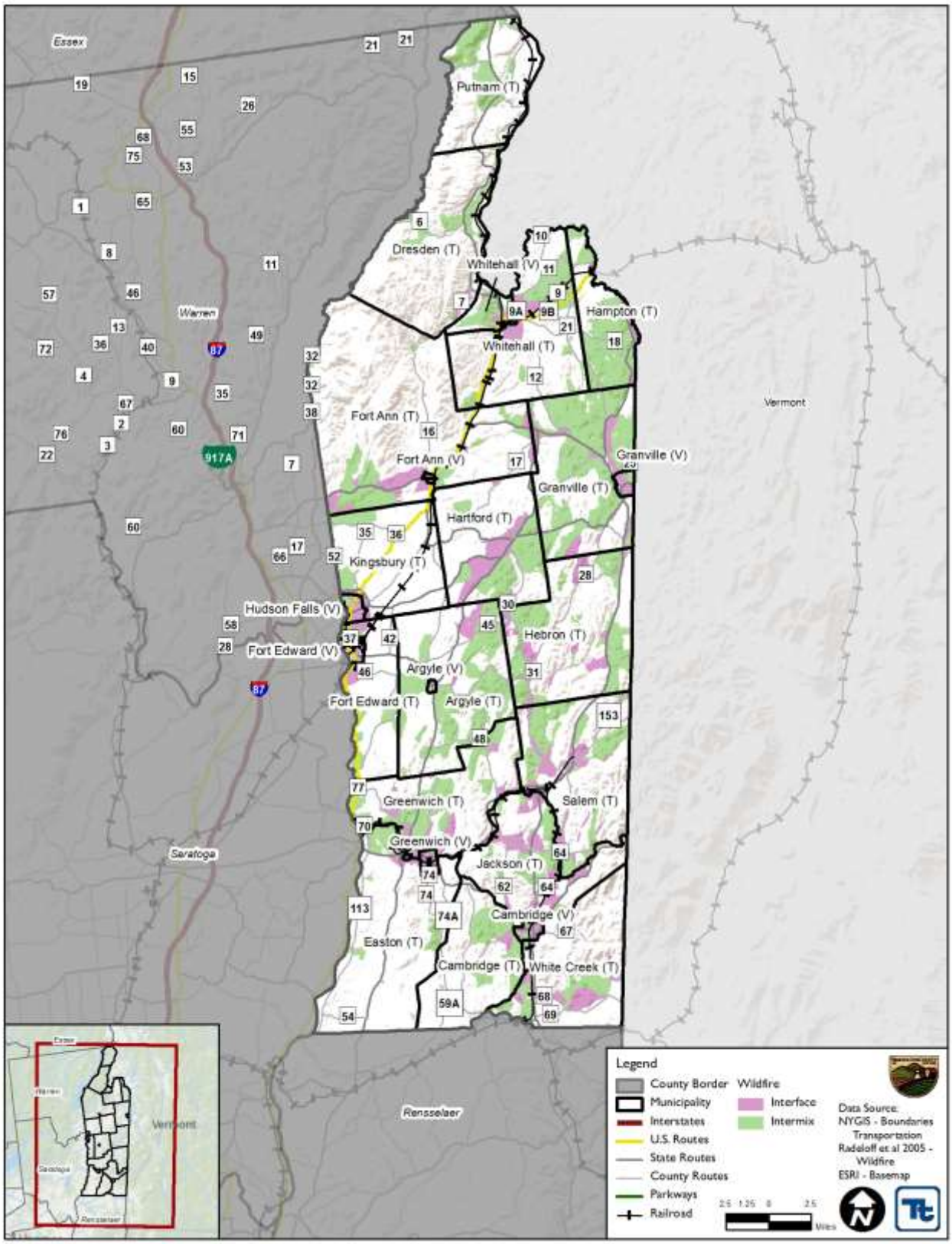
Wildfire/Urban Interface (WUI) in New York State/Washington County

Wildland/Urban Interface (WUI) is the area where houses and wildland vegetation coincide. Interface neighborhoods are found all across the U.S., and include many of the sprawling areas that grew during the 1990s. Housing developments alter the structure and function of forests and other wildland areas. The outcomes of the fire in the WUI are negative for residents; some may only experience smoke or evacuation, while others may lose their homes to a wildfire. All states have at least a small amount of land classified as WUI. To determine the WUI, structures per acre and population per square mile are used. Across the U.S., 9.3-percent of all land is classified as WUI. The WUI in the area is divided into two categories: intermix and interface. Intermix areas have more than one house per 40 acres and have more than 50-percent vegetation. Interface areas have more than one house per 40 acres, have less than 50-percent vegetation, and are within 1.5 miles of an area over 1,235 acres that is more than 75-percent vegetated (Stewart et al., 2006).

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. The population migration from an urban to suburban and rural living will continue, increasing the possibility of loss and/or damage to structures in the WUI. 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 either 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. Further, the mix of structures, ornamental vegetation and wildland fuels may cause erratic fire behavior. These factors and others substantially increase the risk to life, property and economic welfare in the WUI. While there are many interface communities throughout New York and Washington County, an official list that details the location, type of interface and surrounding fuel make-up does not exist (NYS DHSES 2014).

A detailed WUI (interface and intermix) was obtained through the SILVIS Lab, Department of Forest Ecology and Management, University of Wisconsin-Madison which also defines the wildfire hazard area. 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 to wildfire. This buffer distance, along with housing density and vegetation type were used to define the WUI illustrated in Figure 5.4.5-2, below (Radeloff, et al, 2005). Using this WUI, approximately 260 square miles, or approximately 30.7% of the County's land area is located in the WUI (interface and intermix).

Figure 5.4.5-2. SILVIS Wildland Urban Interface and Intermix in Washington County



Source: Radeloff, et al. 2005

Extent

The extent (that is, magnitude or severity) of wildfires depends on weather and human activity. There are several tools available to estimate fire potential, extent, danger and growth including, but not limited to the following:

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. It was developed by the Fire Behavior unit at the Fire Sciences Laboratory in Missoula, Montana and is currently supported and maintained at the National Interagency Fire Center (NIFC) in Boise, Idaho (USFS, Date Unknown).

Each day during the fire season, national maps of selected fire weather and fire danger components of the National Fire Danger Rating System (NFDRS) are produced by the WFAS (USFS, Date Unknown). Fire Danger Rating level 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, Date Unknown). Table 5.4.5-2 shows the fire danger rating and color code, which is also used by the NYSDEC to update their fire danger rating maps, which is identified later in this section.

Table 5.4.5-2. 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 which 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: NYS DHSES 2014

The ***Fire Potential Index (FPI)*** is derived by combining daily weather and vegetation condition information and can identify the areas most susceptible to fire ignition. The combination of relative greenness and weather information identifies the moisture condition of the live and dead vegetation. The weather information also identifies areas of low humidity, high temperature, and no precipitation to identify areas most susceptible to fire

ignition. The FPI enables local and regional fire planners to quantitatively measure fire ignition risk (USGS, 2005). FPI maps are provided on a daily basis by the U.S. Forest Service. The scale ranges from 0 (low) to 100 (high). The calculations used in the NFDRS are not part of the FPI, except for a 10-hour moisture content (Burgan et al, 2000).

Fuel Moisture (FM) content is the quantity of water in a fuel particle expressed as a percent of the oven-dry weight of the fuel particle. FM content is an expression of the cumulative effects of past and present weather events and must be considered in evaluating the effects of current or future weather on fire potential. FM is computed by dividing the weight of the "water" in the fuel by the oven-dry weight of the fuel and then multiplying by 100 to get the percent of moisture in a fuel (Burgan et al, 2000).

There are two kinds of FM: live and dead. Live fuel moistures are much slower to respond to environmental changes and are most influenced by things such as a long drought period, natural disease and insect infestation, annuals curing out early in the season, timber harvesting, and changes in the fuel models due to blow down from windstorms and ice storms (Burgan et al, 2000). Dead fuel moisture is the moisture in any cured or dead plant part, whether attached to a still-living plant or not. Dead fuels absorb moisture through physical contact with water (such as rain and dew) and absorb water vapor from the atmosphere. The drying of dead fuels is accomplished by evaporation. These drying and wetting processes of dead fuels are such that the moisture content of these fuels is strongly affected by fuel sizes, weather, topography, decay classes, fuel composition, surface coatings, fuel compactness and arrangement (Schroeder and Buck, 1970).

Fuels are classified into four categories which respond to changes in moisture. This response time is referred to as a time lag. A fuel's time lag is proportional to its diameter and is loosely defined as the time it takes a fuel particle to reach two-thirds of its way to equilibrium with its local environment. The four categories include:

- 1-hour fuels: up to ¼-inch diameter – fine, flashy fuels that respond quickly to weather changes. Computed from observation time, temperature, humidity, and cloudiness.
- 10-hour fuels: ¼-inch to one-inch in diameter - computed from observation time, temperature, humidity, and cloudiness or can be an observed value.
- 100-hour fuels: one-inch to three-inch in diameter - computed from 24-hour average boundary condition composed of day length (daylight hours), hours of rain, and daily temperature/humidity ranges.
- 1000-hour fuels: three-inch to eight-inch in diameter - computed from a seven-day average boundary condition composed of day length, hours of rain, and daily temperature/humidity ranges (National Park Service, Date Unknown).

The ***Keetch-Byram Drought Index (KBDI)*** is a drought index designed for fire potential assessment. It is a number representing the net effect of evapotranspiration and precipitation in producing cumulative moisture deficiency in deep duff and upper soil layers (USFS, Date Unknown). The index increases each day without rain and decreases when it rains. The scale ranges from 0 (no moisture deficit) to 800 (maximum drought possible). The range of the index is determined by assuming that there is eight inches of moisture in a saturated soil that is readily available to the vegetation. For different soil types, the depth of soil required to hold eight inches of moisture varies. A prolonged drought influences fire intensity, largely because more fuel is available for combustion. The drying of organic material in the soil can lead to increased difficulty in fire suppression (Florida Forest Service, Date Unknown).

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 the potential for existing fires to become large fires. It is named after its developer, Donald Haines, a Forest Service research meteorologist, who did the initial work and published the scale in 1988 (Storm Prediction Center [SPC], Date Unknown).

The Haines Index can range between 2 and 6. The drier and more unstable the lower atmosphere is, the higher the index. It is calculated by combining the stability and moisture content to the lower atmosphere into a number that correlates well with large fire growth. The stability term is determined by the temperature difference between two atmospheric layers; the moisture term is determined by the temperature and dew point different. The index, as listed below, has shown to correlate with large fire growth on initiating and existing fires where surface winds do not dominate fire behavior (USFS, Date Unknown).

- Very Low Potential (2) – moist, stable lower atmosphere
- Very Low Potential (3)
- Low Potential (4)
- Moderate Potential (5)
- High Potential (6) – dry, unstable lower atmosphere (USFS, Date Unknown)

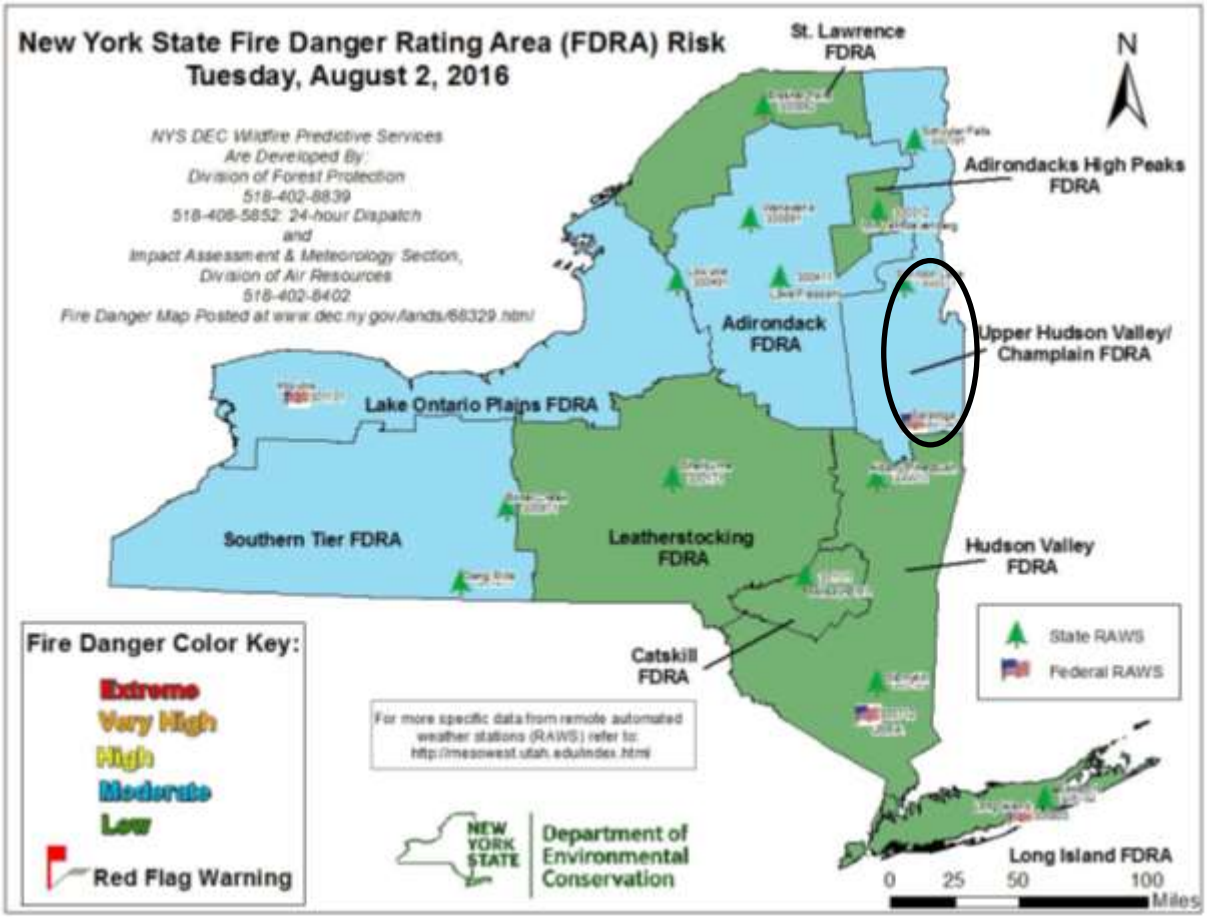
The Haines Index is intended to be used all over the U.S. It is adaptable for three elevation regimes: low elevation, middle elevation, and high elevation. Low elevation is for fires at or very near sea level. Middle elevation is for fires burning in the 1,000 to 3,000 feet in elevation range. High elevation is intended for fires burning above 3,000 feet in elevation (SPC, Date Unknown).

The ***Buildup Index (BUI)*** is a number that reflects the combined cumulative effects of daily drying and precipitation in fuels with a 10-day time lag constant. The BUI can represent three to four inches of compacted litter or can represent up to six inches or more of loose litter (North Carolina Forest Service, 2007).

NYSDEC Fire Danger Rating Map

A current fire danger rating map is updated daily on the NYSDEC website (http://www.dec.ny.gov/lands/68329.html). The map is developed by information obtained from the Division of Forest Protection and Division of Air Resources (impact assessment and meteorology section). Figure 5.4.5-3 shows the FDRAs in New York State and the current (as of August 2, 2016) fire danger risk for each of the areas. The figure is color coded and indicates where there are red flag warning areas. Table 5.4.5-2, above, describes the fire danger ratings for New York State.

Figure 5.4.5-3. New York State Fire Danger Rating Areas



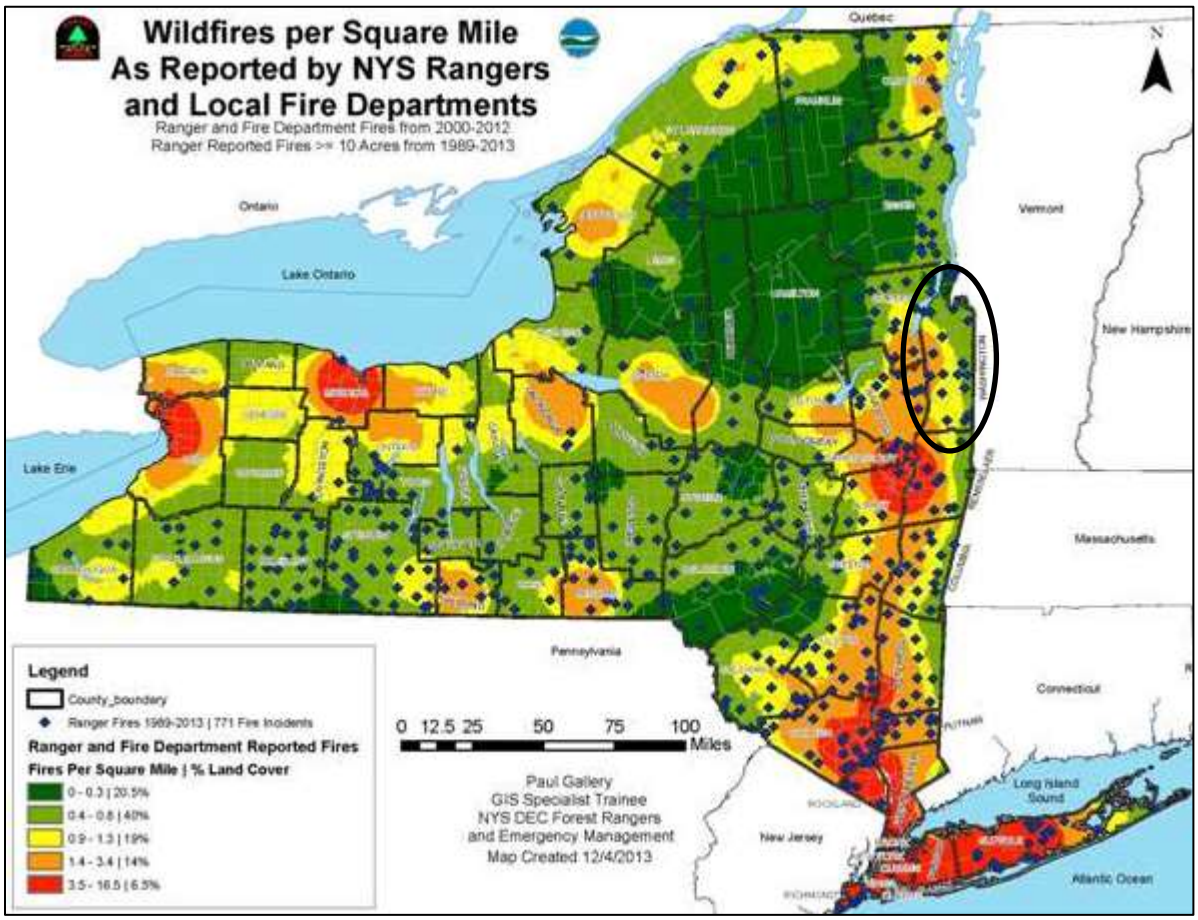
Source: *NYSDEC 2016*
Note: *The black oval indicates the location of Washington County.*

Previous Occurrences and Losses

Wildfire occurrence in New York State is based on two data sources – the New York State Forest Ranger force and the New York State Office of Fire Prevention and Control. The New York State Forest Ranger is a division of the NYSDEC and has fought fires and retained records for over 125 years. Between 1965 and 2014, there were 23,025 wildfires in New York State burning 165,165 acres. According to the Ranger Division wildfire occurrence data from 1988 through 2012, 95% of wildfires in the State were human-caused. Debris burning accounted for 35%; arson accounted for 17%; campfires accounted for 14%; children accounted for 5%; smoking, equipment, and railroads accounted for 30%; and lightning accounted for 5% of all wildfires (NYSDEC 2013).

Figure 5.4.5-4 illustrates wildfires per square miles as reported by the NYS forest rangers and local fire departments between 2000 and 2012.

Figure 5.4.5-4. Wildfires Per Square Mile, 2000-2012



Source: *NYS DEC 2016*
Note: *The black oval indicates the location of Washington County.*

Many sources provided wildfire information regarding previous occurrences and losses associated with wildfire throughout New York State and Washington County. With so many sources reviewed for the purpose of this HMP update, loss and impact information for many events could vary depending on the source. Loss and impact information could vary depending on the source. Therefore, the accuracy of monetary figures discussed is based only on the available information identified during research for this HMP.

Between 1954 and 2016, New York State was included in two FEMA fire management assistance (FMA) declarations. Generally, these disasters cover a wide range of the State; therefore, the disaster may have impacted many counties. Washington County was not included in any FEMA declarations. For this 2016 HMP update, significant wildfire events in Washington County were summarized from 2007 to 2016, and are identified in Table 5.4.5-3. Please note that not all events that have occurred in Washington County are included due to the extent of documentation and the fact that not all sources may have been identified or researched.

Table 5.4.5-3. Wildfire Events in Washington County between 2007 and 2016

Dates of Event	Event Type	FEMA Declaration Number	Location / County Designated?	Losses / Impacts
April 2008	Wildfire	N/A	N/A	50 acres burned off McKie Hollow Rd. in the Ash Grove area of the Town of White Creek.
May 29, 2016	Wildfire	N/A	N/A	A wildfire broke out on Buck Mountain in the Town of Fort Ann during the morning of May 29th. The fire started when campers left a fire unattended overnight and it spread. Between two and three acres of forest burned.

Sources: NYSDEC 2016; NYS DHSES 2014; FEMA 2016
FEMA Federal Emergency Management Agency
N/A Not Applicable / Not Available
NYSDEC New York State Department of Environmental Conservation

Probability of Future Occurrences

According to the New York State Forest Ranger Division, wildfire occurrence data from 1988 to 2012 have shown that New York State, including Washington County, will always be susceptible to wildfires. Ninety-five percent of wildfires in New York State are caused by humans, while lightning is responsible for only five percent. Beginning in 2010, New York State enacted revised open burning regulations that ban brush burning statewide from March 15th through May 15th. This time period is when 47% of all fire department-response wildfires occur. Forest ranger data indicates that this new statewide ban resulted in 74% fewer wildfires caused by debris burning in upstate New York from 2010 to 2012. Debris burning has been prohibited in New York City and Long Island for more than 40 years. Since compliance with this regulation, forest ranger and fire department historical fire occurrence data will serve as a benchmark for analysis of wildfire occurrence (NYS DHSES, 2014).

The State's large size, diverse topography, and variety of climates require the State be divided into distinct units for describing wildfire potential and risk. See the Location section of this profile for information regarding the risk areas.

Wildfire experts say there are four reasons why wildfire risks are increasing:

- Fuel, in the form of fallen leaves, branches and plant growth, have accumulated over time on the forest floor. Now this fuel has the potential to "feed" a wildfire.
- Increasingly hot, dry weather in the U.S.
- Changing weather patterns across the country.
- More homes built in the areas called the Wildland/Urban Interface, meaning homes are built closer to wildland areas where wildfires can occur (NYS DHSES 2014).

It is likely that New York State will experience small wildfires throughout the state on a yearly basis (as the State has regularly experienced 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 2014).

Estimating the approximate number of wildfires to occur in Washington County is difficult to predict in a probabilistic manner. This is because a number of variable factors impact the potential for a fire to occur and because some conditions (for example, ongoing land use development patterns, location, fuel sources, and construction sites) exert increasing pressure on the WUI zone. Based on available data, wildfires will continue to present a risk to Washington County. Given the numerous factors that can impact urban fire and wildfire potential, the likelihood of a fire event starting and sustaining itself should be gauged by professional fire managers on a daily basis.

In Section 5.3 – Hazard Ranking, the identified hazards of concern for Washington County were ranked. The probability of occurrence, or likelihood of the event, is one parameter used for ranking hazards. Based on historical records and input from the Planning Committee, the probability of occurrence for wildfire in the County is considered 'frequent' (event likely to occur within 25 years, as presented in Section 5.3 – Hazard Ranking)

Climate Change Impacts

Climate change directly and indirectly affects the growth and productivity of forests: directly due to changes in atmospheric carbon dioxide and climate, and indirectly through complex interactions in 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 wildfire incidents. 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 growing more fuel. Drought and warmer temperatures lead to drier forest fuels (NYS DHSES 2014).

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 (New York State Energy Research and Development Authority [NYSERDA] 2011).

Each region in New York State, as defined by ClimAID, has attributes that will be affected by climate change. Washington County is part of Region 5, East Hudson and Mohawk River Valleys. Region 5 includes the following counties: Madison, Oneida, Herkimer, Fulton, Montgomery, Schenectady, Saratoga, Washington, Albany, Rensselaer, Columbia, Dutchess, Putnam, and Westchester. Some of the issues in this region, affected by climate change, include: saltwater front moves further up the Hudson River; potential contamination of New York City's back-up water supply; propagation of storm surge up the Hudson from the coast; and popular apple varieties decline (NYSERDA 2011).

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).

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 (NYSERDA 2014).

In Region 5, it is estimated that temperatures will increase by 3.5ºF to 7.1ºF by the 2050s and 4.1ºF to 11.4ºF by the 2080s (baseline of 47.6ºF). Precipitation totals will increase between 2 and 15% by the 2050s and 3 to 17% by the 2080s (baseline of 38.6 inches) (NYSERDA 2014). Table 5.4.5-4 displays the projected seasonal precipitation change for the East Hudson and Mohawk River Valleys ClimAID Region.

Table 5.4.5-4. 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: NYSERDA 2011

With the increase in temperatures, heat waves will become more frequent and intense, increasing heat-related illness and death and posing new challenges to the energy system, air quality and agriculture. Summer droughts are projected to increase, affecting water supply, agriculture, ecosystems, and energy projects (NYSERDA 2011).

Fire is determined by climate variability, local topography, and human intervention. Climate change has the potential to affect multiple elements of the wildfire system: fire behavior, ignitions, fire management, and vegetation fuels. Hot dry spells create the highest fire risk. With the increasing temperatures occurring in New York State, wildfire danger may intensify by warming and drying out vegetation. When climate alters fuel loads and fuel moisture, forest susceptibility to wildfire 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.

5.4.5.2 Vulnerability Assessment

To understand risk, a community must evaluate what assets are exposed or vulnerable in the identified hazard area. For the wildfire hazard, the portions of Washington County in the Wildland/Urban Interface zones (Interface and Intermix) have been identified as the hazard area. Therefore, all assets in the county (population, structures, critical facilities and lifelines), as described in the Section 4 - County Profile, located in the hazard area are exposed and potentially vulnerable to wildfire. The following text evaluates and estimates the potential impact of the wildfire hazard on the County including:

- Overview of vulnerability
- Data and methodology used for the evaluation
- Impact on: (1) life, health and safety of residents, (2) general building stock, (3) critical facilities, (4) economy, and (5) future growth and development
- Effect of climate change on vulnerability
- Change of vulnerability as compared to that presented in the 2010 Washington County HMP
- Further data collections that will assist understanding this hazard over time

Overview of Vulnerability

Wildfire hazards can impact significant areas of land, as evidenced by wildfires throughout the State and United States over the past several years. Fire in urban areas has the potential for great damage to infrastructure, loss of life, and strain on lifelines and emergency responders because of the high density of population and structures that can be impacted in these areas. However, wildfire can spread quickly to become a huge fire complex consisting of thousands of acres, and present greater challenges for allocating resources, defending isolated structures, and coordinating multi-jurisdictional response. If a wildfire occurs at a WUI, it can also cause an urban fire. Due to the high density of population and structures that can be impacted in urban areas, this scenario has the potential for great damage to infrastructure, loss of life, and strain on lifelines and emergency responders.

Potential losses from wildfire include human life, structures and other improvements, 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. In addition, 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 NFIP's 'Flood After Fire Fact Sheet', additional flood risks are created due to the reduced amount of vegetation. The barren and charred ground is unable to absorb water, which amplifies the risk for flash flooding and mudflow.

Data and Methodology

The WUI (interface and intermix) obtained through the SILVIS Lab, Department of Forest Ecology and Management, University of Wisconsin – Madison was referenced to define the 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 the purposes of 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. Figure 5.4.5-2 shown above display the 2010 Wildfire Urban Interface for Washington County by 2010 U.S. Census block.

The asset data (population, building stock, and critical facilities) presented in the Section 4 - County Profile was used to support an evaluation of assets exposed and potential impacts and losses associated with this hazard. To determine what assets are exposed to wildfire, available and appropriate Geographic Information System (GIS) data were overlaid upon the hazard area. Limitations of this analysis are recognized, and as such, the analysis is used only to provide a general estimate.

Impact on Life, Health and Safety

As demonstrated by historic wildfire events in New York and other parts of the country, potential losses include human health and life of residents and responders, structures, infrastructure and natural resources. In addition, wildfire events can have major economic impacts on a community from the initial loss of structures and the subsequent loss of revenue from destroyed business and decrease in tourism. The most vulnerable populations include emergency responders and those within a short distance of the interface between the built environment and the wildland environment.

Wildfires can cost thousands of taxpayer dollars to suppress and control and 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 excuse volunteers from work to fight these fires.

As a way to estimate the county's population vulnerable to the wildfire hazard, the population located within the WUI was overlaid upon the 2010 Census population data (U.S. Census 2010). Census blocks with centers within the hazard area were used to calculate the estimated population exposed to the wildfire hazard. Table 5.4.5-5. Table 5.4.5-5 summarizes the estimated population exposed by municipality.

Based on the analysis, 15,875 individuals, or 25.1% of the County's population, are exposed to the Intermix wildfire hazard, while 28,987 individuals, or 45.9% of the County's population, are exposed to the Interface wildfire hazard. Overall, 44,862 have the greatest number of individuals located in the hazard area.

Table 5.4.5-5. Estimated Vulnerable Population

Municipality	US. Census 2010 Population	Estimated Population Exposed			% of Total Exposed
		Intermix	Interface	Total	
Argyle (T)	3,476	1,624	190	1,814	52.2%
Argyle (V)	306	0	0	0	0.0%
Cambridge (T)	1,549	515	56	571	36.9%
Cambridge (V)	1,870	283	1,587	1,870	100.0%
Dresden (T)	652	262	119	381	58.4%
Easton (T)	2,128	310	177	487	22.9%
Fort Ann (T)	5,706	1,487	711	2,198	38.5%
Fort Ann (V)	484	0	484	484	100.0%
Fort Edward (T)	2,996	429	1,917	2,346	78.3%
Fort Edward (V)	3,375	146	3,225	3,371	99.9%
Granville (T)	4,126	2,380	1,110	3,490	84.6%

Municipality	US. Census 2010 Population	Estimated Population Exposed			% of Total Exposed
		Intermix	Interface	Total	
Granville (V)	2,543	225	2,318	2,543	100.0%
Greenwich (T)	3,373	1,101	1,240	2,341	69.4%
Greenwich (V)	1,777	117	1,609	1,726	97.1%
Hampton (T)	938	727	88	815	86.9%
Hartford (T)	2,269	926	715	1,641	72.3%
Hebron (T)	1,853	798	448	1,246	67.2%
Hudson Falls (V)	7,281	405	6,864	7,269	99.8%
Jackson (T)	1,800	478	782	1,260	70.0%
Kingsbury (T)	5,390	1,099	1,197	2,296	42.6%
Putnam (T)	609	240	36	276	45.3%
Salem (T)	2,715	694	1,443	25.6%	53.1%
White Creek (T)	1,958	588	419	1,007	51.4%
Whitehall (T)	1,428	448	234	682	47.8%
Whitehall (V)	2,614	593	2,018	2,611	99.9%
Washington County	**63,216**	**15,875**	**28,987**	**44,862**	**71.0%**

Sources: US Census 2010, Radeloff et all, 2005

Impact on General Building Stock

The most vulnerable structures to wildfire events are those located within the WUI areas. Buildings constructed of wood or vinyl siding are generally more likely to be impacted by the fire hazard than buildings constructed of brick or concrete. To estimate the buildings exposed to the wildfire hazard, the hazard areas were overlaid upon the building inventory in the County (Census block). The replacement cost value of the structures with their center in the hazard area were totaled. Table 5.4.5-6 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.

Table 5.4.5-6. Building Stock Replacement Value Located in WUI Hazard Area

Municipality	Total RV (Structure and Contents)	Building RV Exposed			% of Total Exposed
		Intermix	Interface	Total	
Argyle (T)	$902,641,904	$493,538,270	$30,056,976	$523,595,246	58.0%
Argyle (V)	$105,497,653	$0	$0	$0	0.0%
Cambridge (T)	$500,184,564	$157,886,055	$14,939,135	$172,825,191	34.6%
Cambridge (V)	$1,474,549,125	$402,049,287	$1,065,195,970	$1,467,245,257	99.5%
Dresden (T)	$343,123,687	$151,416,468	$100,601,590	$252,018,058	73.4%
Easton (T)	$722,166,767	$97,174,062	$66,757,605	$163,931,667	22.7%
Fort Ann (T)	$1,082,086,973	$509,632,650	$202,335,361	$711,968,012	65.8%
Fort Ann (V)	$192,253,336	$0	$185,991,954	$185,991,954	96.7%
Fort Edward (T)	$995,655,274	$100,441,453	$649,695,373	$750,136,827	75.3%
Fort Edward (V)	$1,308,363,331	$67,817,805	$1,216,913,082	$1,284,730,888	98.2%

Municipality	Total RV (Structure and Contents)	Building RV Exposed			% of Total Exposed
		Intermix	Interface	Total	
Granville (T)	$1,185,762,623	$582,754,589	$430,962,918	$1,013,717,507	85.5%
Granville (V)	$2,347,300,819	$75,454,618	$2,256,990,498	$2,332,445,115	99.4%
Greenwich (T)	$1,161,751,834	$357,277,395	$443,764,926	$801,042,321	69.0%
Greenwich (V)	$1,504,098,323	$28,998,933	$1,468,317,124	$1,497,316,056	99.5%
Hampton (T)	$241,107,314	$180,275,218	$28,247,018	$208,522,236	86.5%
Hartford (T)	$1,035,675,130	$196,777,258	$679,207,223	$875,984,481	84.6%
Hebron (T)	$582,232,167	$237,988,265	$116,425,455	$354,413,720	60.9%
Hudson Falls (V)	$7,181,239,900	$75,254,425	$6,970,702,878	$7,045,957,303	98.1%
Jackson (T)	$640,798,344	$175,565,762	$284,269,288	$459,835,050	71.8%
Kingsbury (T)	$1,838,974,710	$498,498,133	$332,634,100	$831,132,233	45.2%
Putnam (T)	$422,773,863	$232,768,115	$32,892,055	$265,660,169	62.8%
Salem (T)	$984,630,612	$190,933,426	$582,042,100	$772,975,526	78.5%
White Creek (T)	$804,201,102	$131,958,342	$93,009,563	$224,967,905	28.00%
Whitehall (T)	$446,240,581	$105,587,471	$126,078,066	$231,665,537	51.90%
Whitehall (V)	$1,446,746,007	$221,825,022	$1,163,110,947	$1,384,935,969	95.70%
Washington County	**$29,450,055,943**	**$5,271,873,023**	**$18,541,141,205**	**$23,813,014,227**	**80.90%**

Sources: Washington County, Radeloff et al, 2005

Impact on Critical Facilities

It is recognized that a number of critical facilities are located in the wildfire hazard area, and are also vulnerable to the threat of wildfire. Many of these facilities are the locations for vulnerable populations (i.e., schools, senior facilities) and responding agencies to wildfire events (i.e., fire, police). Table 5.4.5-7 summarizes the critical facilities located within the wildfire hazard area by jurisdiction.

Table 5.4.5-7. Facilities in WUI (Interface and Intermix) Hazard Area

Municipality	Facility Type																			
	Air	Bank	Communication Tower	Correctional	DPW	EMS	Emergency Operation Center	Fire Station	Government	Hotel	Library	Marina	Medical	Municipal Hall	Parks and Recreation	Police Station	Post Office	Rail Facility	School	Senior
Argyle (T)	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
Argyle (V)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cambridge (T)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cambridge (V)	0	1	0	0	1	1	0	1	2	1	1	0	2	2	0	1	1	1	3	3
Dresden (T)	0	0	3	0	0	0	0	2	2	0	0	1	0	1	0	0	2	0	0	0
Easton (T)	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0

Municipality	Facility Type																			
	Air	Bank	Communication Tower	Correctional	DPW	EMS	Emergency Operation Center	Fire Station	Government	Hotel	Library	Marina	Medical	Municipal Hall	Parks and Recreation	Police Station	Post Office	Rail Facility	School	Senior
Fort Ann (T)	0	0	3	0	1	0	0	2	1	0	0	0	1	0	0	0	0	0	0	0
Fort Ann (V)	0	1	0	0	0	0	0	1	1	1	0	0	0	2	0	0	1	0	0	0
Fort Edward (T)	0	1	2	1	1	1	2	1	7	0	0	0	4	0	0	1	0	0	1	1
Fort Edward (V)	0	1	0	0	0	0	0	1	2	0	0	0	2	1	0	1	1	3	2	0
Granville (T)	0	1	1	0	1	0	0	2	1	0	0	0	1	0	1	1	2	0	2	0
Granville (V)	0	2	0	0	1	1	0	2	3	0	0	0	2	2	0	1	1	0	2	2
Greenwich (T)	0	0	3	0	1	0	0	2	1	0	0	0	2	0	0	0	1	1	0	0
Greenwich (V)	0	3	0	0	0	0	0	1	2	0	1	0	0	2	0	1	1	1	2	0
Hampton (T)	0	0	2	0	0	0	0	1	2	0	0	0	1	1	0	0	1	0	0	0
Hartford (T)	0	0	2	0	0	0	0	1	2	0	0	0	0	1	0	0	1	0	1	0
Hebron (T)	0	0	0	0	1	0	0	2	2	0	0	0	0	1	0	0	0	0	0	0
Hudson Falls (V)	0	1	2	0	0	0	0	2	3	0	0	0	8	2	0	1	1	0	4	1
Jackson (T)	1	0	1	0	1	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0
Kingsbury (T)	0	1	1	0	0	0	0	0	1	0	0	0	2	0	0	0	0	0	2	0
Putnam (T)	0	0	1	0	1	0	0	1	2	0	0	0	0	1	0	0	1	0	2	0
Salem (T)	0	3	0	0	0	1	0	2	1	0	0	0	2	2	0	1	2	3	2	0
White Creek (T)	0	0	1	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
Whitehall (T)	0	0	1	0	0	0	0	0	2	0	0	0	0	0	0	0	0	1	0	0
Whitehall (V)	0	0	1	0	2	1	0	1	1	0	0	0	1	2	1	1	1	2	2	0
Washington County	**1**	**15**	**25**	**1**	**12**	**6**	**2**	**26**	**40**	**2**	**2**	**1**	**29**	**20**	**2**	**9**	**17**	**14**	**25**	**7**

Sources: Washington County, Radeloff et al, 2005

Impact on 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 business and decrease in tourism. Wildfires can cost thousands of taxpayer dollars to suppress and control and 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 excuse volunteers from working to fight these fires.

Future Growth and Development

Areas targeted for potential future growth and development in the next five years have been identified across Washington County at the municipal level. Refer to the jurisdictional annexes in Volume II of this HMP update.

It is anticipated that any new development and new residents in the WUI areas will be exposed to the wildfire hazard.

Effect of Climate Change on Vulnerability

According to the U.S. Fire Service (USFS), 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. Climate change associated with elevated greenhouse gas concentrations may create an atmospheric and fuel environment that is more conductive to large, severe fires (USFS, 2011). Under a changing climate, wildfires are expected to increase by 50% across the U.S. (USFS, 2013).

Fire interacts with climate and vegetation (fuel) in predictable ways. 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 wildland-urban interface (USFS, 2011).

It is projected that higher summer temperatures will likely increase the high fire risk by 10 to 30-percent. Fire occurrence and/or area burned could increase across the U.S. due to the increase of lightning activity, the frequency of surface pressure and associated circulation patterns conductive to surface drying, and fire-weather conditions, in general, which is conductive to severe wildfires. Warmer temperatures will also increase the effects of drought and increase the number of days each year with flammable fuels and extending fire seasons and areas burned (USFS, 2011).

Future changes in fire frequency and severity are difficult to predict. Global and regional climate changes associated with elevated greenhouse gas concentrations could alter large weather patterns, thereby affecting fire-weather conducive to extreme fire behavior (USFS, 2011).

Change of Vulnerability

A wildfire exposure analysis was not conducted as part of the 2010 HMP risk assessment. The updated vulnerability assessment provides a more current exposure analysis for the County.

Additional Data and Next Steps

As the custom building inventory is updated, additional building attributes regarding the construction of structures, such as roofing material, fire detection equipment, structure age, etc. may be incorporated as available. As stated earlier, buildings constructed of wood or vinyl siding are generally more likely to be impacted by the fire hazard than buildings constructed of brick or concrete. The proximity of these building types to the fuel hazard areas should be identified for further evaluation. Development and availability of such data would permit a more detailed estimate of potential vulnerabilities, including loss of life and potential structural damages.

SECTION 6. MITIGATION STRATEGIES

This section presents mitigation actions for Washington 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 Planning Approach
3. Review and Update of Mitigation Goals and Objectives
4. Capability Assessment
5. Mitigation Strategy Development

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.

6.1 BACKGROUND AND PAST MITIGATION ACCOMPLISHMENTS

In accordance with the requirements of the Disaster Mitigation Act of 2000 (refer to Page 1-1 for more detail on DMA 2000), 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. The County, through previous and ongoing hazard mitigation activities, has demonstrated that it is pro-active 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 April 2010 "Washington County All-Hazards Mitigation Plan". The current planning process represents the regulatory five-year plan update process, which includes participation of 21 out of 25 municipal governments in the County, along with key county and regional stakeholders.

- All municipalities participating in this HMP update participate in the National Flood Insurance Program (NFIP), which requires the adoption of FEMA floodplain mapping and certain minimum standards for building within the floodplain.

- The County and municipalities have implemented, or sought to implement through efforts to secure available funding resources, mitigation actions to protect critical facilities and infrastructure throughout the planning area, including:
    - New span bridge on CR46 in Town of Fort Edward
    - Village of Granville - Phase I of Church Street Bridge Rehabilitation, River Valley Drive Pump Station Flood Mitigation, Wellfield Berm Repairs, Sanitary Collection System Inflow and Infiltration Mitigation Project
    - Bridge deck repair/upgrade on CR113 in Town of Easton.
    - Batten Kill River Stabilization Project in Town of Jackson
    - Washington County Sewer District #11 Backup Power System
    - Pike Brook Road bridge replacement in Town of Dresden, damaged during Hurricane Irene

- Municipalities have actively participated in available mitigation grant funding opportunities to implement mitigation projects, as identified in their jurisdictional annexes in Section 9 - Annexes.

- Numerous studies have been conducted by Federal, State, County and local agencies/entities to examine natural hazards affecting Washington County, and have been reviewed and incorporated into this plan update as appropriate (see Section 3 – Planning Process and References).

- Municipalities in Washington County have adopted regulatory standards regarding land-use and zoning that exceed minimum requirements and 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 Department of Public Safety coordinates emergency response activities and resources during hazard events and analyzes the response efforts after hazards to evaluate performance, make improvements and identify additional resources required and opportunities for mitigation action.

- The Washington County Soil and Water Conservation District instructs on topics pertinent to Agricultural Environmental Management and natural resource conservation for public and municipalities. Other trainings that deal with stormwater management to improve water quality and reduce water quantity are offered as well.

6.2 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:

- 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)
- FEMA "Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards", January 2013

The mitigation strategy update approach includes the following steps that are further detailed in later subsections of this section:

- Review and update mitigation goals and objectives
- Identify mitigation capabilities and evaluate their capacity and effectiveness to mitigate and manage hazard risk
- Prepare an implementation strategy, including:
    - Identification of progress on previous County and local mitigation strategies
    - Development of updated County and local mitigation strategies, and
    - Prioritization projects and initiatives in the updated mitigation strategy

6.3 REVIEW AND UPDATE OF MITIGATION GOALS AND OBJECTIVES

This section documents the efforts to develop hazard mitigation goals and objectives established to reduce or avoid long-term vulnerabilities to the identified hazards.

6.3.1 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 specific and measurable.

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.

During the 2016-2018 plan update process, the Steering Committee reviewed the goals and objectives established in the 2010 HMP. These goals and objectives were reviewed in consideration of the hazard events and losses since the 2010 plan, the updated hazard profiles and vulnerability assessment, the goals and objectives established in the New York State 2014 HMP, County and local risk management plans, as well as direct input on how the County and municipalities need to move forward to best manage their hazard risk. Amendments include additions/edits to goals and/or objectives to express the planning partnership's interests in integrating this plan with other planning mechanisms/programs, and to support mitigation through the protection and preservation of natural systems, including particular reference to certain goals and objectives in the NYS 2014 HMP update as identified in the table below.

As a result of this review process, the Goals and Objectives for the 2016-2018 update have been amended, as presented in Table 6-1.

Table 6-1. Washington County Hazard Mitigation Plan Goals and Objectives

Goal	Objective
Goal 1: Protect Life and Property	*Objective 1-1:* Implement mitigation activities that will assist in protecting lives and property by making homes, businesses, infrastructure, and critical facilities more resistant to hazards.
	Objective 1-2: Encourage homeowners and businesses to take preventive actions in areas that are especially vulnerable to hazards.
	Objective 1-3: Build upon past efforts to characterize flood events by conducting additional flood studies and creating flood models (especially in the Town of Salem, which now includes the Village of Salem) (*Modified from the 2010 Washington County Objective 1-3).*
	Objective 1-4: Review existing local ordinances, building codes, safety inspection procedures, and applicable rules to help ensure that they employ the most recent and generally accepted standards for the protection of buildings.
	Objective 1-5: Ensure that public and private facilities and infrastructure meet established building codes and immediately enforce the codes to address any identified deficiencies.

Goal	Objective
	Objective 1-6: Incorporate hazard considerations into land-use planning and natural resource management.
	Objective 1-7: Encourage homeowners, renters, and businesses to purchase insurance coverage for damages caused by hazards.
	Objective 1-8: Integrate the recommendations of this plan into existing local and county programs.
	Objective 1-9: Implement mitigation activities that encourage environmental stewardship and protection of the environment.
Goal 2: Increase Public Awareness	*Objective 2-1:* Develop and implement additional education and outreach programs to increase public awareness of the risks associated with hazards and to educate the public on specific, individual preparedness activities.
	Objective 2-2: Provide information on tools, partnership opportunities, funding resources, and current government initiatives to assist in implementing mitigation activities.
	Objective 2-3: Implement mitigation activities that enhance the technological capabilities of the jurisdictions and agencies in the County to better profile and assess exposure of hazards.
	Objective 2-4: Enhance the knowledge and skills of local officials responsible for administering and enforcing local floodplain management regulations. (*New)*
	Objective 2-5: Build new and strengthen existing County and local floodplain management capabilities. (*New)*
Goal-3: Encourage Partnerships	*Objective 3-1:* Strengthen inter-jurisdiction and inter-agency communication, coordination, and partnerships to foster hazard mitigation strategies and/or projects designed to benefit multiple jurisdictions.
	Objective 3-2: Identify and implement ways to engage public agencies with individual citizens, non-profit organizations, business, and industry to implement mitigation activities more effectively.
Goal 4: Provide for Emergency Services	*Objective 4-1:* Encourage the establishment of policies at the local level to help ensure the prioritization and implementation of mitigation strategies and/or projects designed to benefit essential facilities, services, and infrastructure.
	Objective 4-2: Where appropriate, coordinate and integrate hazard mitigation activities with existing local emergency operations plans.
	Objective 4-3: Identify the need for, and acquire, any special emergency services and equipment to enhance response capabilities for specific hazards.
	Objective 4-4: Review and improve, if necessary, emergency traffic routes; communicate such routes to the public and communities.
Goal 5: (*new for this update*) **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. (*New)*
	5.2: Provide technical assistance to communities and stakeholders in the application and implementation of mitigation projects that preserve or restore natural systems. (*New)*
	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. (*New)*

Goal	Objective
(Modified from NYS 2014 HMP – Goal 4 and associated objectives)	5.4: Promote climate change adaption strategies that protect against long-term effects on the environment. (*New)*

6.4 CAPABILITY ASSESSMENT

According to FEMA 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 local and state programs, policies, regulations, funding and practices currently in place that may either facilitate or hinder mitigation.

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;
- Actions deemed infeasible as they are 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 may be found in the Capability Assessment section of each jurisdictional annex in Section 9 - Annexes. Within each annex, participating jurisdictions 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 – 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 Washington County are presented below.

6.4.1 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 - Annexes. The Washington County Planning Department (WCPD), Washington County Department of Code Enforcement (WCDCE) and the Washington County Soil and Water Conservation District (WCSWCD) both provide local land use planning support to the municipalities (see Section 6.4.3).

Section 239 of New York State General Municipal Law (GML) requires the referral of certain local planning actions to the County Planning Board for the examination of possible inter-municipal impacts. The County Planning Department and Planning Board fulfil the requirements under Section 239-M of the law. While WCPD does not have or implement any County-level land use plans, it does provide technical planning assistance for all municipalities within the County. The County Planning Board reviews all aspects of the projects referred to them and often discusses natural hazard risks regarding floodplains as well as stormwater management. A recently hired County Planner specializes in Resiliency and Community Development, and serves as a resource to the Planning Board and municipalities. The Board makes recommendations on local projects to approve, deny, or find matter of local concern – it does not have the authority to make determinations. Municipalities consider County recommendations, but may vote against them a super-majority vote. All municipalities within the County have some form of land use regulations.

WCDCE administers and enforces the New York State Uniform Fire Prevention and Building Codes and the Washington County Sanitary Code, Local Law No. 1 of 1988 within those municipalities within the county which have elected not to enforce the Uniform Code at a local level. In this role, the Department is responsible for the following:

- Investigate reports regarding any issues of noncompliance with either the Uniform Codes or Sanitary Code and issue stop work orders and/or order to remedy violations.
- Issue certificates of occupancy and/or certificates of compliance when compliance with the Uniform Codes and/or Sanitary Code has been fulfilled.
- Perform fire prevention inspections of business and schools as required by the Uniform Codes.
- Perform onsite inspections during various stages of construction.
- Perform property maintenance inspections by request of homeowners and/or tenants.
- Review plans and issue permits for all work that must conform to the Uniform Codes and the Washington County Sanitary Code.

WCDCE staff includes code enforcement officials assigned to specific municipalities within the county where local code enforcement is unavailable. The towns of Putnam, Easton, Cambridge, and Fort Edward conduct building code enforcement with local staff. All other towns and villages in the county rely on WCDCE for building code enforcement. In addition, each town and village has authorized local municipal officers who ensure compliance with any and all local regulations in the municipality that a permit or certificate is being requested.

Emergency and Evacuation Plans

The Washington County Department of Public Safety plays a lead role in planning, mitigation, coordination, and response and recovery for natural disasters such as floods and winter weather storm events. The Department of Public Safety maintains the Washington County Comprehensive Emergency Management Plan (CEMP) which establishes the framework for an effective system to ensure the County and its municipalities will be adequately prepared to respond to an occurrence of natural, manmade, and/or technological related emergencies or disasters. It is updated every three years. The CEMP provides protocol for sheltering and evacuation of residents in the event of an emergency (refer to the Emergency Operations Center guidelines of the CEMP).

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 (NYS Department of State 2017).

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 (NYS Department of State 2017).

A LWRP is both a plan and a program. It refers to both a planning document prepared by a municipality, as well as a program established to implement the plan. The 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 specific portion of its waterfront (NYS Department of State 2017).

A LWRP follows a step-by-step process by which a community can advance community planning from a vision to implementation. NYS Department of State developed two documents to assist communities in preparing their LWRP plan. The documents can be found here: https://www.dos.ny.gov/opd/programs/WFRevitalization/LWRP.html#approved

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 (NYS Department of State 2017).

An adopted and approved LWRP provides several benefits to communities:

- Clear direction – a LWRP reflects community consensus. It can significantly increase a community's ability to attract appropriate development that will respect its unique cultural and natural characteristics.
- Technical assistance – a LWRP establishes a long-term partnership among local government, community-based organizations, and NYS. This provides a source of technical assistance to prepare and implement the community's LWRP.
- State and federal consistency – state permitting, funding and direct actions must be consistent, to the maximum extent practicable, with an approved LWRP. Within federally defined coastal areas, federal agencies 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.
- Financial assistance – a LWRP presents a unified vision; it increases a community's chance to obtain public and private funding for projects. Funding for both the development and implementation of

LWRPs is available through grants from the NYS Environmental Protection Fund, among other sources (NYS Department of State 2017).

After a draft LWRP is accepted by the community and DOS as complete, a formal review of the document is initiated by DOS to potentially affected State, federal, and local agencies. After the review process, reviews are made, if necessary, and then prepared for final approval. The approval of a LWRP is a three-tier process involving adoption by the municipality, approval by the Secretary of State, pursuant to the Waterfront Revitalization of Coastal Areas and Inland Waterways Act, and, for municipalities within the state's coastal area, concurrence by OCRM on its incorporation into the CMP (NYS Department of State 2017).

Any village, town or city can prepare a LWRP; however, only communities located along a designated waterway are eligible for grants from the Environmental Protection Fund Local Waterfront Revitalization program for its preparation and implementation. On an annual basis, the Department of State solicits grant applications from local governments for matching grants from the New York State Environmental Protection Fund's Local Waterfront Revitalization Program. Communities receive grant funding, through this program, for economic development (redevelopment, revitalization, etc.), updates of existing LWRPs, update of local codes and ordinances, and educational and outreach programs (NYS Department of State 2017).

Some Washington County communities have utilized these funds to increase public access to waterways, design and construct the waterfront parks, and develop riverfront revitalization strategies. The Town of Fort Edward, Village of Fort Edward, and the Village of Granville have been past recipients of the EPF LWRP grant awards. The Village of Whitehall is currently the only Washington County municipality with an approved LWRP, as identified within the Capability Assessment section of the municipal annexes (Section 9 - Annexes).

6.4.2 Planning and Regulatory Capabilities – State and Federal

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. Please refer to the Flood Hazard Profile in Section 5.4.2 - Flood for information on recent legislation related to reforms to the NFIP.

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 municipalities in Washington County actively participate in the NFIP. As of April 30, 2015, there were 160 NFIP policies in Washington County. There have been 98 claims made, totaling approximately $1.4 million for damages to structures and contents. There are two NFIP Repetitive Loss (RL) property and no Severe Repetitive Loss (SRL) properties in the County. Further details on the County's flood vulnerability may be found in the flood hazard profile in Section 5.4.2 - Flood.

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 5.4.2 - Flood).

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.

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.

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 there are no municipalities in Washington County participating in the CRS program.

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).

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 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.

6.4.3 Administrative and Technical Capabilities - County and Local

Washington County Department of Public Safety (WC DPS)

The Washington County DPS has multiple different functions, including operating a 911 communications center, maintaining the countywide emergency communications system, overseeing the County's Hazardous Materials-WMD Team and responses, providing administrative support to the Bureau of EMS and Bureau of Fire, maintaining and managing the Public Emergency Notification System, and conducting all Emergency Management Coordination and Planning in the County. The Department's Director and Deputy Director are responsible for Emergency Management and Planning in accordance with State and Federal guidelines for such situations from the County level down to the individual municipalities. The Department assists County Administration as well as the leaders of the local Towns & Villages, Schools and Businesses, also including the assorted Public Safety agencies that have jurisdiction within Washington County.

Specific emergency management activities include, but is not limited to:

- Emergency Planning - The WC DPS plans for all large-scale emergencies within the County, such as snowstorms, floods, hurricanes, tornadoes, hazardous material incidents, and public health emergencies, as well as any communications related issues that may affect the way people get ahold of services.
- Emergency Operations Center Activation – WC DPS 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. WC DPS also has a Mobile Field Communications unit that can deploy to affected regions for multiple uses from a mobile EOC and a Mobile Communications Center.
- Presidential Disaster Declaration – The WC DPS gathers documentation for submission to federal and state governments for monetary disaster relief.
- Weather Alerts for Schools and Public Officials – The DPS relays severe weather alerts to all Washington County municipalities and school campuses and notifies all county agencies, local governments and private organizations during other watches and warnings. Notifications are also sent using the county's mobile phone application, and posted on social media accounts which alert follower of those pages. Washington County is recognized as a NOAA Weather-Ready Nation Ambassador. The County is currently working towards becoming a "StormReady" county, but has not yet had the time and resources to complete the effort.
- Radio Amateur Civil Emergency Services (RACES) – The WC DPS has a robust group of RACES volunteers that meet, train and exercise on a weekly and monthly basis. Tabletop exercises are done each month with emergency management, amateur radio members, and local hospital staff.

Washington County Soil & Water Conservation District (WC SWCD)

The District's mission is to implement projects and programs to assist agricultural producers, rural landowners and municipalities with the management, conservation and best use of natural resources in Washington County. The SWCD was created in 1945 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 five-member citizen Board of Directors. The SWCD's highest priorities are to protect the County's soil and water resources while maintaining the viability of agriculture as a preferred land use.

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
- The District instructs on the NYSDEC 4 Hour Contractor's Training for Erosion and Sediment Control

The District assists both public and private landowners with identifying and addressing Hazard Mitigation issues through their various programs. The District has directly assisted communities with hazard mitigation through grants to reduce soil migration, stream corridor improvements and stormwater runoff reduction. 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.

Washington County Department of Planning and Community Development (WCDPCD)

The WCDPCD provides the following services:

General Planning:

- Planning and administrative support services to the Washington County Planning Board for monthly review meetings
- Providing technical services to and hosts training for local planning and zoning boards for matters related to community master plans, zoning ordinances and related land use regulations
- Design and implementation of planning initiatives involving multiple county communities

Informational Services:

- Provides informational services to county departments, municipalities, consulting firms, not-for-profits and the general public
- Houses public flood hazard and wetland information for Washington County and keeps records of existing town and village comprehensive plans, land use controls, subdivision law, and zoning law if they have been provided by the local municipalities
- Provides assistance to local municipalities regarding the Washington County Planning Board's referral process and acts as an informational center for General Municipal Law §239-M
- Coordinates with continuing education administrators, including the Department of State, New York Municipal Insurance Reciprocal (NYMIR) to provide local board members and municipalities the

opportunity to gain required continuing education credits as well as familiarize themselves with current planning knowledge
- Identifies and communicates grant opportunities that may be constructive to the planning, growth and improvement of our County.

Washington County Department of Public Works (WCDPW)

WCDPW responsibilities include overseeing all county road, highway, and bridge design and construction, and maintenance of the county's capital facilities, vehicle fleet, and equipment. The department also performs brush cutting, ditching, and tree removals.

Within the DPW, the highway department is responsible for the maintenance of 284 miles of county highways and 123 county bridges. By contract, an additional 100 miles of state highways are maintained during the winter months for snow and ice control. Its construction crews use county and rented equipment to install and maintain culverts throughout the county. The DPW Engineering section inspects catch basins and quantifies amounts of sediment removed at county facilities, and assists in the preparation of the MS4 Annual Reports.

The DPW upholds a working relationship with other county departments as well as all Townships and Villages throughout the county in support of their own individual missions.

Washington County DPW has an Engineering Section that is involved in various activities related to the improvement of highway and bridge infrastructure throughout the County, which includes a Plan of Action for Scour Critical Bridges.

Washington County Department of Code Enforcement (WCDCE)

This department enforces the New York State Uniform Fire Prevention and Building Codes and the Washington County Sanitary Code, Local Law No. 1 of 1988. Code Enforcement personnel are available 24 hours a day to report to the scene of an emergency involving structural damage to a building by fire, flood, etc.

Other department responsibilities include:

- Investigating reports regarding any issues of noncompliance with either the Uniform Codes or Sanitary Code and issue stop work orders and/or order to remedy violations.
- Issuing certificates of occupancy and/or certificates of compliance when compliance with the Uniform Codes and/or Sanitary Code has been fulfilled.
- Performing fire prevention inspections of business and schools as required by the Uniform Codes.
- Performing onsite inspections during various stages of construction.
- Performing property maintenance inspections by request of homeowners and/or tenants.
- Reviewing plans and issue permits for all work that must conform to the Uniform Codes and the Washington County Sanitary Code.

As part of the local building permit process, a Local Regulation Compliance Certificate (LRCC #1) must be completed, which includes a section where the applicant/municipality must identify if the parcel is within a floodplain.

Washington County Department of Public Health and Nursing

The Goals of the Washington County Public Health are:

- To prevent epidemics and the spread of disease

- To prevent injuries
- To promote and encourage healthy behaviors
- To respond to disasters and assist communities in recovery
- To provide health care education for the patient, the patients' family, and the community

Washington County has joined forces with New York State Department of Health, creating a Public Health All-Hazards Volunteer Program. This program will train volunteers to assist Public Health efforts in response, mitigation, and recovery for disasters which may pose a threat to human health.

6.4.4 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) 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 2014 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. For example, the 2008-2011 State Mitigation Plan allowed the State and its communities to access nearly $57 million in mitigation grants to prepare plans and carry out projects. The 2014 New York State HMP was used as guidance in completing the Washington County HMP Update. The State HMP can be found here: http://www.dhses.ny.gov/recovery/mitigation/plan.cfm

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 (http://www.dec.ny.gov/about/61432.html) 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.

Department of State's Division of Code Enforcement and Administration (DCEA)

Technical Bulletins for the 2010 Codes of New York State

The DCEA has published 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 January 2003, Flood Venting in Foundations and Enclosures Below Design Flood Elevation, refers to the out-of-date edition of FEMA Technical Bulletin 1 and to American Society of Civil Engineers (ASCE) 24-98, which is not the edition referenced by the current codes.

Forms and Publications

The DCEA 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).

6.4.5 Fiscal Capabilities – County and Local

Municipal Fiscal Capabilities

Washington County municipalities are able to fund mitigation projects though 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.

6.4.6 Fiscal Capabilities – State and Federal

Refer to Section 4 of the 2014 New York State Hazard Mitigation Plan for information pertaining to the various funding sources available for mitigation projects: http://www.dhses.ny.gov/recovery/mitigation/documents/2014-shmp/Section-4-Mitigation-Strategy.pdf

Federal Hazard Mitigation Funding Opportunities

Federal mitigation grant funding is available to all communities with a current hazard mitigation plan (this plan); however most of these grants require a "local share" in the range of 10-25% of the total grant amount. Details about this program and a further description 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. It is made available to states by FEMA after each Federal disaster declaration. The HMGP can provide up to 75% funding for hazard mitigation measures. The HMGP can be used to fund cost-effective projects that will protect public or private property in an area covered by a federal disaster declaration or that will reduce the likely damage from future disasters. 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 Hazard Mitigation Plan (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 and 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 may be considered as additional HMGP funding becomes available.

For additional information regarding HMGP, please refer to: https://www.fema.gov/hazard-mitigation-grant-program

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%. At most 25% of the total eligible costs must be provided by a non-federal source. Of this 25%, 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.

For additional information regarding the FMA program, please refer to: https://www.fema.gov/flood-mitigation-assistance-grant-program

Pre-Disaster Mitigation (PDM) Program

The PDM program is an annually funded, nationwide, competitive grant program. No disaster declaration is required. Federal funds will cover 75% of a project's cost up to $3 million. As with the HMGP and FMA, a FEMA-approved local Hazard Mitigation Plan is required to be approved for funding under the PDM program. For additional information regarding the PDM program, please refer to: https://www.fema.gov/pre-disaster-mitigation-grant-program

Federal and State Disaster and Recovery Assistance Programs

Following a disaster, various types of assistance may 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. Among the general types of assistance that may be provided should the President of the United States declare the event a major disaster includes the following:

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 may 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 may borrow up to $200,000 to repair or replace real estate, $40,000 to cover losses to personal property and an additional 20% for mitigation. For businesses, loans may 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, private universities, etc. are also eligible. An Economic Injury Disaster Loan provides necessary working capital until normal operations resume after a physical disaster. These loans are restricted, by law, to small businesses only. For additional information regarding IA, please refer to: 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. For additional information regarding PA, please refer to: https://www.fema.gov/public-assistance-local-state-tribal-and-non-profit

Small-Business Administration (SBA) Loans

Small Business Administration (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 may apply for up to $200,000 to replace or repair their primary residence. Renters and homeowners may borrow up to $40,000 to replace or repair personal property-such as clothing, furniture, cars, and appliances – damaged or destroyed in a disaster. Physical disaster loans of up to $2 million are available to qualified businesses or most private nonprofit organizations. For additional information regarding SBA loans, please refer to: 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 Social Services Block Grant funding. The State will distribute $200,034,600 through a public and transparent solicitation for proposals. The State is also allocating $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. For additional information regarding the SSBG program, please refer to: https://www.acf.hhs.gov/ocs/programs/ssbg

Department of Homeland Security

The Homeland Security Grant Program (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 2017 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 2017). 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. For additional information regarding HSGP, please refer to: 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, as 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, planning, and administration. Public improvements may 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 may 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. For additional information regarding CDBG, please refer to: https://www.hudexchange.info/programs/cdbg-entitlement/

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 USEDA invests in key public infrastructure, such as in 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 and development facilities. Through its Economic Adjustment Program, USEDA administers its Revolving Loan Fund (RLF) 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. Please refer to the USEDA website (https://www.eda.gov/) for additional information.

Federal Highway Administration - Emergency Relief

The Federal Highway Administration Emergency Relief is a grant program that may 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. $30 Million in funding was released in October-November of 2012 for emergency repair work conducted in first 180 days following Hurricane Sandy. Another $220 Million in additional funding became available February 2013. 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. For information regarding the FTA Emergency Relief Program, please refer to: https://www.transit.dot.gov/funding/grant-programs/emergency-relief-program/emergency-relief-program

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. For additional information regarding Empire State Development, please refer to: 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 New York State Department of Transportation (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 nine presidentially declared disasters due to extreme weather, many involving severe flooding (NYSDOT 2014).

For this initiative, 105 scour critical/flood prone bridges (https://www.dot.ny.gov/main/business-center/cbow/repository/CBOW_list_2014.pdf) 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).

All of 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).

Through HMGP, 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 (FPE). For additional information regarding the EWP, please refer to: 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 may 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 (DSR) 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 may 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 may 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 Climate Smart Communities (CSC) program is jointly sponsored by the following six New York State agencies: Department of Environmental Conservation; Energy Research and Development Authority; Public Service Commission; Department of State; Department of Transportation; 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 (GHG) 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 2016, more than 170 communities, representing 6.6 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, they receive an advantage in accessing some state assistance programs. They can call on the help of other local governments that already have adopted climate smart practices and policies, and their climate-smart accomplishments receive statewide recognition. Key elements of the Climate Smart Communities program are described below.

For additional information regarding the CSC program, please refer to: 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.

At the time of this plan update, no Washington County municipalities adopted the Climate Smart Communities Pledge nor have they achieved certification.

Climate Smart Communities Certification (CSC) Program

The Climate Smart Communities Certification (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.

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 also 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 area
- Reduction of flood risk
- Clean transportation
- Reduction or recycling of food waste

Funding is also available for **certification projects** that advance several specific actions aligned with Climate Smart Communities Certification requirements:

- 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 - http://www.dec.ny.gov/energy/96511.html. For implementation projects involving property (construction, improvements, restoration, rehabilitation) – if the property is not owned by the grant recipient, they must obtain a climate change mitigation easement.

The round 3 of the Climate Smart Communities Grant Program was available through the NYS Consolidated Funding Application from May 1, 2018 through July 27, 2018. Applications for the third round of funding were due July 27, 2018.

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, and 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 Water Quality Improvement Project (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 may 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% for salt storage projects; and up to 40% for general wastewater infrastructure improvement projects. Eligible activities include:

- Wastewater treatment improvement
- Non-agricultural nonpoint source abatement and control
- Land acquisition for source water protection
- Salt storage
- Aquatic habitat restoration
- Municipal separate storm sewer systems (MS4)

Details regarding this program are available here - https://www.dec.ny.gov/pubs/4774.html

New York State DEC/EFC Wastewater Infrastructure Engineering Planning Grant (EPG)

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 pay for the initial planning of eligible Clean Water State Revolving Fund (CWSRF) water quality projects.

The Wastewater Infrastructure Engineering Planning Grant will assist municipalities with the engineering and planning costs of CWSRF-eligible water quality projects. Municipalities with a Median Household Income (MHI) of $65,000 or less in REDC regions of Capital District, Southern Tier, North Country, Mohawk Valley, Central NY, Finger Lakes, or Western NY OR with a Median Household Income of $85,000 or less in REDC regions of Long Island, New York City or Mid-Hudson are eligible to apply. Grants with a 20 percent required local match will be provided to finance activities including engineering and/or 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. Funding priorities go to projects that are:

- Required by an executed Order on Consent; or
- Required by a draft or final State Pollutant Discharge Elimination System (SPDES) permit; or

- Upgrading or replacing an existing wastewater system; or
- Constructing a wastewater treatment and/or collection system for an area with failing onsite septic systems; or
- Identified in a Total Maximum Daily Load (TMDL) Implementation Plan

Details regarding this program can be found here - https://www.dec.ny.gov/pubs/81196.html

New York State Department of Transportations

BRIDGE NY

The BRIDGE NY program, administered by the New York State Department of Transportation (NYSDOT), is open to all municipal owners of bridges and culverts. Projects will be awarded through a competitive process and will support all phases of project development. Projects selected for funding under the BRIDGE NY Initiative will be 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 here - 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 Community Risk and Resiliency Act (CRRA). The purpose of the bill is to strengthen New York's preparedness for climate change by ensuring that certain state monies, facility-siting regulations and permits include consideration of the effects of climate risk and extreme-weather events. The bill's provisions will apply to all applications and permits no later than January 1, 2017.

CRRA includes two key provisions to advance New York's climate change adaptation:

- Applicants to certain State programs must demonstrate that they have taken into account future physical climate risks from storm surges, sea-level rise or flooding.
- DEC must establish official State sea-level rise projections by January 1, 2016. These projections provide the basis for State adaptation decisions and will be available for use by all decision makers.

CRRA applies to specific State permitting, funding and regulatory decisions, including smart growth assessments; funding for wastewater treatment plants; siting of hazardous waste facilities; design and construction of petroleum and chemical bulk storage facilities; oil and gas drilling, and State acquisition of open space.

6.5 MITIGATION STRATEGY DEVELOPMENT AND UPDATE

6.5.1 Update of Municipal Mitigation Strategies

To evaluate progress on local mitigation actions, each jurisdiction was provided with a Mitigation Action Plan Review Worksheet, pre-populated with those actions identified for their jurisdiction in the prior (2010) 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.

At the Kick-Off and during subsequent local-level planning meetings, all participating municipalities were further surveyed to identify 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 – Planning Process), communities were made aware of these either through direct communication (local meetings, email, phone) or via their draft municipal annexes.

The County and municipalities identified projects that have been submitted to NYS DHSES for grant funding, including projects for which Letters of Intent (LOI). In general, LOI/application-based projects submitted directly by the communities are identified within their updated mitigation strategies. Communities may also have included other LOI/application-based projects submitted by special-purpose districts (e.g. fire or school districts), local utilities, and hospitals and health care entities.

To help support the selection of an appropriate, risk-based mitigation strategy, each annex provided a summary of hazard vulnerabilities identified during the plan update process, either directly by municipal representatives or through review of available county and local plans and reports, and through the hazard profiling and vulnerability assessment process.

Beginning in July of 2016, members of the Steering 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 Steering 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 September 2016, a mitigation strategy workshop was conducted by FEMA Region II 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.
- Where applicable, physical mitigation projects have been documented with an Action Worksheet, based on FEMA's Action Worksheet templates and recent guidance documents.

FEMA Action Worksheets have been included for projects identified by the County and participating municipalities.

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 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. 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.

6.5.2 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 2010 HMP, using a process similar to that used to review municipal mitigation strategy progress. The County, through their various department representatives, was provided with a Mitigation Action Plan Review Worksheet identifying all of the county-level actions/initiatives from the 2010 plan. It should be noted that general county-wide actions were provided for Washington County and all communities. The County and each municipality reviewed each action and provided progress. 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", or "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:
    - Washington County Soil and Water Conservation District (WC SWCD)
    - Washington County Department of Code Enforcement
    - Washington County Department of Public Safety (WCDPS)
    - Washington County Planning Department (WCPD)
    - Washington County Department of Real Property Tax Service
    - Washington County Department of Public Works
    - Washington County Board of Supervisors
- 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 flood, severe storm, severe winter storm and wildfire. As such, the Steering Committee added Objective 5.4: "Promote climate change adaption strategies that protect against long-term effects on the environment" to the updated mitigation planning goals and objectives to support recognition and consideration of this risk throughout the plan update process. Further, 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.

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.

6.5.3 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 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 Committee 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 2016/2017 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 2017 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 a different, but not inherently contrary, approach. Mitigation actions in the prior (2010) Washington County HMP were "qualitatively evaluated against the mitigation goals and objectives and other evaluation criteria. They were then prioritized into three categories: high, medium, and low."

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 not-withstanding. In general, initiatives that would have had "low" priority rankings were appropriately screened out during the local action evaluation process.

6.5.4 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 Assistance (HMA) grant programs. 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.
Benefits	
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 Washington County initiatives identified, the planning partnership may seek financial assistance under FEMA's 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 partnership 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 partnership reserves the right to define "benefits" according to parameters that meet its needs and the goals and objectives of this plan.

SECTION 7. PLAN MAINTENANCE PROCEDURES

This section describes the system that Washington County and all participating jurisdictions have established to monitor, evaluate, and update the mitigation plan; implement the mitigation plan through existing programs; and solicit continued public involvement for plan maintenance.

7.1 MONITORING, EVALUATING AND UPDATING THE PLAN

The procedures for monitoring, evaluating, and updating the plan are provided below.

The Hazard Mitigation Plan (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 participating 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 (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 Washington County HMP Coordinator is designated as:

Mr. Glen P. Gosnell, ENP, Emergency Management Director
Washington County Department of Public Safety
383 Broadway - Building B
Fort Edward, NY 12828
ggosnell@co.washington.ny.us (518) 747-7520, x3

7.1.1 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, 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 (Volume II, Section 9 (Annexes)) of this plan, by contacting persons responsible for initiating and/or overseeing the mitigation projects.

To standardize and facilitate collection of progress data and information on specific mitigation actions, Washington County Department of Public Safety (WCDPS) shall develop a progress matrix that will continue to be updated and distributed to the Planning Committee members prior to the scheduled plan review. Federal Emergency Management Agency (FEMA) guidance worksheets and a sample progress matrix template are provided in Appendix F – FEMA 386-4 Guidance Worksheets. This information shall be provided to the HMP Coordinator prior to the plan review meeting.

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,
- Progress on the implementation of mitigation actions, including efforts to obtain outside funding,
- Obstacles or impediments to implementation of actions,
- Additional mitigation actions believed to be appropriate and feasible,
- Public and stakeholder input.

7.1.2 Evaluating

The evaluation of the mitigation plan is an assessment of whether the planning process and actions have been effective, if the Plan goals are being reached, and whether changes are needed. The Plan will be evaluated on a mid-cycle basis to determine the effectiveness of the programs, and to reflect changes that may affect mitigation priorities or available funding.

The status of the HMP will be discussed and documented at mid-cycle plan review meeting of the Mitigation Planning Committee, to be held approximately two years from the date of local adoption of this update. Allowing sufficient time for all parties to be prepared, the Washington County HMP Coordinator will advise Planning Committee members of the meeting date, agenda and expectations of the members.

The Washington County HMP Coordinator will be responsible for calling and coordinating the mid-cycle plan review meeting, and assessing 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 (see the "Implementation of Mitigation Plan through Existing Programs" subsection later in this Section). 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 may refer to the evaluation forms, Worksheets #2 and #4 in the FEMA 386-4 guidance document, to assist in the evaluation process. Further, the Planning Committee may 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 HMP Coordinator or his/her designee will be responsible for preparing an Annual HMP Progress Report based on local annual progress reports received from each participant, information presented at the annual Planning Partnership meeting, and other appropriate and relevant information. These annual reports will provide data for the 5-year update of this HMP and will assist in pinpointing challenges to implementation. By annually monitoring implementation of the HMP, the Planning Partnership will be able to identify completed projects, projects no longer feasible, and projects that may require additional funding.

Because the Annual HMP Progress Report will apply to all planning partners, it will be developed according to an agreed-upon format and with adequate allowance for input and comment from each planning partner prior to completion and submission to the State Hazard Mitigation Officer. Each planning partner will be responsible for providing this report to his/her governing body for review. During the annual Planning Partnership meeting, the planning partners will establish a schedule for draft development, review, comment, amendment, and submission of the Annual HMP Progress Report to the New York State Division of Homeland Security & Emergency Services (NYS DHSES). The Annual HMP Progress Report will then be posted on the Washington County Hazard Mitigation Plan website (currently http://www.washingtoncountyhmp.com/Pages/default.aspx) to keep the public apprised of the plan's implementation of the HMP. For communities who may choose to join the NFIP Community Rating System

(CRS) program, this report will also be provided to each CRS participating community in order to meet mid-cycle CRS recertification requirements.

The plan 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 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.

7.1.3 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 Washington 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 Washington County HMP Coordinator, with support of the Planning Committee, shall use the mid-cycle plan review meeting to develop and commence the implementation of a detailed plan update program. The Washington 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 Washington 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 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 (Annexes), 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").

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 (Appendix A) 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.

During the annual HMP evaluation process, the Planning Partnership 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.

7.3 CONTINUED PUBLIC INVOLVEMENT

Washington 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 http://www.washingtoncountyhmp.com/Pages/default.aspx). The County and municipalities may make hard copies of the Plan available for review at public locations (e.g. County offices, municipal halls, public libraries).

In addition, public outreach and dissemination of the Plan 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 flood hazards and severe storm events. Educate the public via the jurisdictional websites on how these applications can be used in an emergency situation.
- Development of mid-cycle articles or workshops on flood hazards to educate the public and keep them aware of the dangers of flooding.

Local Planning Committee representatives and the Washington 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 5-year plan update. The Washington 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 may 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 at the town hall and public library, along with instructions to facilitate public input and comment on the Plan.
- Appropriate links to the Washington County Hazard Mitigation Plan website (currently http://www.washingtoncountyhmp.com/Pages/default.aspx) 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 Washington 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 Washington County HMP website is maintained and updated 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 at appropriate County facilities (e.g. libraries), 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.

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This appendix includes an example resolution to be submitted by Washington County and participating jurisdictions authorizing adoption of the Washington County Hazard Mitigation Plan Update.

RESOLUTION NO. XXXX-XX

A RESOLUTION OF THE Governing Body OF THE Jurisdiction Name
AUTHORIZING THE ADOPTION OF THE
2017 WASHINGTON COUNTY, NY HAZARD MITIGATION PLAN UPDATE

WHEREAS, all jurisdictions within Washington County have exposure to natural hazards that increase the risk to life, property, environment, and the County and local economy; and

WHEREAS; pro-active mitigation of known hazards before a disaster event can reduce or eliminate long-term risk to life and property; and

WHEREAS, The Disaster Mitigation Act of 2000 (Public Law 106-390) established new requirements for pre and post disaster hazard mitigation programs; and

WHEREAS; a coalition of Washington County municipalities with like planning objectives has been formed to pool resources and create consistent mitigation strategies within Washington County; and

WHEREAS, the coalition has completed a planning process that engages the public, assesses the risk and vulnerability to the impacts of natural hazards, develops a mitigation strategy consistent with a set of uniform goals and objectives, and creates a plan for implementing, evaluating and revising this strategy;

NOW, THEREFORE, BE IT RESOLVED that the [**jurisdiction name]**:

1) Adopts in its entirety, the 2016 Washington County Hazard Mitigation Plan Update (the "Plan") as the jurisdiction's Natural Hazard Mitigation Plan, and resolves to execute the actions identified in the Plan that pertain to this jurisdiction.
2) Will use the adopted and approved portions of the Plan to guide pre- and post-disaster mitigation of the hazards identified.
3) Will coordinate the strategies identified in the Plan with other planning programs and mechanisms under its jurisdictional authority.
4) Will continue its support of the Mitigation Planning Committee as described within the Plan.
5) Will help to promote and support the mitigation successes of all participants in this Plan.
6) Will incorporate mitigation planning as an integral component of government and partner operations.
7) Will provide an update of the Plan in conjunction with the County no less than every five years.

PASSED AND ADOPTED on this Xst, Xnd, Xrd, Xth day of MONTH, 2016, by the following vote:

AYES:
NOES:
ABSENT:
ABSTAIN:

_____
Mayor, Town/Village of _____

ATTEST: _____
Clerk, Town/Village of _____

This appendix includes meeting agendas, sign-in sheets and minutes (where applicable and as available) for meetings convened during the development of the 2018 Washington County Hazard Mitigation Plan Update.

Washington County HMP
Pre Kick-Off Meeting
May 16, 2016

Name	Position	Email
Glen Gosnell	Public Safety Director	GGOSNELL@CO.WASHINGTON.NY.US
Corrina Aldrich	DM SWCD	corrina.aldrich@ny.nacdnet.net
Jonathan Pease	EM Coordinator	JPease@co.washington.ny.us
Timothy Handy	Dep Director	THANDY@CO.WASHINGTON.NY.US
Chris DeBolt	County Admin.	cdebolt@co.washington.ny.us
Jonathan Raser	Tetra Tech	JONATHAN.RASER@TETRATECH.COM
Heather Weller	GIS	HWELLER@

- Welcoming Remarks and Introductions
- Updating the Mitigation Plan – Why?
- Schedule
- Role of the Municipal and County Participants
- Planning Process
    - Organize Resources
    - Re-assess Risk
    - Review and Update HMP
    - Implement Plan and Monitor Progress
- In-Kind Tracking
- Action Items
    - Return Letter of Intent to Participate
    - Confirm Local Floodplain Administrator and Contact Information
    - Worksheets – Found on your CD; Complete electronic Word versions and send to Jonathan Raser by the week of July 15, 2016
- Upcoming Municipal Meetings
    - Municipal Data Collection Support Meetings – June-July 2016
    - FEMA Mitigation Strategy Meeting – August 2016
    - Annex Completion Workshop – October 2016
- Questions and Answers

Project Contacts

Mr. Jonathan Pease; Emergency Management Coordinator
Washington County Department of Public Safety jpease@co.washington.ny.us

Jonathan Raser, CFM (973) 630-8042 jonathan.raser@tetratech.com
Tetra Tech, Inc.; 1000 The American Road; Morris Plains, NJ 07950

Emily Slotnick, CFM Emily.slotnick@tetratech.com

Heather Apgar, CFM heather.apgar@tetratech.com

Mike DiGiulio mike.digiulio@tetratech.com

WASHINGTON COUNTY HAZARD MITIGATION PLAN UPDATE
Municipal Kick-Off Meetings – June 15, 2016
Sign-In Sheet

Name	Title	Agency/Municipality	Phone Number	E-mail
Paul Winchell	Highway Supt.	Town Fort Ann Highway	639-8950	pwfa2@yahoo.com
Eric Towne	Highway Supt.	Town of Granville	642-2560	gvltownhwy@albany.twcbc.com
Layne Darfler	Jr. Planner	Wash. Co	746 2290	ldarfler@co.washington.ny.us
Kenneth Bartholomew	Mayor	Village of Whitehall	499 0871	kbarthol@nycap.rr.com
Richard Moore	Supervisor	Town of Fort Ann	639-8929	supervisorfortann@gmail.com
Chris Richer	Highway Supt	Town of White Creek	677-3223	
Greg Brown	Hway Supt	T. O. Hartford	632-5255	hwyhway@hartfordny.com
Jonathan Pease	EM Coordinator	Washington County Public Safety	518-747-7520	Jpease@co.washington.ny.us
Dan Shaw	Supervisor	Easton	692-2678	Eastonsuper1@hotmail
Bob Henke	Supervisor	Argyle	638-8210	argylesupervisor@hotmail.com
Steve Haskins	Superintendent	Washington Co.	746-2442	shaskins@co.washington.ny.us
Steve Mueller	Superintendent	Town of Easton	692-0029	mueller@1791.com
Bob Humiston	Superintendent	Argyle Town	638-8210	

WASHINGTON COUNTY HAZARD MITIGATION PLAN UPDATE
Municipal Kick-Off Meetings – June 15, 2016
Sign-In Sheet

Name	Title	Agency/Municipality	Phone Number	E-mail
Jonathan Rasor	Planner	Tetra Tech	973-630-8012	Jonathan.Rasor@tetratech.com
Emily Slotnick	Planner	Tetra Tech	508-287-8665	Emily.Slotnick@tetratech.com
Dan Williams	Supt. of Public Works	Village of Granville	518-361-9549	chiefapplance@roadrunner.com
Mark A. Miller	Enforcement Off.	Town of Hartford / Town of ~~Hebron~~ Fort Ann	518-796-0103	sqpegi@aol.com
Kellie Blake	Clerk to the Supervisor	Town of Greenwich	518-692-7137 x103	bookkeeper@nycap.rr.com
G.P. Gosnell	Director / EM	Washington Cnty DPS	518-747-7520	GGosnell@co.washington.ny.us
Tim Hardy	Deputy Director / EM	" " "	" " "	THardy@co.washington.ny.us
Brian Brockway	Highway Supt.	Town Fort Edward	518 747 3561	FEFD 3701 @ Yahoo.com
Floyd Pratt	Highway Supt.	Town of Hebron	(518) 854-3078	hebronHighway@yahoo
George Rockenstine	Chief operator	Village of Whitehall	499-2681	bearfor U1960@Gmail.com
DANA HAFF	SUPERVISOR	TOWN OF HARTFORD	632-9151	SUPERVISOR@HARTFORDNY.COM
Rick Hobson	Hwy Superv	Town of Dresden	499 2040	hobson@verizon.net
DANA HOGAN	Supervisor	Town of Kingsbury	365-917.	Kingsbury Supervisor@Gmail.com
Matt Tolerman	Supt	Village Cambridge	361-9734	
Jim Buckley	Highway Superintendent	Town of Cambridge	378-8738	
Sean Carney	" "	Town of Jackson	677-3678	
Chris DeBolt	County Administrator	Washington County	746-2102	cdebolt@co.washington.ny.us

TETRA TECH

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Washington County Hazard Mitigation Plan - 2016 Update

June 15, 2016

Today's Topics

- Introductions
- Purpose for a Hazard Mitigation Plan
- Updating a Hazard Mitigation Plan
- Schedule
- Participation Expectations
- Planning Process
- Action Items

TETRA TECH

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Hazard Mitigation

"Mitigation" -

Sustained action taken to reduce or eliminate long-term risk to life and property from a hazard event

"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).

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Washington County and DMA 2000

The mitigation plan update will:

- Help the County prepare for and mitigate the effects of disasters.
- Build more resilient communities.
- Continue to allow the county and participating partners to be eligible for pre- and post-disaster recovery and mitigation funding.
  - Public Assistance Funding
    - Post-Disaster Reimbursement for Permanent Work (Categories C-G)
    - Post-Disaster Mitigation for Damaged Structures/Infrastructure (406 Mitigation)
  - Pre-Disaster Mitigation Grant Funding (404 Mitigation)
- Support National Flood Insurance Program (NFIP) compliance and, potentially, policy rate reduction efforts

A ***Local Mitigation Plan*** demonstrates the jurisdiction's commitment to reducing risk and serves as a guide for decision makers as they commit resources to minimize the effects of natural hazards.

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Requirements for Local Mitigation Plan Updates

- Updated Risk Assessment - a factual basis for activities proposed in the Mitigation Strategy section include:
  - Overview of hazards (type, location, probability)
  - Vulnerability analysis (impact on buildings, infrastructure, economy, development trends)
  - Multiple jurisdictions (specific to each city/town/village)
- Updated Mitigation Strategy – a blueprint for reducing losses identified in the risk assessment
- Include the opportunity for public comment and for relevant agency and stakeholder involvement
- Plan Maintenance and Adoption Processes

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Plan Document

- Volume 1 will contain all information that applies to the whole planning area (county) such as description of the planning process, risk assessment, goals and objectives, County/multi-jurisdictional mitigation strategies and a plan maintenance program.
- Volume 2 will contain those elements that are "jurisdiction specific". Your community's chapter. These annexes will meet DMA requirements for each jurisdiction.

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Plan Update Process Steps

- Organize Resources
- Re-Assess the Risk
- Review and Update the Mitigation Plan
- Develop Procedures for Plan Implementation, Monitoring and Update
- NYS DHSES / FEMA Approval
- Adopt the Plan

Engage a Wide Range of "Stakeholders"

- Federal, State, Regional and Local Agencies
- Business and Civic Groups
- Academic Institutions
- Other "local governments"
- The Public

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Organization of the Planning Group

- County Management Team (Department of Public Safety)
- Contract Consultant (Tetra Tech)
- Steering Committee
- Municipal Planning Partnership
- Stakeholders (e.g. academic, police, fire, health care, business/industry, utilities)
- General Public

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Municipal Planning Partnership

- All municipalities are encouraged to participate to maintain DMA2000 coverage.
- FEMA has greatly expanded their scrutiny of "participation"... Municipalities are required to actively participate.
- All municipalities who wish to join the update process **must formally indicate their intent to participate** with a Letter of Intent to Participate.

Letters of Intent to Participate

Please be sure to forward your Letter of Intent to Participate (LOIP) for your community. Copies will be included in the HMP.

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Municipal Participation

- Attend planning partnership meetings/workshops
- Provide data and information in a timely manner
- Support public and stakeholder outreach in your jurisdiction
- Provide outreach and encourage involvement of property owners in floodplains
- Assist with the development of your jurisdictional annex
- Review and provide feedback on Draft and Final Plan documents
- Facilitate the adoption process – Governing Body must pass an Adoption Resolution once the plan is approved by FEMA
- Implement and Maintain the Plan

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Assemble Your Municipal Mitigation Team

Here is who we suggest you include as part of your Hazard Mitigation Planning team:

- Municipal Mayor/Supervisor/Administrator
- NFIP Floodplain Administrator
- Building Code Official
- Public Works Superintendent
- Municipal Engineer
- Land Use Planner
- Municipal Clerk
- Municipal CFO/Fiscal Representative
- Police/Fire/EMS Representatives

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Municipal Participation Support

Municipal Involvement will be encouraged and promoted by:

- Three formal municipal planning partnership meetings (Kick-Off Meeting (today), FEMA Mitigation Strategy Workshop, Annex Completion Workshop)
- Data collection and annex tools, templates, surveys
- Local Data Collection Meetings (as requested)
- Completion of Municipal Annex supports "buy in" and "ownership"
- Planning process execution and municipal training programs designed to build local capability
- Local public outreach including RL/SRL flood structure outreach

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Data Collection Worksheets

WASHINGTON COUNTY HAZARD MITIGATION PLAN UPDATE
Outline of Worksheets on CD

Please work with your municipal planning team and complete these worksheets. Please send electronic Word version by July 15, 2016 to:
Jonathan Raser, CFM
Phone: 973-630-8042 E-mail: jonathan.raser@tetratech.com

#	Worksheet Name	Who is Responsible to Complete and Submit this Worksheet?	Where do you find the requested information?
1	Events/Losses	OEM, Police, Fire, DPW, Engineer	FEMA Project Worksheets (PWs) DPW records, Police response records
2	Capability Assessment	Code Official, Planner, CFO/Fiscal Rep, Clerk, and Municipal Mayor/Supervisor/Administrator	Code Book, e-Code, Municipal ordinances, Master Plan, Planning and Zoning Board/Officials
3	NFIP Floodplain Administrator	Floodplain Administrator	NFIP Records
4	Mitigation Action Progress	HMP Main POC – see 'Responsible Party' column in the table provided for guidance	LOIs, NYS DHSES Grants, Capital Improvement records
5	Plan Integration Questionnaire	HMP Main POC	Discuss with Engineer, Clerk, Administrator, Planner, CFO, and Municipal Mayor/Supervisor/Administrator
6	New Development Table	Engineer, Planner, Building Department	Redevelopment Plans, Permits

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Re-Assess the Risk

These are the Five Steps to Assess Risk:

1. Identify Hazards
2. Profile Hazards
3. Inventory Assets
4. Estimate Losses
5. Evaluate Mitigation Options

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Assess the Risk – Hazard of Concern Identification

Hazards of Concern (HOCs)- Those natural hazards that pose significant risk to the Planning Area – and we can address through mitigation rather than only through preparedness, response and recovery.

- Review and update the "hazards of concern" that we will carry through the planning process.
- Our effort should be proportional to the risk the hazards pose.
- Each municipality has differing risk to the HOCs.
- We are generally limiting this plan to natural hazards:
  - Flood (riverine, ice jam, flash, dam failure [incl. beaver dams])
  - Severe Storm (hail, wind, severe thunderstorms, tornadoes, hurricane, tropical storms and Nor/Easters)
  - Severe Winter Weather (heavy snow, blizzard, ice storm)
  - Climate Change will be discussed as an exacerbating condition of other hazards (e.g. storms, flood)
  - Wildfire – To Be Determined
  - Earthquake – To Be Determined

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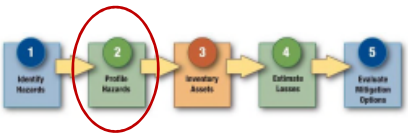
Assess the Risk – Hazard Profiling
(Worksheet #1 on your CD)

- Hazards are profiled (characterized) according to:
  - Background and local conditions
  - Historic frequency and probability of occurrence
  - Severity
  - Historic losses and impacts
  - Designated hazard areas
- What hazard events have occurred since the 2010 Plan?
- What County and local losses have occurred as a result of these events?



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Worksheet #1 on CD
Events and Losses

WASHINGTON COUNTY HAZARD MITIGATION PLAN UPDATE
Worksheet #1 – Events and Losses

Please work with your municipal planning team and complete this worksheet. Please send electronic Word version by July 22, 2016 to:
Jonathan Raser, CFM
Phone: 973-630-8042 E-mail: jonathan.raser@tetratech.com

Municipality: _____
Name and Title of Individual Completing Worksheet: _____

Who can provide information about events and losses: OEM Coordinator, Police, Fire, DPW, building inspector, municipal engineer. Refer to FEMA Project Worksheets (PWs), DPW records, police response records, etc.

In the table below, please identify events in which your community suffered significant damages/losses and describe these losses (e.g., flooded roads, road closures, DPW/Police overtime, debris management, opened shelter for two days, etc.). Please add other non-declared events that affected your community that are not listed.

Then, please fill out an 'Event and Loss Summary Sheet' for the December 2008 event, Hurricane Irene, and Hurricane Sandy. Feel free to add additional sheets for other major events that impacted your community.

Dates of Event	Event Type (Disaster Declaration if applicable)	Washington County Designated?	Did your community suffer losses/costs from this event? (Yes/No - If "yes" please complete an Event Loss Summary Sheet for this event.)	Notes on damages within County
December 11-31, 2008	Severe Winter Storm DR-1827	Yes	*Note: All should fill out an Event Loss Summary sheet for this event*	
April 28-30, [illegible]	[illegible]	[illegible]		

If your community suffered significant damages/losses from this event, indicate "Yes" and complete an Event Loss Summary Sheet.

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Worksheet #1 on CD
Events and Losses *(Continued)*

WASHINGTON COUNTY HAZARD MITIGATION PLAN UPDATE
Worksheet #1 – Events and Losses

Event and Loss Summary Sheet
DR-1897 December 11-31, 2008 Severe Winter Storm

Event Date and Description (incl. DR# if applicable): _____

Life Safety (evacuation, sheltering, injuries, deaths):

Loss of Service (e.g. road closures, utility outages, commercial closures – include location, time of closure and/or number of affected):

Infrastructure Damage (e.g. roads, bridges, culverts, treatment facilities, lift stations, etc.):

Facility/Structural Damage – Public (e.g. police, school, etc.):

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Assess the Risk – Inventory Assets

What is at risk? People, Property, Economy, Environment

- Population and Demographics – Has this changed since 2010?
- Building Stock (Residential, Commercial, Industrial, Educational, etc.) – Has this changed since 2010?
- Facilities (critical and essential facilities, utilities, transportation features, high-potential loss facilities and user-defined facilities)
  - Police, Fire, Emergency Services
  - Hospitals and Medical Care Facilities
  - Schools and Care Facilities
  - Sheltering Facilities
  - Infrastructure (Transportation Systems, Utilities)

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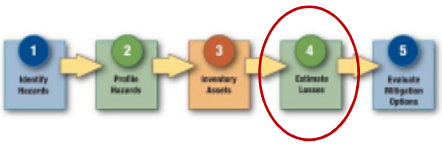
Assess the Risk – Estimate Losses

- Vulnerability Assessment - What do we predict our suffering to be if we do nothing to mitigate our risk:
  - Given current conditions, which have changed since 2010?
  - Given our improved understanding of risk, and tools to assess that risk, which have changed since 2010?



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Assess the Risk – Evaluate Mitigation Options

- Re-evaluate Hazard Mitigation Goals and Objectives

Goals: General guidelines that state what we want to achieve. Should be consistent with the State goals and other local goals.

Example: "Protect property"

Objectives: Define strategies or implementation steps to attain a stated goal.

Example: "Enact or enforce regulatory measures that ensure new development will not increase flood threats to existing properties".

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Assess the Risk – Evaluate Mitigation Options

- Evaluate Capabilities

What resources do we have at our disposal to Mitigate Risk?

"Proposed mitigation actions will be evaluated against the backdrop of what is feasible in terms of your government's legal, administrative, fiscal and technical capacities" (FEMA 386-3)

- Serve to identify legal authority and administrative, technical and fiscal capabilities in the state, county and jurisdictions that will facilitate or hinder hazard mitigation goals and objectives.
- State Capability Assessment is in the State HMP
- Part of this Planning Process is to build County and Local Mitigation Capabilities
- Training, Workshops and Seminars

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Capability Assessments
(Worksheet #2 on CD)

Please work with your planning team to complete the worksheets and return to Jonathan Raser by July 15, 2016.

- **Municipal Mayor/Supervisor**
- **Administrator**
- **Building Code Official**
- **Municipal Engineer**
- **Land Use Planner**
- **Municipal Clerk**
- **Floodplain Administrator**
- **CFO/Fiscal Representative**

WASHINGTON COUNTY HAZARD MITIGATION PLAN UPDATE
Worksheet #2 – Capability Assessment

Please work with your municipal planning team and complete this worksheet. Please send electronic Word version by July 22, 2016 to:
Jonathan Raser, CFM
Phone: 973-630-8042 E-mail: jonathan.raser@tetratech.com

Municipality: _____
Name and Title of Individual Completing Worksheet: _____

1. **Planning and Regulatory Capability:** Please indicate whether the following planning or regulatory tools and programs are currently in place or under development for your jurisdiction by placing an "X" in the appropriate box, followed by the date of adoption/update. Then, for each particular item in place, identify the department or agency responsible for its implementation. In addition, indicate the code chapter, and name of plan including any explanation of authority in the right most column.

Who can assist with completing this table: Municipal Planner, Clerk, Code Official. Refer to your municipal codes and ordinances, Master Plan.

Tool / Program (code, ordinance, plan)	Do you have this? (Yes/No) If Yes, date of adoption or update	Authority (local, county, state, federal)	Dept. /Agency Responsible	Code Citation and Comments (Code Chapter, name of plan, explanation of authority, etc.)
Planning Capability				
Master Plan				
Capital Improvements Plan				
Floodplain Management / Basin Plan				
Stormwater Management Plan				
Open Space Plan				
Stream Corridor Management Plan				
Watershed Management or Protection Plan				

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NFIP Compliance
We need the NFIP Floodplain Administrator Involved!

- We need to know specific information about the NFIP program in your community.
- Your NFIP Floodplain Administrator (FPA) <u>MUST</u> be actively involved in the update process.
- NFIP Administrator to work with Tetra Tech to complete **<u>Worksheet #3</u>** (best done in a short interview – live or phone)

WASHINGTON COUNTY HAZARD MITIGATION PLAN UPDATE
Worksheet #3 – NFIP Floodplain Administrator Questionnaire

Please work with your municipal planning team and complete this worksheet. Please send electronic Word version by July 22, 2016 to:
Jonathan Raser, CFM
Phone: 973-630-8042 E-mail: jonathan.raser@tetratech.com

Municipality: _____

NFIP Floodplain Administrator Name/Title: _____

Flood Vulnerability Summary

1. Does the municipality maintain lists/inventories of properties that have been flood damaged? If so, does this inventory identify property owners who are interested mitigation (e.g. elevation, acquisition)?
2. Characterize/quantify the number of structures damaged during Floyd, Irene, Sandy or other events. If possible, can you provide a table of these structures indicating the number of residential / commercial / industrial?
3. Do you make Substantial Damage estimates, and how many were declared for Sandy or other events?
4. How many are interested in mitigation (elevation or acquisition), and how many are currently in the process of mitigation?

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Update, Identification and Analysis of Mitigation Actions

- Mitigation strategies need to be realistic, achievable and action-oriented.
- Will include both regional (county-wide) strategies, as well as jurisdiction-specific.
- For each proposed mitigation strategy, the following will be identified:
  - Implementation timeline
  - Estimated budget
  - Potential funding sources
  - Lead agency or department
  - Supporting agencies
  - Priority
  - For prior/old strategies provide update of status
- Proposed mitigation activities are evaluated using a Cost-Benefit Screening

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Update Progress on 2010Actions

- Identify progress made on mitigation actions identified in 2010 Plan.
- If an action wasn't completed, why not?
- This strategy review process is NOT meant to blame or punish. The answer can reveal things that need to be addressed to allow mitigation to progress, for example:
  - Obstacle: We do not have the technical resources to prepare a grant application.
  - Possible Action: Develop a county-level support team trained in application development.

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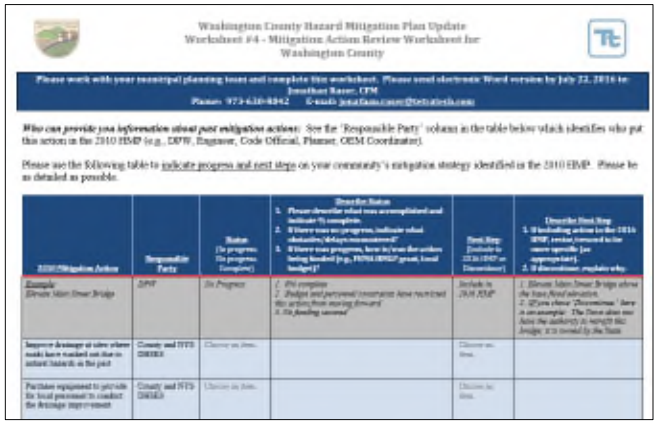
Update Progress on 2010 Actions
(Worksheet #4 on CD)

Please work with your planning team to complete the worksheets and return to Jonathan Raser by July 15, 2016.



Washington County Hazard Mitigation Plan Update
Worksheet #4 - Mitigation Action Review Worksheet for
Washington County

Please work with your municipal planning team and complete this worksheet. Please send electronic Word version by July 22, 2016 to:
Jonathan Raser, CFM
Phone: 973-630-8042 E-mail: jonathan.raser@tetratech.com

Who can provide you information about past mitigation actions: See the "Responsible Party" column in the table below which identifies who put this action in the 2010 HMP (e.g., DPW, Engineer, Code Official, Planner, OEM Coordinator).

Please use the following table to indicate progress and next steps on your community's mitigation strategy identified in the 2010 HMP. Please be as detailed as possible.

2010 Mitigation Action	Responsible Party	Status (In progress, On progress, Completed)	Describe Status 1. Please describe what was accomplished and indicate % complete. 2. If there was no progress, indicate what obstacles/delays/measures? 3. If there was progress, how is/was the action being funded (e.g., FEMA HMGP grant, local budget)?	Next Step (Include in 2016 HMP or Discontinue)	Describe Next Step 1. If including action in the 2016 HMP, revise/reword to be more specific (as appropriate). 2. If discontinue, explain why.
Example *Elevate Main Street Bridge*	*DPW*	*In Progress*	*1. 0% complete* *2. Budget and personnel constraints have restricted this action from moving forward* *3. No funding secured*	*Include in 2016 HMP*	*1. Elevate Main Street Bridge above the base flood elevation.* *2. If you chose "Discontinue," here is an example: The Town does not have the authority to retrofit this bridge; it is owned by the State.*
Improve drainage at sites where roads have washed out due to natural hazards in the past	County and NJTO DHSES	Choose an item.		Choose an item.	
Purchase equipment to provide the local personnel to conduct the drainage improvement	County and NJTO DHSES	Choose an item.		Choose an item.	

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New Mitigation Actions for 2015 HMP Update

- Opportunity to add new mitigation actions
- This includes all in-progress grant applications (FEMA or other related grant programs)
- Proposed mitigation actions should address identified vulnerabilities
- FEMA's Mitigation Workshop – August 2016

"At the first sign of a flood, you just push this little button."

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Types of Mitigation Actions

- **Plans and/or Regulations.** Measures such as zoning and building code, ordinances, planning (comprehensive/master plans, stormwater management plans, open space), hazard/risk insurance (e.g. NFIP).
- **Property Protection**. Measures such as acquisition, elevation, relocation, structural retrofits, storm shutters, rebuilding, barriers, floodproofing.
- **Public Education and Outreach**. Measures such as public awareness projects, real estate disclosure, hazard information centers, technical assistance.
- **Natural Resource Protection**. Measures such as erosion and sediment control, stream corridor protection, vegetative management, wetlands preservation.

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Plan Implementation

- Your mitigation strategy section provides a "blueprint" to follow for progressively reducing your community's natural hazard risk.
- It will includes two type of initiatives/projects – those that your community can "self fund", and those that will require outside (e.g. grant) funding.
- Mitigation grant opportunities open regularly:
  - The annual HMA grant window opens in June of each year (just passed!).
  - HMGP funding comes in the wake of Declared Disasters in the State.

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Integration with Other Plans and Programs

The Hazard Mitigation Plan should complement and support other Plans and Regulatory Mechanisms

- Emergency Operations Plan (EOP) / Comprehensive Emergency Management Plans (CEMP)
- Master Plans (regional and local) – these plans guide and direct land use and development
- Capital Improvement Plans (some of these projects are grant eligible)
- Higher Regulatory Standards (e.g. increased free-board, cumulative substantial damages)
- Stormwater Management Plans

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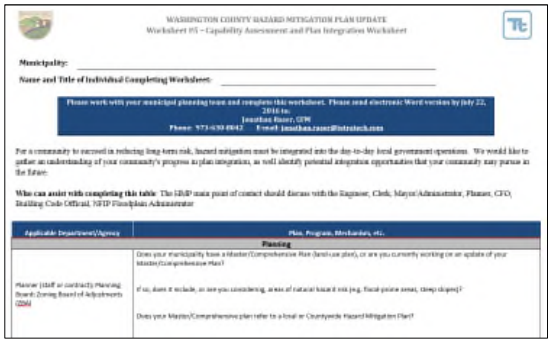
Plan Integration
(Worksheet #5 on your CD)

- For a community to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local government operations. We need to gather an understanding of your community's progress in plan integration, as well identify potential integration opportunities that you may pursue in the future.
- Circulate to your "team" to complete. Please expand on your answers when appropriate!


WASHINGTON COUNTY HAZARD MITIGATION PLAN UPDATE
Worksheet #5 – Capability Assessment and Plan Integration Worksheet

Municipality: _____

Name and Title of Individual Completing Worksheet: _____

Please work with your municipal planning team and complete this worksheet. Please send electronic Word version by July 22, 2016 to:
Jonathan Rauer, CFM
Phone: 973-630-8042 E-mail: jonathan.rauer@tetratech.com

For a community to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local government operations. We would like to gather an understanding of your community's progress in plan integration, as well identify potential integration opportunities that your community may pursue in the future.

Who can assist with completing this table: The HMP team point of contact should discuss with the Engineer, Clerk, Mayor/Administrator, Planner, CFO, Building Code Official, NFIP Floodplain Administrator

Applicable Department/Agency	Plan, Program, Mechanism, etc.
Planning	
Planner (staff or contract); Planning Board; Zoning Board of Adjustment; CDM	Does your municipality have a Master/Comprehensive Plan (land-use plan), or are you currently working on an update of your Master/Comprehensive Plan? If so, does it include, or are you considering, areas of natural hazard risk (e.g. flood-prone areas, steep slopes)? Does your Master/Comprehensive plan refer to a local or Countywide Hazard Mitigation Plan?

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New Development
(Worksheet #6 on your CD)

- Please indicate any major new development since 2010AND any known or anticipated major new residential/commercial development and major infrastructure development that are identified for the next five (5) years in your municipality.

WASHINGTON COUNTY HAZARD MITIGATION PLAN UPDATE
Worksheet #6 – Potential New Development

Please work with your municipal planning team and complete this worksheet. Please send electronic Word version by July 22, 2016 to:
Jonathan Raser, CFM
Phone: 973-630-8042 E-mail: jonathan.raser@tetratech.com

Municipality: _____

Name and Title of Individual Completing Worksheet: _____

Please indicate any recent development within your community from 2010 to present. Additionally, please indicate known or anticipated major residential and/or commercial development and major infrastructure development that are identified for the next five (5) years in your community.

Property or Development Name	Type (e.g. Res., Comm.)	# of Units / Structures	Address and Parcel ID	Known Hazard Zone(s)	Description/Status of Development
Recent Development from 2010 to Present					

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Schedule

- Municipal Kick-Off Meeting: June 15, 2016
- Municipal Data Collection –
  Local Support Meetings: June-July, 2016
- FEMA Mitigation Workshop: August 2016
- Draft Plan to NYS DHSES: October 2016
- Municipal Annex Completion Workshop: October 2016
- Final Plan to State and FEMA Region II: December 2016
- County and Municipal Plan Adoption: Upon FEMA Approval

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Worksheets #1 – #6

Please work with your planning team to complete the worksheets and return to Jonathan Raser by July 15, 2016.

All electronic templates are on your CD in the 'Worksheets' folder.

#	Worksheet Name	Who is Responsible to Complete and Submit this Worksheet?	Where do you find the requested information?
1	Events/Losses	OEM, Police, Fire, DPW, Engineer	FEMA Project Worksheets (PWs) DPW records, Police response records
2	Capability Assessment	Code Official, Planner, CFO/Fiscal Rep, Clerk	Code Book, e-Code, Municipal ordinances, Master Plan
3	NFIP Floodplain Administrator	Floodplain Administrator	NFIP Records
4	Mitigation Action Progress	HMP Main POC – see 'Responsible Party' column in the table provided for guidance	LOIs, NYS DHSES Grants, Capital Improvement records
5	Plan Integration Questionnaire	HMP Main POC	Discuss with Engineer, Clerk, Administrator, Planner, CFO, and Municipal Mayor/Administrator
6	New Development Table	Engineer, Planner, Building Department	Redevelopment Plans, Permits

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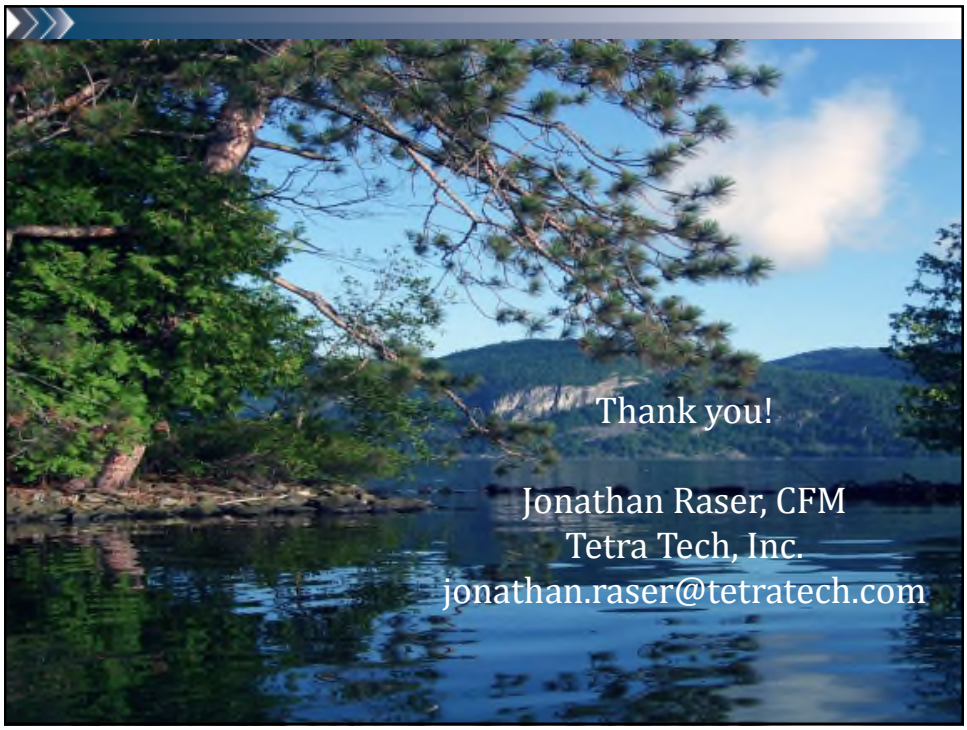


WASHINGTON COUNTY HAZARD MITIGATION PLAN UPDATE
Municipal Annex Meetings – June 30, 2016
Sign-In Sheet

Name	Title	Agency/Municipality	Phone Number	E-mail
Robert Shay	Supv. Town	Town of White Creek		
Tammy Skellie-Gilbert	Town Clerk	Town of Jackson		
Sean Carney	Highway SUPT.	Town of Jackson		
Carman Bogle	Village of Cam. Mayor	Village of Cambridge	802-688-3454	mayorbogle@cambridgeny.gov
Jim Buckley	Highway Supt	Town of Cambridge	(518) 378-8738	
Jonathan Pease	Emergency Mgt. Coor.	Washington County	518-747-7520	J Pease@co.washington.ny.us

WASHINGTON COUNTY HAZARD MITIGATION PLAN UPDATE
Municipal Annex Meetings – June 30, 2016
Sign-In Sheet

Name	Title	Agency/Municipality	Phone Number	E-mail
Chris Rieber	Hgw. Supt.	Town of White Creek	1-518-677-3203	
Brian Brackway	"	Town Fort Edward	518-747-5501	
Matt Toleman	" "	Village Camb	518-361-9734	
Douglas Ford	Dep Supervisor	Town Of Camb	518-677-5790	
Corrina Aldrich	Wash Co SWCD	Soil & Water Conservation District	518-692-9940 Ext 123	

WASHINGTON COUNTY
DEPARTMENT OF PUBLIC SAFETY

383 BROADWAY – BUILDING B, FORT EDWARD, NY 12828
PHONE (518)747-7520 – **FAX** (518)746-2157 – **TDD** (518)746-2146
WWW.WASHINGTONCOUNTYNY.GOV / PUBLICSAFETY@CO.WASHINGTON.NY.US
/WashingtonCoNYPublicSafety @WashCoNYDPS911

MEETING SIGN-IN SHEET

REASON: Hazard Mitigation Plan Update	**MEETING DATE:** 7/15/2016 **TIME:** 0900
MEETING HOST: Department of Public Safety	**LOCATION:** 383 Broadway Fort Edward, NY 12828

NAME	TITLE	ORGANIZATION	PHONE	EMAIL
Stanley Smith	Code Enforcement Officer -	Wash. Co. Code Enforcement	(518) 746-2150	ssmith@co.washington.ny.us
Layne Darfler	Jr. Planner	Wash Co Planning	746-2294	ldarfler@co.washington.ny.us
Corrina Aldrich	SWCD Manager	Wash Co SWCD	692-9940 Ext 5	corrinaaldrich@ny.nacdnet.net
Tim Hardy	DEPUTY DIRECTOR	WASH CO PUBLIC SAFETY	(518) 747-7520	THARDY@CO.WASHINGTON.NY.US
Jonathan Pease	EM Coordinator	Wash Co. Public Safety	518-747-7520	JPease@co.washington.ny.us
G.P. GOSNELL	DIRECTOR	WASH CO PUBLIC SAFETY	518-747-7520	GGOSNELL@CO.WASHINGTON.NY.US
Chris DeBolt	County Administrator	Wash. Co. Administration	518-746-2101	cdebolt@co.washington.ny.us
TODD KONIFKA	Deputy Superintendent	D.P.W.	518-223-3408	TKONIFKA@CO.WASHINGTON.NY.US
Emily Slotnick	Resiliency Planner	Tetra Tech	508-287-8665	emily.slotnick@tetratech.com

- Review Progress with Municipalities

- Public and Stakeholder Outreach Program
  - Review of Public HMP Website (http://www.washingtoncountyhmp.com)
    - Need pictures from Washington County for website header
  - Review of Citizen and Stakeholder Surveys
  - Outreach program to support traffic to website and surveys
    - Suggested content for County and Municipal outreach – generally via County and local websites – *Handout*
    - How can we promote input within communities with limited electronic communication?
    - Stakeholder surveys (online) - Develop distribution list of County stakeholders (academia, commerce, hospitals, transportation, school districts, fire districts, police, utilities, etc.)
    - Press releases from County in newspapers and social media - Point of Contact for disseminating Public Information (e.g. press releases, surveys, announcements)

- Review/Finalization of Hazards of Concern – *Handout*, provided previously

- Draft Hazard Profiles – Flood, Severe Storm and Severe Winter Storm drafts emailed to SC on 6/30

- Risk/Vulnerability Assessment Plan/Progress

- Mitigation Strategy Workshop (FEMA Region II led)
  - Set Date
  - Mandatory for all participating municipalities
  - Ideally, all participating municipalities have reasonably completed their local data collection worksheets. We will provide their initial draft annex prior to the meeting, which will include their "problem statements" and any potential mitigation actions for their consideration.

- Review/Update of Goals and Objectives - *Handout*

- County Annex Development

A G E N D A

MONTHLY BOARD MEETING

AUGUST 19, 2016

Call to Order

Prayer

Pledge of Allegiance

Fire Safety Notice

Roll Call

Presentation – Hazard Mitigation Plan – Jonathan Pease, Emergency Management Coordinator & Tetra Tech

Minutes/Communications

Committee Reports - Audit Report

Introduction of Local Law "C" of 2016 – A Local Law Pursuant to Real Property Tax Law Section 487(8)(a) Providing that no Exemption Under Section 487 Shall be Applicable for the Purpose of County Taxation with Respect to Any Solar or Wind Energy or Farm Waste Energy System.

Supervisor's Privilege of Floor

Introduction of Resolutions

Recess

Consideration of Resolutions

Supervisor's Comments

Adjourn

CONDENSED MINUTES
MONTHLY BOARD MEETING
AUGUST 19, 2016

Fort Edward, New York, Friday, August 19, 2016.

The Board of Supervisors convened in regular session at 10:01 AM at the County Office Building, Fort Edward, New York pursuant to Rule 1 of Rules of said Board.

CHAIRMAN HENKE called the meeting to order and presided.

Mr. Armstrong offered the prayer.

Mr. O'Brien led the Pledge of Allegiance to the Flag and read the Fire Safety Notice.

The Clerk called the roll:

PRESENT: 15 Henke, Fedler, Gang, Shaw, Moore, Suprenant, Hicks, O'Brien, Haff, Skellie, Hogan, LaPointe, Pitts, Shay, Armstrong

ABSENT: 2 Idleman, Campbell

CHAIRMAN HENKE introduced Jonathan Pease, Emergency Management Coordinator who introduced Jonathan Raser of Tetra Tech who expressed the importance of the communities being involved in updating the plan done in 2010. He announced a website for the Washington County Hazard Mitigation Plan Project www.washingtoncountyhmp.com. He also announced a FEMA Mitigation Strategy Workshop to be held on September 14th.

Glen Gosnell, Public Safety Director announced the release today of the Washington County NY DPS mobile app designed to keep citizens, businesses and visitors prepared for and alerted to emergencies.

The condensed minutes of the July 15, 2016 meeting were accepted as mailed.

The Clerk read the communications.

A motion to accept the August Audit Report, was moved by Mr. Shaw, seconded by Supervisors Gang, Moore, Hogan, Armstrong and adopted.

Introductory Local Law "C" of 2016, a Local Law Pursuant to Real Property Tax Law Section 487(8)(a) Providing that no Exemption Under Section 487 Shall be Applicable for the Purpose of County Taxation with Respect to Any Solar or Wind Energy or Farm Waste Energy System, was introduced.

CHAIRMAN HENKE asked if any Supervisor had any requests for Supervisors' Privilege of the Floor. Mr. Hogan introduced Antonio Cerro of the Town of Kingsbury who addressed the Board and distributed a Welcome to USA Citizenship booklet that he was given when he went through the process of becoming a citizen. He added he reproduced this booklet and that these booklets are not produced anymore.

CHAIRMAN HENKE asked that the resolutions be introduced.

A motion to set aside the rules to present Resolution No. 239, 241, moved by Mrs. Fedler, seconded by Mr. Gang and adopted.

Resolution No. 221 August 19, 2016 By Supervisors O'Brien, Armstrong, Campbell, Gang, Shaw, Skellie, Hogan – TITLE: To Adopt Washington County Ethics Law.

Resolution No. 222 August 19, 2016 By Supervisors Shay, LaPointe, Campbell, Moore – TITLE: To Exercise Option Year for Public Health Transportation Services 2016.

Resolution No. 223 August 19, 2016 By Supervisor Henke – TITLE: Appoint Member to the Counties of Warren and Washington Industrial Development Agency and Civic Development Corporation.

Resolution No. 224 August 19, 2016 By Supervisors Fedler, Idleman, Shay, Haff, Armstrong, Moore, Skellie – TITLE: To Set Public Hearing Date to Report on the Progress of the County's 2015 CDBG Economic Development Funding Award to Assist ICC Communications.

Resolution No. 225 August 19, 2016 By Supervisors Campbell, LaPointe, Shay, Suprenant, Idleman, Haff, Pitts, O'Brien, Fedler, Shaw, Hogan – TITLE: To Set Public Hearing on Introductory Local Law "C" of 2016 Entitled a Local Law Pursuant to Real Property Tax Law Section 487(8)(A) Providing that No Exemption Under Section 487 Shall Be Applicable for the Purpose of County Taxation with Respect to Any Solar or Wind Energy or Farm Waste Energy System.

Resolution No. 226 August 19, 2016 By Supervisors Campbell, LaPointe, Shay, Suprenant, Idleman, Haff, Pitts, O'Brien, Fedler, Shaw, Hogan – TITLE: Amend Budget – County Road Fund for PAVE NY Funds.

Resolution No. 227 August 19, 2016 By Supervisors Campbell, LaPointe, Shay, Suprenant, Idleman, Haff, Pitts, O'Brien, Fedler, Shaw, Hogan – TITLE: Amend Budget – WIC.

Resolution No. 228 August 19, 2016 By Supervisors Campbell, LaPointe, Shay, Suprenant, Idleman, Haff, Pitts, O'Brien, Fedler, Shaw, Hogan – TITLE: Amend Budget to Purchase New Computer for Code Enforcement.

Resolution No. 229 August 19, 2016 By Supervisors Campbell, LaPointe, Shay, Suprenant, Idleman, Haff, Pitts, O'Brien, Fedler, Shaw, Hogan – TITLE: To Recognize Donations from Towns for Framing of 123rd Regiment Commemorative Flag.

Resolution No. 230 August 19, 2016 By Supervisors Campbell, LaPointe, Shay, Suprenant, Idleman, Haff, Pitts, O'Brien, Fedler, Shaw, Hogan – TITLE: Amend Employee Handbook – Meal Reimbursement Section 6.009.

Resolution No. 231 August 19, 2016 By Supervisors LaPointe, O'Brien, Shay, Suprenant, Pitts – TITLE: Amend Staffing Pattern – Office for the Aging.

Resolution No. 232 August 19, 2016 By Supervisors Campbell, LaPointe, Shay, Suprenant, Idleman, Haff, Pitts, O'Brien, Fedler, Shaw, Hogan – TITLE: Amend Staffing Pattern and Budget – Sheriff's Department to Increase Part Time Civil Clerk to Full Time.

Resolution No. 233 August 19, 2016 By Supervisors Campbell, LaPointe, Shay, Suprenant, Idleman, Haff, Pitts, O'Brien, Fedler, Shaw, Hogan – TITLE: Appoint Supervising Attorney in the Assigned Counsel Office.

Resolution No. 234 August 19, 2016 By Supervisors Campbell, LaPointe, Shay, Suprenant, Idleman, Haff, Pitts, O'Brien, Fedler, Shaw, Hogan – TITLE: To Authorize Chairman to Sign Contract with Camoin Associates to Conduct a Strategic Analysis of Tourism in Washington County.

Resolution No. 235 August 19, 2016 By Supervisors Campbell, LaPointe, Shay, Suprenant, Idleman, Haff, Pitts, O'Brien, Fedler, Shaw, Hogan – TITLE: To Authorize Chairman to Sign Contract with ADK Technical Solutions for an Audit of the County's IT Network and Amend the General Fund Budget to Cover the Related Costs.

Resolution No. 236 August 19, 2016 By Supervisors Campbell, LaPointe, Shay, Suprenant, Idleman, Haff, Pitts, O'Brien, Fedler, Shaw, Hogan – TITLE: Urging Governor Cuomo to Sign Into Law Public Defense Mandate Relief Act (A.10706/S.8114).

Resolution No. 237 August 19, 2016 By Supervisors Campbell, LaPointe, Shay, Suprenant, Idleman, Haff, Pitts, O'Brien, Fedler, Shaw, Hogan – TITLE: Create the Title of WIC Breastfeeding Coordinator, Place on the Grade Schedule and Amend the Staffing Pattern.

Resolution No. 238 August 19, 2016 By Supervisors Campbell, LaPointe, Shay, Suprenant, Idleman, Haff, Pitts, O'Brien, Fedler, Shaw, Hogan – TITLE: To Authorize the Chairman to Sign Contract with Hudson Energy for Natural Gas Supply for County Operations.

Resolution No. 239 August 19, 2016 By Supervisor O'Brien – TITLE: To Authorize Out of State Travel – Treasure's Office & Information Technology.

Resolution No. 240 August 19, 2016 By Supervisors LaPointe, O'Brien, Shay, Suprenant, Pitts – TITLE: To Amend Employee Handbook – Health/Dental Insurance Section 7.008 for Retirees Coverage.

Resolution No. 241 August 19, 2016 By Supervisor Shay – TITLE: To Authorize Settlement of Estate of Sangster v. County.

The Board went on to consider the resolutions.

Resolution No. 221, moved by Mr. O'Brien, seconded by Supervisors Fedler, Gang, Skellie, Hogan, Armstrong. CHAIRMAN HENKE asked for discussion. Mr. Moore stated he will oppose this as written and stated it would be better if it said that Board members should not accept any gift whatsoever from anyone doing business with the county. A motion to amend the ethics law and remove $75 and replace with wording that Board members should not accept any gift whatsoever, moved by Mr. Moore, seconded by Mr. Shay. Discussion ensued. A motion to table Resolution No. 221, moved by Mr. Moore, seconded by Mr. Haff and adopted.

Resolution No. 222, moved by Mr. Shay, seconded by Mr. Moore and adopted.

Resolution No. 223, moved by Chairman Henke, seconded by Supervisors Fedler, Shaw, Suprenant, Shay and adopted.

Resolution No. 224, moved by Mrs. Fedler, seconded by Supervisors Gang, Moore, Skellie, Shay, Armstrong and adopted.

Resolution No. 225, moved by Mr. LaPointe, seconded by Supervisors Fedler, Gang, Moore, Haff, Hogan, Shay. CHAIRMAN HENKE asked for discussion. Mr. Skellie asked the Board to look at the big picture before adopting this law due to concerns about DEC and EPA regulations. Resolution No. 225, moved by Mr. LaPointe, seconded by Supervisors Fedler, Gang, Moore, Haff, Hogan, Shay and adopted. Supervisors Skellie, Shay and Armstrong opposed.

Resolution No. 226, moved by Mr. LaPointe, seconded by Mr. Gang and adopted.

Resolution No. 227, moved by Mr. LaPointe, seconded by Supervisors Fedler, Hogan, Shay, Armstrong and adopted.

Resolution No. 228, moved by Mr. LaPointe, seconded by Supervisors Fedler, Moore, Haff, Hogan and adopted.

Resolution No. 229, moved by Mr. Pitts, seconded by Supervisors Fedler, Gang, O'Brien, Hogan, Shay and adopted.

Resolution No. 230, moved by Mr. LaPointe, seconded by Mr. Hogan and adopted. Mr. Haff opposed.

Resolution No. 231, moved by Mr. LaPointe, seconded by Supervisors Fedler, Shaw and adopted.

Resolution No. 232, moved by Mr. LaPointe, seconded by Supervisors Fedler, Gang, Moore, Haff, Hogan and adopted.

Resolution No. 233, moved by Mr. Suprenant, seconded by Supervisors Fedler, Gang, Moore, Haff, Hogan and adopted.

Resolution No. 234, moved by Mr. LaPointe, seconded by Supervisors Fedler, Gang, Moore, Skellie and adopted.

Resolution No. 235, moved by Mr. LaPointe, seconded by Supervisors Fedler, Suprenant, O'Brien and adopted.

Resolution No. 236, moved by Mr. LaPointe, seconded by Supervisors Fedler, Gang, Moore, Hogan, Shay and adopted.

Resolution No. 237, moved by Mr. LaPointe, seconded by Supervisors Fedler, Gang, Hogan, Shay and adopted by the following roll call vote:

AYES: 15 Henke, Fedler, Gang, Shaw, Moore, Suprenant, Hicks, O'Brien, Haff, Skellie, Hogan, LaPointe, Pitts, Shay, Armstrong

ABSENT: 2 Idleman, Campbell

AYES:3,767 ABSENT: 493

Resolution No. 238, moved by Mr. LaPointe, seconded by Supervisors Fedler, Gang, Moore, Haff, Hogan and adopted.

Resolution No. 239, moved by Mr. O'Brien, seconded by Mrs. Fedler and adopted.

Resolution No. 240, moved by Mr. LaPointe, seconded by Supervisors O'Brien, Shay and adopted.

Resolution No. 241, moved by Mr. Shay, seconded by Supervisors Fedler, Gang, Armstrong and adopted.

CHAIRMAN HENKE asked for Supervisors' comments. Mrs. Fedler announced the Washington County Fair opening ceremony is at 1 pm on Monday. Chairman Henke announced that the grand opening for the Dollar General in Argyle is tomorrow morning.

Mr. Shaw announced the adjournment of the meeting at 11:13 AM.

Respectfully submitted,
Sandy Huffer, Deputy Clerk

WASHINGTON COUNTY HAZARD MITIGATION PLAN

A FEMA Mitigation Strategy Workshop for the Washington County Hazard Mitigation Plan

When: September 15, 2016
Time: 10:00 AM – 12:00 PM

Where: County Office Complex, 383 Broadway
Building B - Training Room #2

Washington County continues the development of its Hazard Mitigation Plan intended to identify community policies, actions, and tools for implementation over the long term that will result in a reduction of risk and potential for future losses as a result of natural hazards.

As part of the process for developing the Washington County Hazard Mitigation Plan, FEMA representative, Paul Hoole, will be conducting this workshop designed to take the mystery out of mitigation planning. The focus will be on moving from our assessment of risks to the identification of mitigation actions. Mitigation actions are the heart of the Hazard Mitigation Plan.

Mr. Hoole will introduce a common sense approach, along with an easy way to document the thinking behind the mitigation plan, a FEMA planning requirement. There will also be ample opportunity to ask questions and engage in discussion, so we urge you to take advantage of this opportunity.

To expedite completion of the Hazard Mitigation Plan, it is a requirement that representatives from each municipality in the County attend this FEMA Mitigation Strategy Workshop. We strongly encourage you to bring all members of your local mitigation planning team, which may include:

- Municipal Mayor/Supervisor/Administrator
- NFIP Floodplain Administrator
- Building Code Official
- Public Works Superintendent
- Municipal Engineer
- Land Use Planner
- Municipal CFO/Fiscal Representative
- Police/Fire/EMS Representatives

Please advise the County of your plans to attend by one of both of the following methods:

- Register online at: https://www.surveymonkey.com/r/WC_MSW
- Contact Jonathan Pease at the Washington County Department of Public Safety at 518.747.7520, ext. 1.

Thank you!

WASHINGTON COUNTY HAZARD MITIGATION PLAN UPDATE
FEMA Mitigation Strategy Workshop – September 15, 2016
Sign-In Sheet

Name	Title	Agency/Municipality	Phone Number	E-mail
Chris Rieber	Highway Supt.	Town of White Creek	677-3223	
Sean Carney	Highway Supt	Jackson	677-3678	
Jim Buckley	Highway Supt	Town of Cambridge	677-3248	
Bob Humiston	HIGHWAY SUPT	TOWN OF ARGYLE	638-8210	
Kellie Blake	Clerk to Super. & Hgh. Super.	Town of Greenwich	692-7137 x 103	
Eric Towne	HIGHWAY SUPT	TOWN of GRANVILLE	518 642-2560	
Ross Cortese	Code Officer	Town of Kingsbury	518-747-2188 x 3008	hfcode@albany.twcbc.com
Steve Mueller	Highway Superintendent	Town of Easton	518-692-0029	
George Armstrong	Supervisor	Town of Whitehall	518-499-1535	
Vernon Scribner		"	518-499-0349	
Floyd C Prue	Highway Supt	TOWN OF Hebron	518-854-3078	
Louis PRATT	SUPT HWY	TOWN OF Whitehall	518-361-8267	
Steve BROCK	Working FOREMAN	V/O WHITEHALL	518 320-5024	
Ernest Bassett Jr	Chief of Police	Whitehall - Granville	518-361-9552	
KENNETH BARTHOLOMEW	MAYOR	VILLAGE OF WHITEHALL	518-499-9239	
PAUL Winchell	Highway Supt	Town Ft. Ann	518-639-8950	
CORRINA CAVALLO	Planning Supervisor	NYS DHSES	518-292-1155	corrina.cavallo@dhses.ny.gov

WASHINGTON COUNTY HAZARD MITIGATION PLAN UPDATE
FEMA Mitigation Strategy Workshop – September 15, 2016
Sign-In Sheet

Name	Title	Agency/Municipality	Phone Number	E-mail
Mark A. Miller	Enforcement	Town of Hartford Fort Ann	796-0103	sgpgii@aol.com
WESLEY CLARK	MAYOR	VILLAGE ARGYLE	638 8717	wclgclark@juno.com
Gary Treadway	Hwy Sup.	TOWN OF Putnam	796-3509	grtreadway@gmail.com
Rick Hobus	Hwy Supervisor	TOWN OF Dresden	796 0619	hobus@verizon.net
Barbara Spaulding	Mitigation Planner	State of NY DHSES	228-224-0886	barbara.spaulding@dhses.ny.gov
Scott Mackey	Asst. Chief Operator	Village of Granville	518-742-9202	scottmvog@yahoo.com
Cassie Fedler	Supervisor	Town of Cambridge	796-1877	cfedler@co.washington.ny.us
Brian Campbell	Supervisor	Town of Hebron	746-2217	brian campbell@wildblue.net
Tina Fleming	Citizen	Town of Salem	854-9134	tfleming0707@gmail.com
Daniel B. Shaw	SUPERVISOR	TOWN OF EASTON	744-2951	EASTONSUPER1@HOTMAIL.COM
Brian Brady	Superintendent	Town of Fort Edward	747-5561	FEFD 5701@Yahoo.Com

WASHINGTON COUNTY HAZARD MITIGATION PLAN UPDATE
FEMA Mitigation Strategy Workshop – September 15, 2016
Sign-In Sheet

Name	Title	Agency/Municipality	Phone Number	E-mail
Todd Konifka	Deputy Superintendent DPW	WASHINGTON COUNTY	223-3408	TKONIFKA@CO.WASHINGTON.NY.US
George Johnson	Asst Supt Public Works	V/O Granville	642-1815	Granville@roadrunner.com
Tim Hardy	Deputy Director	Public Safety Washington County	747-7520	THARDY@CO.WASHINGTON.NY.US
Glen Gosnell	Director	Washington County Public Safety	747-7520	GGOSNELL@Co.Washington.NY.US

FEMA
Region 2

Hazard Mitigation Planning

A Workshop for Updating your Mitigation Strategy
Washington County, NY

Mitigation

The Goal:

Mitigation becomes a way of doing business in the Community

The community becomes **less susceptible to losses** from natural hazards

Mitigation Plans

- Mitigation Actions / Projects to address Vulnerabilities
- Integration Actions – Steps to integrate mitigation into daily governance

Mitigation Planning

- Creates an Ongoing Appreciation for Mitigation

Purpose of Workshop

- **Outline a Systematic Approach for Developing Your Mitigation Strategy**
  - Ensures the Selection of the Best Mitigation Action for each problem
  - Builds Support for the Actions and Facilitates Implementation
  - Introduces Integration Actions
- **Reinforce an Appreciation for Mitigation**
  - An Appreciation Shared by All in Local Government
  - Daily decisions consider mitigation when appropriate

Typical Mitigation Plan

- Section 1: Planning Process
  - General Introduction / Describes the Community
  - Describes Planning Process – Meetings, public involvement, etc.
- Section 2: Risk / Vulnerability Assessment
  - Identifies Hazards of Concern / Profiles Hazards
  - Assesses Risk / Vulnerabilities – Summarize Vulnerabilities by Jurisdiction
- **Section 3: Mitigation Strategy**
  - Goals / Actions/ Action Plan
- Section 4: Plan Maintenance
  - Monitoring / Evaluating Implementation
  - Keeping the Plan Current

Mitigation Strategy Framework

The heart of a Hazard Mitigation Plan

Goals

- What long-term outcomes do you want to achieve?

Actions

- What specific actions will local governments, community organizations, and others take to reduce their risk to hazards?

Action Plan

- How will the actions be prioritized and implemented?

Goals

- **Goals represent a global vision for all Jurisdictions**

  Example:

  ***Goal**: Project life, property, economic viability, and the environment from the consequences of natural hazards*

  - ***Objective**: Prevent (or discourage) new development in hazard areas, or ensure building in hazard areas is done in a way to minimize risk.*

- **There are no right or wrong goals!**
  - *However, Goals/Objectives should help with selecting and prioritizing mitigation actions.*

Mitigation Strategy
The systematic process

Summarize Risk Assessment

- 1st: Identify Problems / Vulnerabilities

Mitigation Actions

- 2nd: Brainstorm Potential Actions
- 3rd: Evaluate Potential Actions
- 4th: Select the Best Action

Action Plan

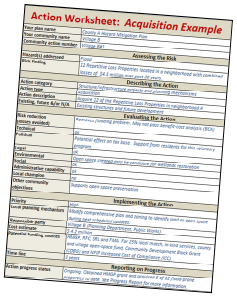
- 5th: Prepare for Implementation

Mitigation Strategy
The Team

- A Functionally Diverse Team Is Critical
  - **Elected Officials** – mindful of whole community
  - **Emergency Managers / Police / Fire** – know of disasters and problems
  - **Local Planners** – aware of trends and land use policies
  - **Public Works Staff** – experts on infrastructure and problems
  - **Floodplain Administrator / Code Official** – know ordinances
  - **GIS Specialist** – can help with analysis and understanding by producing maps

Action Worksheet
Documenting the process

- One worksheet for each problem
- Links each problem with mitigation actions considered and selected
  - Documents the consideration of a comprehensive range of actions.
  - Builds support for the action selected.
- Provides prompts for an Action Plan.
  - Facilitates Implementation



Action Worksheet: Acquisition Example

Plan name	County X Hazard Mitigation Plan
Plan community name	Village A
Community action number	Village #1
Assessing the Risk	
Hazard(s) addressed	Flood
Risk Ranking	12 Repetitive Loss Properties located in a neighborhood with sustained losses of $4.1 million incurred in 18 years
Describing the Action	
Action category	Structure-Infrastructure projects and Community Civic Projects
Action date	2016/2018
Action description	Acquire 12 of the Repetitive Loss Properties in neighborhood A
Existing, State B/U N/A	Existing Structure and Flood Insurance
Evaluating the Action	
Risk reduction	Positive
NFIP/CRS eligible	Preliminary screening process. May not pass benefit-cost analysis (BCA)
Technical	Yes
Political	Yes Potential effect on tax base. Support from residents the into voluntary program.
Legal	Yes
Environmental	Open space created into the protected par wetlands reclamation
Social	Yes
Administrative capability	Yes
Local champion	Yes
Other community objectives	Supports open space preservation
Implementing the Action	
Priority	High
Local planning mechanism	Already comprehensive plan and zoning to identify land or open space
Responsible party	Acting lead collaborator
Cost estimate	Village B (Planning Department, Public Works)
Potential funding sources	4 & 5 Actions HMGP, NFC, SFI, and FMA. For 25% local share, in-kind services, cash, one-stage open-space fund, Community Development Block Grant (CDBG) and NFIP Increased Cost of Compliance (ICC)
Time line	2 years
Reporting on Progress	
Action progress status	Ongoing. Obtained initial grant and received 2 of 12 Level Grants completed to date. See Progress Report for more information

Updating Your Mitigation Strategy – Step 1

Summarize Risk Assessment

1st: Identify Problems / Vulnerabilities

Mitigation Actions

2nd: Brainstorm Potential Actions

3rd: Evaluate Potential Actions

4th: Select the Best Action

Action Plan

5th: Prepare for Implementation

Identify Problems
Public / Stakeholder Input

What Concerns the Public and Stakeholders?

What is being done to capture their views?

- Document outreach process (required)
- Document how concerns were addressed (required)

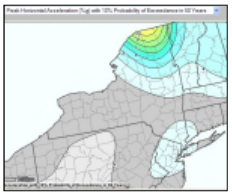
Stakeholders include:

- Other Town or Village Employees - your ***Jurisdictional Team***
- Local Schools, Colleges, Businesses, Utilities, Non-Profits, etc.
- Neighboring Communities – adjacent counties

Identify Problems
Conduct a Risk Assessment

Review Risk Assessment

Updated using the Best Available Information



- Review Specific Impact of Recent Hazards
  - Consider ***areas repeatedly damaged***
- Are ***critical facilities*** at risk?
- Consider ***risks*** to recent <u>and</u> planned development
- Think beyond the most recent disaster
  - Fully ***consider all hazards of concern***

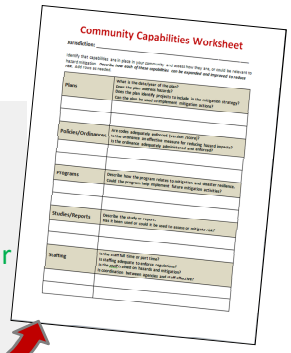
Identify Problems
Assess Capabilities – any problems?

Planning Mechanisms – *governance structures used mange land use development and community decision-making.*

- **Plans** – Land use plan
- **Policies** – Review of building applications
- **Ordinances** – Zoning Code
- **Programs** - NFIP
- **Studies** – Flood studies
- **Staffing / Equipment**
  - Skills / Abilities
  - Number of Staff / Equipment
- **Financial Resources**

Capabilities Worksheet

Handout for later use

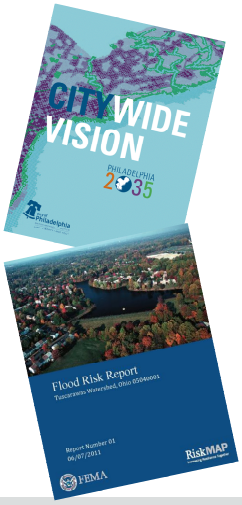

Community Capabilities Worksheet

FEMA Region II 13 RiskMAP Increasing Resilience Together

Identify Problems
Assess Capabilities – any problems?

Assess Capabilities
plans, policies, programs, etc.

- Any gaps or problems? For example:
  - Inconsistent enforcement of ordinances
  - Outreach misses non-English speaking citizens
  - Major gaps in information
  - Out of date Plans
- Always assess NFIP program (required)



FEMA Region II 14 RiskMAP Increasing Resilience Together

Identify Problems
Assess NFIP Program /Administration – any problems?

National Flood Insurance Program

Each jurisdiction must independently assess

Might describe:

- Floodplain Administrator: name / contact info.
- Floodplain requirements
- Floodplain enforcement and monitoring procedures
- Status of floodplain mapping and studies
- Outreach efforts to promote insurance
- Other assistance provided
- Opportunities for Improvement

FEMA Region II 15 RiskMAP Increasing Resilience Together

Vulnerabilities
Summarize as Problem Statements

Problem Statements
Mountaintop Road near County Route 12 has repeatedly washed-out during severe storms, causing the road to be closed.
The downtown business district is subject to spring flooding from melting snow coupled with spring rains.
The southern border of the Town includes a wooded area that in drought conditions presents a wildfire risk to the nearby Margret Williams Assisted Living facility. .

FEMA Region II 16 RiskMAP Increasing Resilience Together

Identifying Problems
Recap

- Each Jurisdiction identifies problems in their community
  - Review each hazard of concern.
  - State the problem, not the solution. Be specific.
  - Each problem statement is added to its Action Worksheet. [One worksheet for each problem]
- Identify "real problems"
  - Something that deserves action

Updating Your Mitigation Strategy

Summarize Risk Assessment

1st: Identify Problems / Vulnerabilities

Mitigation Actions

2nd: Brainstorm Potential Actions

3rd: Evaluate Potential Actions

4th: Select the Best Action

Action Plan

5th: Prepare for Implementation

Mitigation Actions - Defined

Mitigation Actions are any sustained action taken to reduce long-term risk to life and property from a hazard event

Mitigation
elevated home by the river

Mitigation
property acquisition

Preparedness & Response
purchase of a police command vehicle

Range of Mitigation Action

STRUCTURAL PROJECTS
- Acquisition
- Elevation
- Retrofits
- Drainage

PLANS and/or REGULATIONS
- Zoning Codes
- Ordinances
- Open Space Plan
- NFIP

EDUCATION & OUTREACH
- Public Awareness
- Outreach
- Educational Programs

NATURAL RESOURCE PROTECTION
- Stream and Wetland Restoration
- Erosion Control

Brainstorm Potential Actions

Brainstorming Potential Actions:

- As a jurisdictional team
  - Review the *problem statements*
  - Review your assessment of *capabilities*
  - *Brainstorm* potential mitigation actions or projects
- Try to identify more than one type of action
  - Consider a *Comprehensive Range of Actions*

Brainstorm Potential Actions
Recap

- Brainstorm Potential Actions
  - **Consider a range of action types**
    - ✓ Structure / Infrastructure projects
    - ✓ Plans and/or Regulations
    - ✓ Educational & Outreach
    - ✓ Natural Resource Protection
  - **Identify a few potential actions for each problem**
  - **Be specific**
  - **Add to Action Worksheet**

Updating Your Mitigation Strategy

Summarize Risk Assessment

1st: Identify Problems / Vulnerabilities

Mitigation Actions

2nd: Brainstorm Potential Actions

3rd: Evaluate Potential Actions

4th: Select the Best Action

Action Plan

5th: Prepare for Implementation

Evaluate Potential Actions

The Selection Process:

- Must at least consider the benefits and costs
  - Benefit-Cost Review (rough estimate)
  - Not a formal Benefit-Cost Analysis (BCA)

Potential Actions Identified

Mitigation Actions to Implement

Benefit-Cost Review
Is it cost-effective?

- *Benefits: Losses Avoided*
  - Lives saved/ Injuries Avoided
  - Structural Damage Avoided
  - Business Downtime Avoided
  - Additional Costs Avoided (e.g., long detours)

- *Costs:*
  - Pre-Construction and Construction Costs
  - Ancillary Costs (e.g., permit and review fees)
  - Annual Maintenance Costs

Other Considerations

- Technical Feasibility
- Political Support
- Legal Authority
- Environmental Impacts
- Social – positive or negative
- Willing & Able (local champion & capable)
- Other Community Objectives

Evaluate an Action
Recap

- Cost-Benefit Review
  - Describe and Estimate Losses Avoided
  - Describe Cost Elements and Estimate
- Other Criteria
  - Technical Feasibility
  - Political Support
  - Legal Authority
  - Environmental Impacts
  - Social - positive or negative
  - Willing & Able - Champion & Capable

- **Select "Real Solutions" for "Real Problems"**

Updating Your Mitigation Strategy

Summarize Risk Assessment

1st: Identify Problems / Vulnerabilities

Mitigation Actions

2nd: Brainstorm Potential Actions

3rd: Evaluate Potential Actions

4th: Select the Best Action

Action Plan

5th: Prepare for Implementation

Step 5
Prepare for Implementation

Action Plan:

- **Responsible Organization (lead organization)**
  - This is an agency or department, not the jurisdiction
- **Action / Project Priority**
  - Involve the Jurisdictional Team
  - Numerical Rank; Tier 1/Tier 2/Tier 3; chronological by start date or completion date (Method is optional)
- **Timeline for Completion** – best estimate
- **Potential Funding Source** – List multiple, if applicable
- **ID Local Planning Mechanism to Facilitate Implementation**

Using Local Planning Mechanisms to Facilitate Implementation

Planning Mechanisms - *Governance structures to manage land use development and community decisions-making, such as comprehensive plans, capital improvement plans, and other long-range plans.*

Using Local Planning Mechanisms to Facilitate Implementation

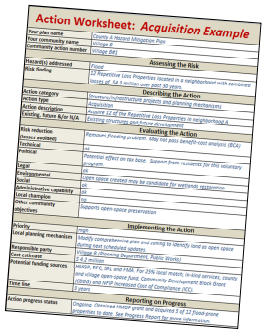
Examples: Actions & Planning Mechanism Used

- **Increase culvert size on River Road** – add this project to the capital improvement plan
- **Acquire severe repetitive loss properties on Meadow Street** – Amend the town Land Use Plan to include the vacated land as a town park.
- **Conduct an engineering study to determine the vulnerability of critical facilities to earthquakes** – add consultant funding to the annual town budget

Action Worksheet

Recap:

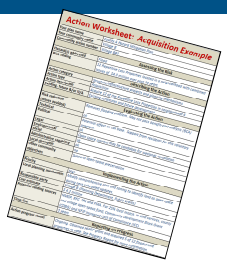
- **Problems / Vulnerability**
  - Risk Assessment - problem statements
  - Assessment of Capabilities – need to improve
- **Potential Actions**
  - Potential Projects Listed
    - Include a comment under each potential action on why it was not selected.
- **Action Selected**
  - Action # and Name
  - Describe the specific Action
  - Summarize the evaluation of this action
- **Plan for implementation**



Action Worksheet: *Acquisition Example*

Year after name	County A Hazard Mitigation Plan
Your community name	Village A
Community action number	Village #41
Assessing the Risk	
Hazard(s) addressed	Flood
Risk rating	13 Repetitive Loss Properties located in a neighborhood with recurrent losses of $4.1 million over past 30 years
Describing the Action	
Action category	Structure/Infrastructure projects and planning mechanisms
Action type	Acquisition
Action description	Acquire 12 of the Repetitive Loss Properties in neighborhood A. Existing structures are flood-damaged
Existing, future &/or N/A	
Evaluating the Action	
Risk reduction (losses avoided)	Removes flooding problem. Why not pass benefit-cost analysis (BCA)
Technical	Yes
Political	Potential effect on tax base. Support from residents for this voluntary program.
Legal	yes
Environmental	Open space created may be conducive for wetlands restoration
Social	yes
Administrative capability	yes
Local champion	yes
Local community objectives	Supports open space preservation
Implementing the Action	
Priority	High
Local planning mechanism	Study comprehensive plan and zoning to identify land as open space during next scheduled updates
Responsible party	Village B (Housing Department) (Public Works)
Cost estimate	$ 4.2 million
Potential funding sources	HMGP, HFC, SFC, and FEMA PA (25% local match), in-kind services, county and village open space fund, Community Development Block Grant, DEMA and NFIP Increased Cost of Compliance (ICC)
Time line	2 years
Reporting on Progress	
Action progress status	Ongoing. Received HMGP grant and acquired 5 of 12 flood-prone properties to date. See Progress Report for more information

Mitigation Actions/Projects and Integration Actions



Mitigation becomes a way of doing business in the Community

Actions / Projects:

- Address problems
- Captured by the Action Worksheet

Integration Actions: *These actions incorporate mitigation data, information, goals, and concepts into other planning mechanisms.*

- No need for an Action Worksheet
- Describe these actions in the plan in a list or in a narrative format

Integration Actions

"Integration increases efficiency and avoids conflicting outcomes."

- *Existing Plans, Studies, Reports, etc.*
  - **Reviewed at the outset of hazard mitigation planning**
    - What information do these plans, studies, and reports contain that should be reflected in the Hazard Mitigation Plan?
- *Hazard Mitigation Plan*
  - **Review the Hazard Mitigation Plan** - What mitigation info/concepts should be integrated in other planning mechanisms?
    - Identify potential candidates (other planning mechanisms) for integration
    - Describe process for bringing about integration
    - Best way to meet this requirement is to describe the *integration actions*

Integration Actions

Examples:

- **Village Ordinance 231** – This zoning ordinance will be updated each time Flood Insurance Rate Maps (FIRMS) are updated.
- **Master Plan for XYZ** – The town's Master Plan will be updated to include the mitigation goals from the Hazard Mitigation Plan.
- **Capital Improvement Program** – A mitigation criterion will be added to other criteria used to rate the priority of capital improvements.
- **Highway Superintendent Job Description** – Amend the Superintendent's job description to include hazard mitigation as a measure of performance.

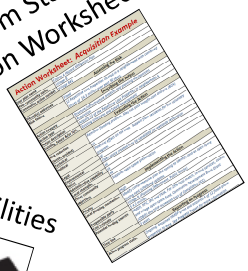
Take Aways

The Goal:

Mitigation is a way of doing business

Mitigation Strategy is the heart of the plan:

Problem Statements
Action Worksheets



Functionally Diverse Team

Capabilities

NATIONAL FLOOD INSURANCE PROGRAM

- *Specific Mitigation Actions*
- *Integration Actions*

Questions?

Thank you for your attention!

Questions?

Mitigation Planning Contacts

New York State: Richard Lord (RLord@dhses.ny.gov)

FEMA Region II: Marianne.Luhrs@fema.dhs.gov

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).

Washington County's original Hazard Mitigation Plan (HMP) was approved by FEMA in 2010, and may be viewed here:

www.washingtoncountyhmp.com

By regulation, local HMPs must be formally updated every five years. The update process is an opportunity for Washington County and its municipalities to re-examine their vulnerability to natural hazards, evaluate progress on the mitigation strategies identified in the original plan, and add new mitigation actions / projects / initiatives so that the County can continue to lower its overall natural hazard risk.

Washington County Department of Public Safety and the County HMP Steering Committee are leading this plan update effort, which is expected to continue through Spring 2017. The County and all municipalities have committed to participating in this update process, and so continue to be eligible for pre-disaster mitigation grant funding for eligible projects.

Please visit the HMP website for updated information on the planning process:

www.washingtoncountyhmp.com

We want your input!
Please take the citizen survey:

https://www.surveymonkey.com/r/WCCitizen

For more information contact:

Tetra Tech (planning contractor):
Jonathan Raser, CFM
jonathan.raser@tetratech.com
Emily Slotnick, CFM
emily.slotnick@tetratech.com

Washington County Department of Public Safety:
Jonathan Pease
jpease@co.washington.ny.us

Washington County Soil and Water Conservation District:
Corrina Aldrich
corrina.aldrich@ny.nacdnet.net

TETRA TECH

Washington County Hazard Mitigation Plan Update 2016

Reducing Losses Due to Natural Hazards

Washington County New York

Purpose

Washington County Department of Public Safety and the HMP Steering Committee are leading this plan update effort for Warren County and its municipalities. This effort is expected to continue through Spring 2017 and is an opportunity to detail a variety of potential hazards that could affect County residents, visitors, property and economy. It will also allow the County and participating municipalities to continue to be eligible for future mitigation funding from FEMA.

The goal of the plan update is to identify projects that can reduce damages from future natural hazards. The plan will include a Risk Assessment and a Hazard Mitigation Strategy. The primary hazards of concern in Washington County include flood, severe storms, and severe winter storms.

The plan will focus on existing and future buildings, infrastructure, and critical facilities that might be impacted. Critical facilities include police, fire, EMS, hospitals and shelters as well as infrastructure such as power-generation facilities, water utilities, roadways, and communication systems.

How can I provide information to support the plan?

To obtain input and gauge citizen preparedness for natural hazard events, a public survey may be accessed from the Washington County Hazard Mitigation website or directly at:

https://www.surveymonkey.com/r/WCCitizen

Please visit the site and complete the survey to provide valuable information for the planning process.

Inform your local Office of Emergency Management or floodplain administrator if you are interested in mitigating your residential or commercial property.

Where can I review the Draft Plan and provide input if I choose?

Sections of the plan will be available for download, review and comment at the Washington County Hazard Mitigation website at:

www.washingtoncountyhmp.com

We welcome your participation!

Can I get funding to mitigate my property?

Possibly. There are opportunities for property owners to receive funding to elevate a structure above flood levels, or have their property acquired by their municipality. Generally the property must have a history of NFIP (National Flood Insurance Program) damage claims. The property owner may be responsible for up to 25% of the project costs. Interested property owners should contact their local officials or the contacts identified in this brochure.

A Note about NFIP Flood Insurance

Many properties in Washington County are vulnerable to flooding; for those it is not a question of if, but when and how severe. NFIP flood insurance is available to everyone. Standard homeowner policies do NOT cover flood damage. Federal grants to mitigate vulnerable properties are typically only awarded to those who participate in, and have made claims against, the NFIP.

If you live in or near a flood-prone area and don't have flood insurance, get it! If you have it and suffer flood damage, use it! If you can, mitigate your property!

August 2, 2016

ıgton County & Municipalities are updating our Hazard Mitigation Plan and elp!

ton County and its inclusive municipalities are in the process of ıg a Hazard Mitigation Plan (HMP). This plan is required by the Emergency Management Agency (FEMA) in order to be eligible ıl grant funding for public and private mitigation projects.

P provides a "blueprint" by which local governments can make coordinated, cost-effective efforts losses from natural hazards such as flooding, severe storms, and severe winter storms. Availab an support projects such as drainage improvements, structural elevations, and backup power fo al facilities.

ut more, review the draft plan and have the opportunity to provide input, please visit our project w.washingtoncountyhmp.com and take our citizen preparedness and mitigation survey at vw.surveymonkey.com/r/WCCitizen !

ou have any issues with the sites / links, or questions regarding the program and update, please at (518)747-7520 or via email at publicsafety@co.washington.ny.us .

Washington County seeks public input on 'hazard mitigation' plan

Aug 10, 2016 0

FORT EDWARD — Washington County public safety leaders are preparing for natural disasters, and they want the public's input on how they are doing.

The county is developing a "hazard mitigation plan" as required by the Federal Emergency Management Agency. The plan is a blueprint to reduce losses from severe storms and floods, and completion of it can make the county eligible for federal funding.

The county's draft plan is available for public input.

To find out more, review the draft plan and have the opportunity to provide input, please visit www.washingtoncountyhmp.com and take the county's citizen preparedness and mitigation survey at www.surveymonkey.com/r/WCCitizen.

Should you have any issues with the sites, or questions regarding the program and update, please

SAVE
SUBSCRIBING MEANS MORE

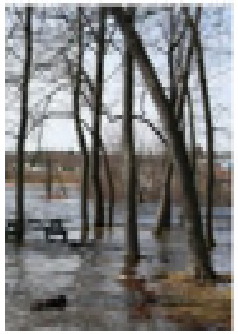
Washington County and its inclusive municipalities are in the process of developing a Hazard Mitigation Plan (HMP). This plan is required by the Federal Emergency Management Agency (FEMA) in order to be eligible for federal grant funding for public and private mitigation projects.

The HMP provides a "blueprint" by which local governments can make coordinated, cost-effective efforts towards reducing losses from natural hazards such as flooding, severe storms, and severe winter storms. Available funding can support projects such as drainage improvements, structural elevations, and backup power for schools and critical facilities.

To find out more, review the draft plan and have the opportunity to provide input, please visit our project website at http://www.washingtoncountyhmp.com and take our citizen preparedness and mitigation survey at https://www.surveymonkey.com/r/WCCitizen !

Should you have any issues with the sites / links, or questions regarding the program and update, please contact our office at (518)747-7520 or via email at publicsafety@co.washington.ny.us .

Here is the direct link to the News Flash posted on our website: http://ny-washingtoncounty.civicplus.com/CivicAlerts.aspx?AID=393



LOCAL

FEMA may pay for flood prevention i County

KATHLEEN MOORE kmoore@poststar.com Aug 20, 2

The Federal Emergency Management Agency may pay for floods to hurt Washington County.

ounty seeks public input on 'hazard mitigation' pla

ashington County public safety leaders are preparing for natural disasters, v they are doing.

Home

Welcome to the Washington County Hazard Mitigation Plan (HMP) Website. This website provides project updates, resources, and links to hazard mitigation in support of the HMP project.

County Project Point-of Contact:

Jonathan Pease, Emergency Management Coordinator
Washington County Department of Public Safety
383 Broadway - Building B
Fort Edward, NY 12828
(518) 747-7520 x1
jpease@co.washington.ny.us

The goal of the project is to save lives and property through the reduction of hazard vulnerability for the entire county. 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. This project will provide the regulatory 5-year update to the existing 2010 Washington County HMP, available for download (note: 15MB file) by clicking the file below::

2010 Washington County HMP

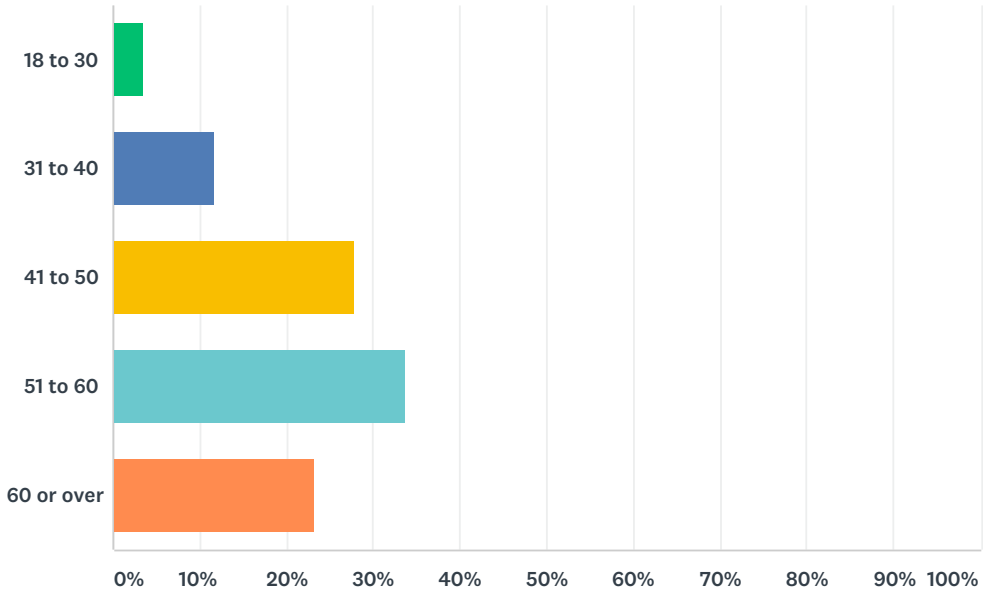
Please take our Citizen Hazard Preparedness and Mitigation Survey by clicking here.

If you represent any of the following stakeholder groups, please complete a mitigation survey targeted to your area by clicking one of the groups below:

Academia Survey
Law Enforcement Survey

Q1 Please indicate your age range:

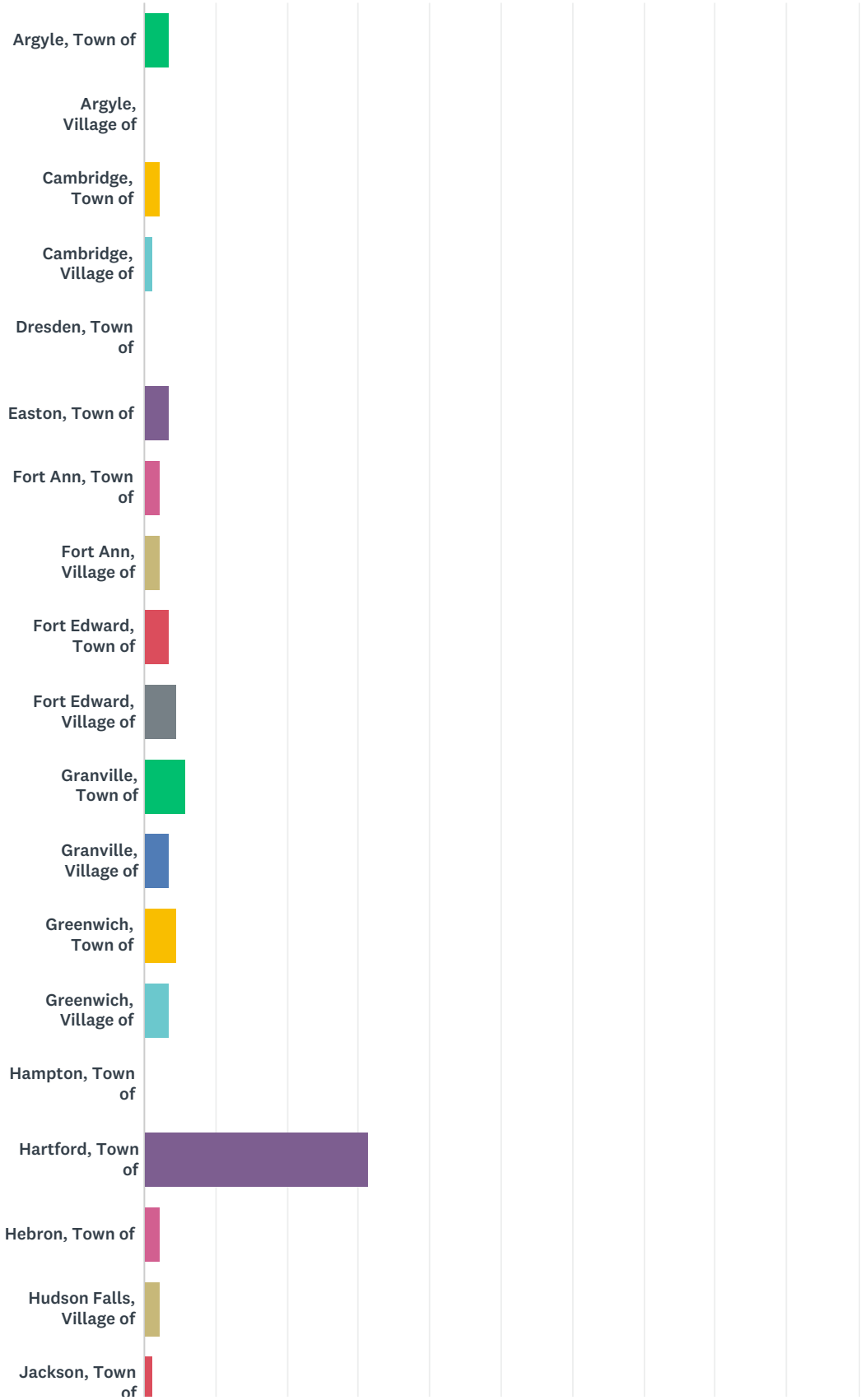
Answered: 86 Skipped: 0

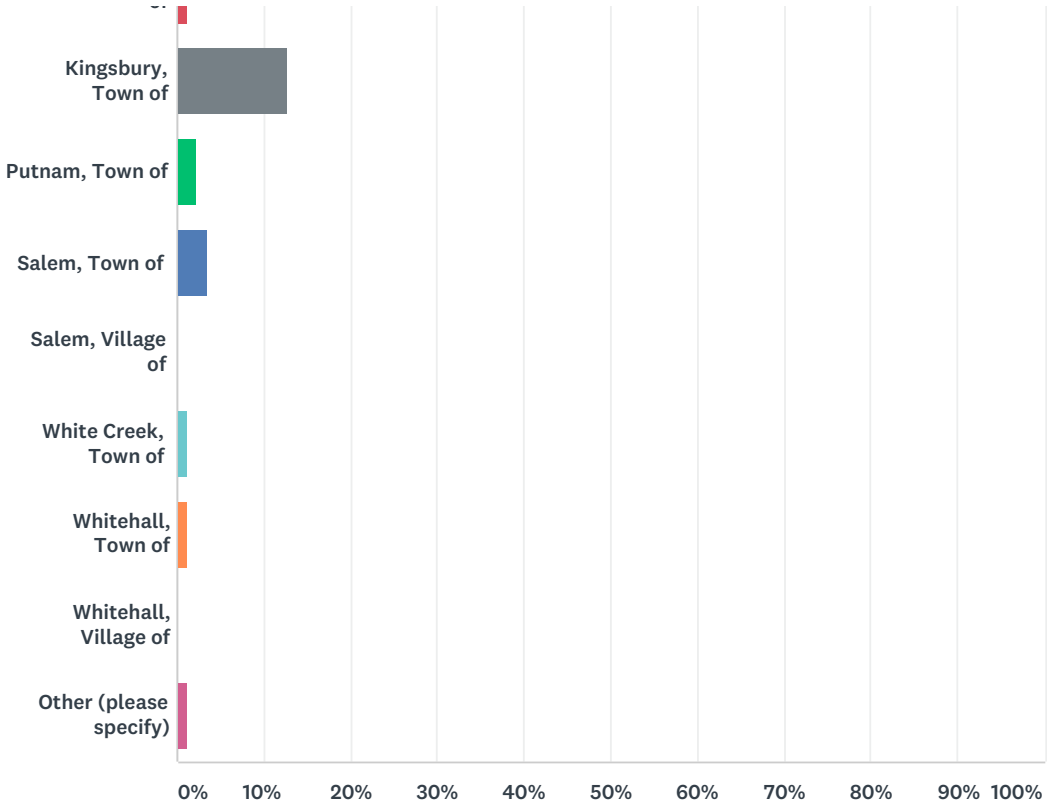


ANSWER CHOICES	RESPONSES	
18 to 30	3.49%	3
31 to 40	11.63%	10
41 to 50	27.91%	24
51 to 60	33.72%	29
60 or over	23.26%	20
TOTAL		86

Q2 Please indicate in which municipality you live:

Answered: 86 Skipped: 0





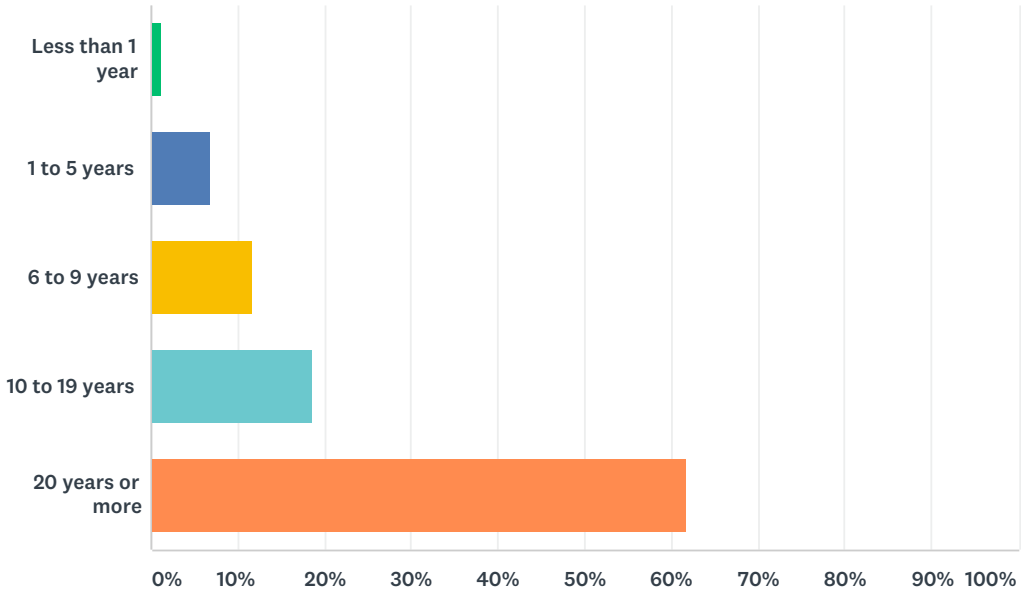
ANSWER CHOICES	RESPONSES	
Argyle, Town of	3.49%	3
Argyle, Village of	0.00%	0
Cambridge, Town of	2.33%	2
Cambridge, Village of	1.16%	1
Dresden, Town of	0.00%	0
Easton, Town of	3.49%	3
Fort Ann, Town of	2.33%	2
Fort Ann, Village of	2.33%	2
Fort Edward, Town of	3.49%	3
Fort Edward, Village of	4.65%	4
Granville, Town of	5.81%	5
Granville, Village of	3.49%	3
Greenwich, Town of	4.65%	4
Greenwich, Village of	3.49%	3
Hampton, Town of	0.00%	0
Hartford, Town of	31.40%	27
Hebron, Town of	2.33%	2
Hudson Falls, Village of	2.33%	2

Jackson, Town of	1.16%	1
Kingsbury, Town of	12.79%	11
Putnam, Town of	2.33%	2
Salem, Town of	3.49%	3
Salem, Village of	0.00%	0
White Creek, Town of	1.16%	1
Whitehall, Town of	1.16%	1
Whitehall, Village of	0.00%	0
Other (please specify)	1.16%	1
TOTAL		86

#	OTHER (PLEASE SPECIFY)	DATE
1	Former village of salem	8/10/2016 9:04 PM

Q3 How long have you lived here?

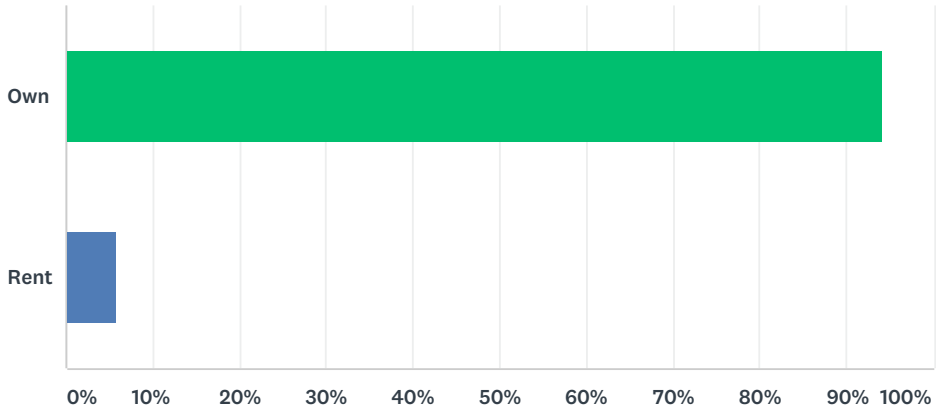
Answered: 86 Skipped: 0



ANSWER CHOICES	RESPONSES	
Less than 1 year	1.16%	1
1 to 5 years	6.98%	6
6 to 9 years	11.63%	10
10 to 19 years	18.60%	16
20 years or more	61.63%	53
TOTAL		86

Q4 Do you own or rent your place of residence?

Answered: 84 Skipped: 2



ANSWER CHOICES	RESPONSES	
Own	94.05%	79
Rent	5.95%	5
TOTAL		84

Q5 What is your home address? (optional, will be kept confidential - only used to identify localized hazard areas such as flooding)

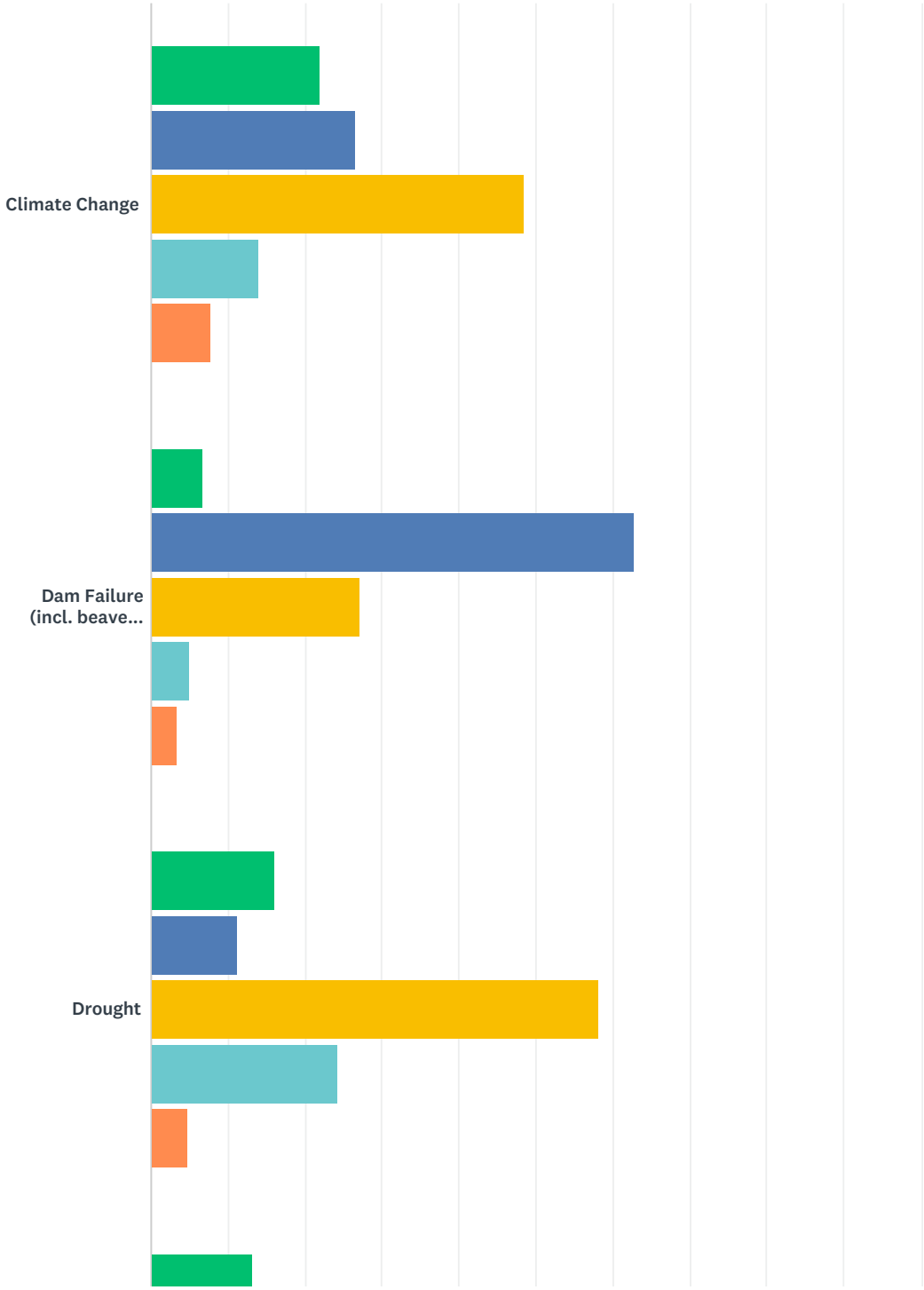
Answered: 48 Skipped: 38

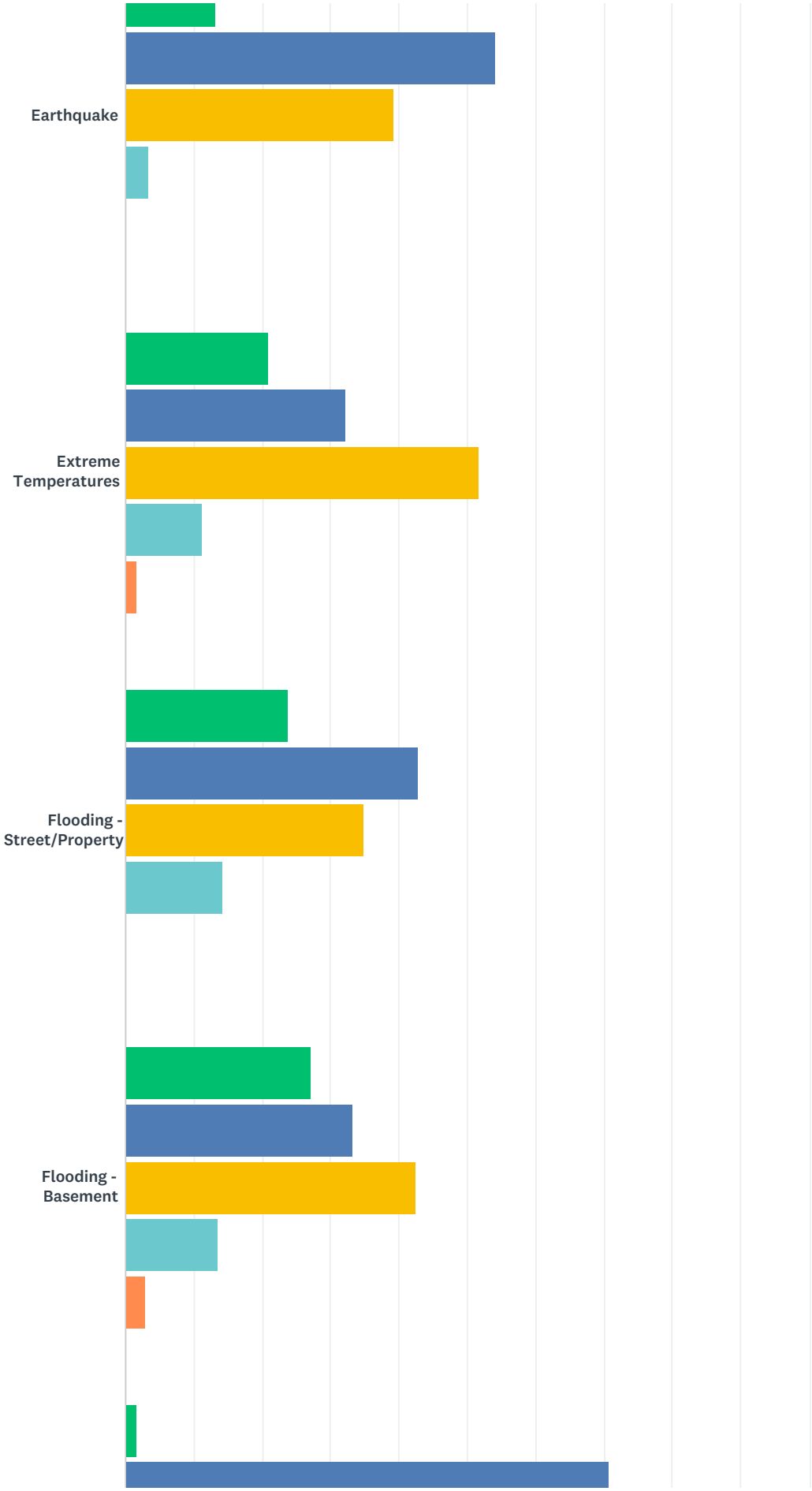
#	RESPONSES	DATE
1	318 Shine Hill Road, Fort Ann, NY 12827	11/27/2016 7:42 PM
2	7315 State Route 40	11/7/2016 3:43 PM
3	State Route 40	10/27/2016 5:31 PM
4	7635 State Route 40, Hartford	10/27/2016 2:09 PM
5	5033 Rte 149 Granville NY	10/27/2016 12:45 PM
6	659 Halls Pond Road Hartford	10/26/2016 4:26 PM
7	131 Pope Hill Road	10/26/2016 3:07 PM
8	83 Hinck Lane, Hartford	10/26/2016 1:51 PM
9	93dick hill road	10/26/2016 11:50 AM
10	1319 baldwin corners road	10/26/2016 6:40 AM
11	57 Wright Road, Hartford	10/25/2016 10:28 PM
12	80 Rowe Hill, Hartford	10/25/2016 9:08 PM
13	5538 County Route 30	10/25/2016 8:51 PM
14	Shine Hill Road	10/25/2016 7:55 PM
15	7939 State Route 40	10/25/2016 7:42 PM
16	5033 rte 149 hartford	10/25/2016 7:21 PM
17	111 Broadway	9/9/2016 5:07 PM
18	13 Indian Head Way Salem NY	8/25/2016 4:00 PM
19	47 Academy St. Cambridge Ny	8/23/2016 4:00 PM
20	Barton avenue	8/10/2016 11:29 PM
21	Birchwood Ave	8/10/2016 1:35 PM
22	155 FRANKLIN STREET	8/9/2016 2:39 PM
23	31 Bleecker Street	8/9/2016 2:12 PM
24	12 mechanic stgreet	8/9/2016 1:23 PM
25	53 Perry Ln	8/9/2016 12:40 PM
26	45 westview lane, fort edward	8/9/2016 12:33 PM
27	14 QUEENS GATE DRIVE	8/8/2016 12:55 PM
28	134 Langley Hill Road	8/6/2016 12:56 PM
29	Second Street	8/4/2016 11:22 AM
30	Butler rd	8/4/2016 8:49 AM
31	37 County Rt 17A, Comstock, NY12821	8/4/2016 5:14 AM
32	143 county route 25, granville, ny	8/3/2016 3:57 PM
33	262 West Road, Argyle, NY 12809	8/3/2016 3:10 PM
34	1 putnam center rd	8/3/2016 11:10 AM

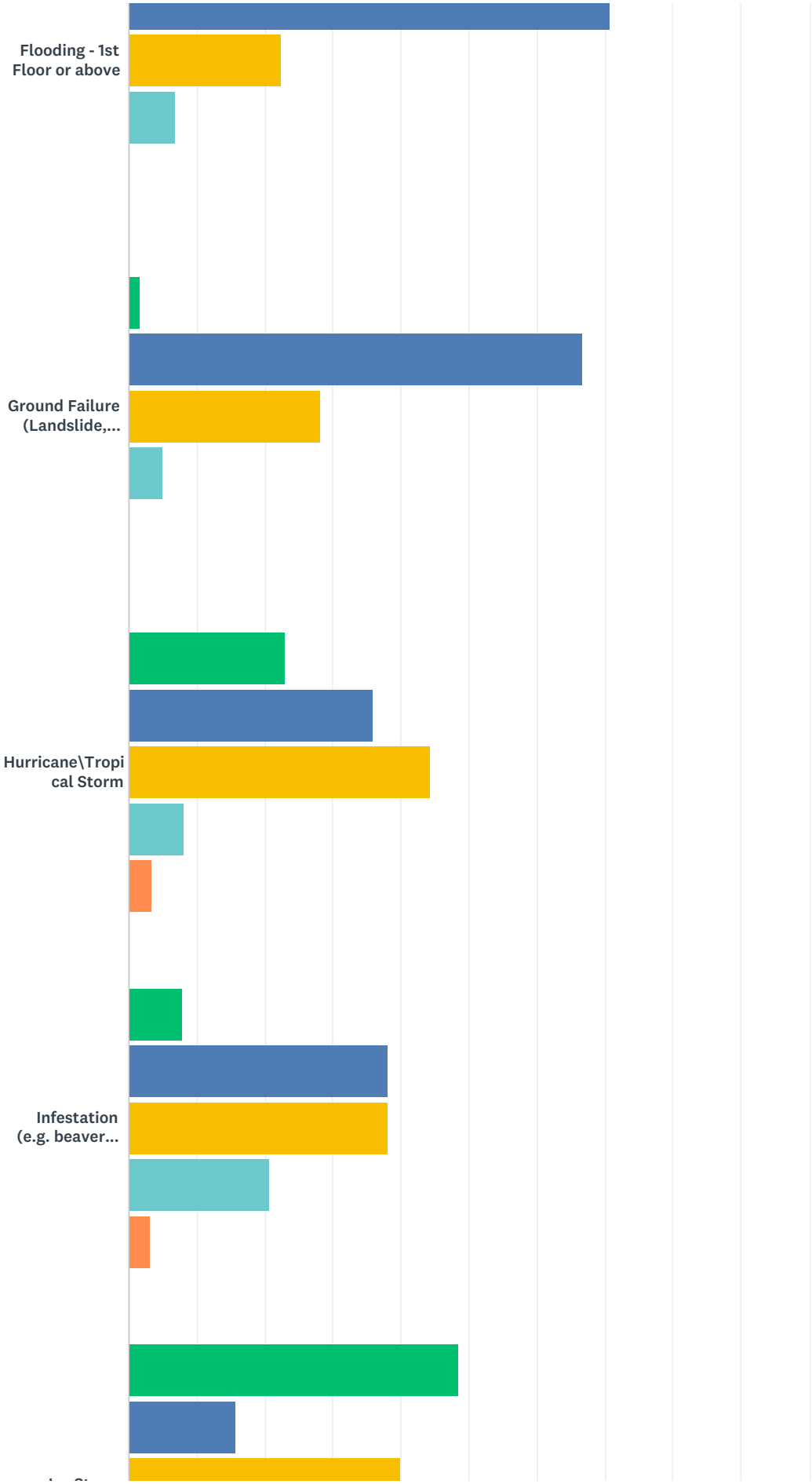
35	21 Wolf Street, Fort Edward, NY	8/3/2016 11:10 AM
36	34 Harrison Avenue, Hudson Falls NY	8/3/2016 11:00 AM
37	3844 State Route 4 Hudson Falls NY 12839	8/3/2016 8:28 AM
38	2074 State Route 149	8/3/2016 6:41 AM
39	37 Church St	8/2/2016 12:28 PM
40	28 cottage street	8/2/2016 12:27 PM
41	171 Windy Hill Road	8/2/2016 11:51 AM
42	5330 co rt 113	8/2/2016 11:48 AM
43	2325 Summer Way Fort Ann, NY 12827	8/2/2016 10:08 AM
44	102 Pleasant Valley Rd	8/2/2016 9:29 AM
45	77 Maple Street	8/2/2016 9:14 AM
46	10310 STATE ROUTE 22, GRANVILLE, NY 12832	8/2/2016 9:05 AM
47	1 Bogey lane	8/2/2016 9:03 AM
48	1138 State Route 196 Hudson Falls NY 12839	8/2/2016 9:00 AM

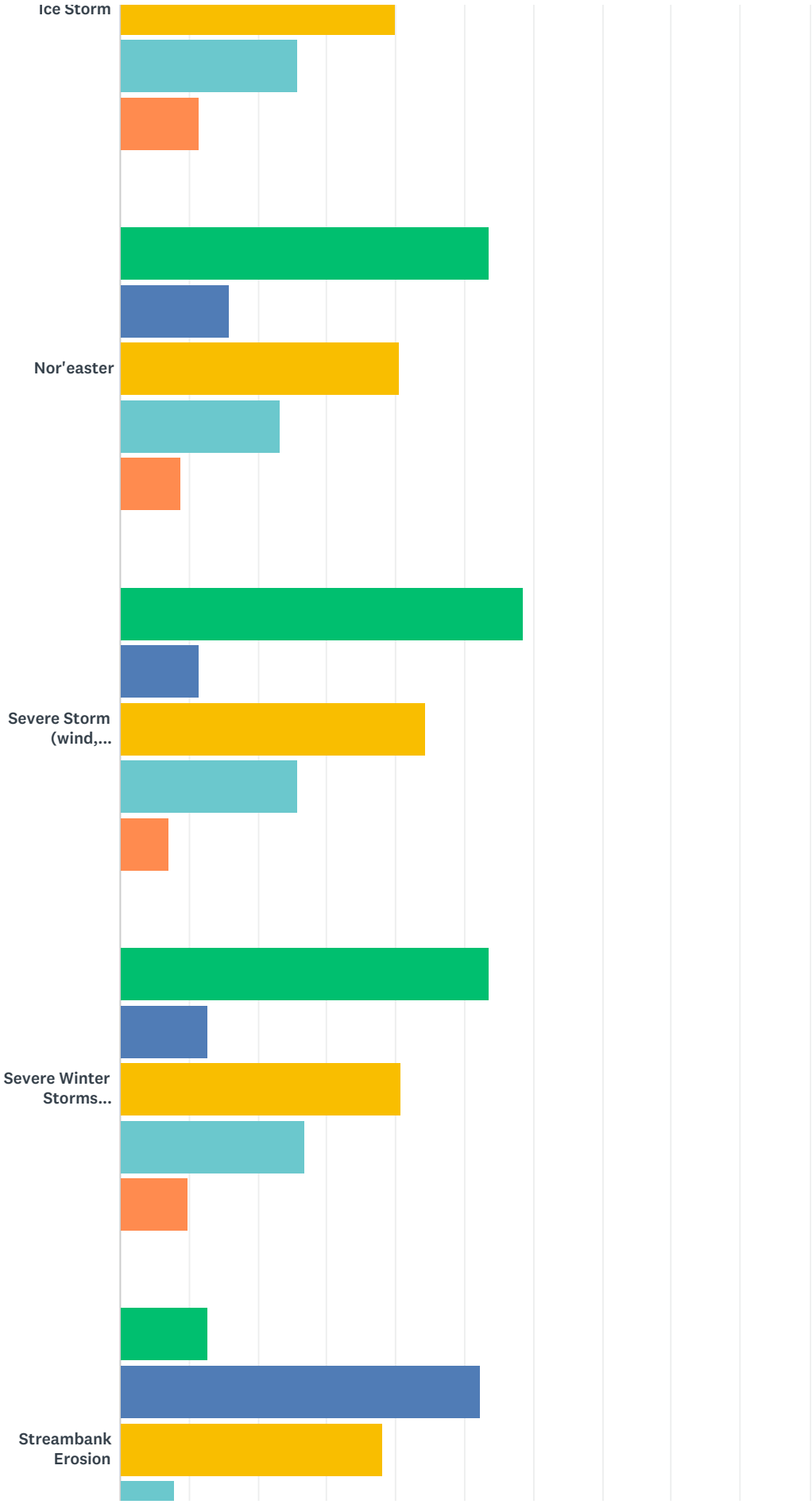
Q6 In the past 10 years, which of the following types of hazards/natural disasters have you or someone in your household experienced within Washington County, or sustained damage as a result of, and how concerned are you about the following natural hazards impacting the County? (In the first column indicate if you have experienced the hazard, then indicate your level of concern).

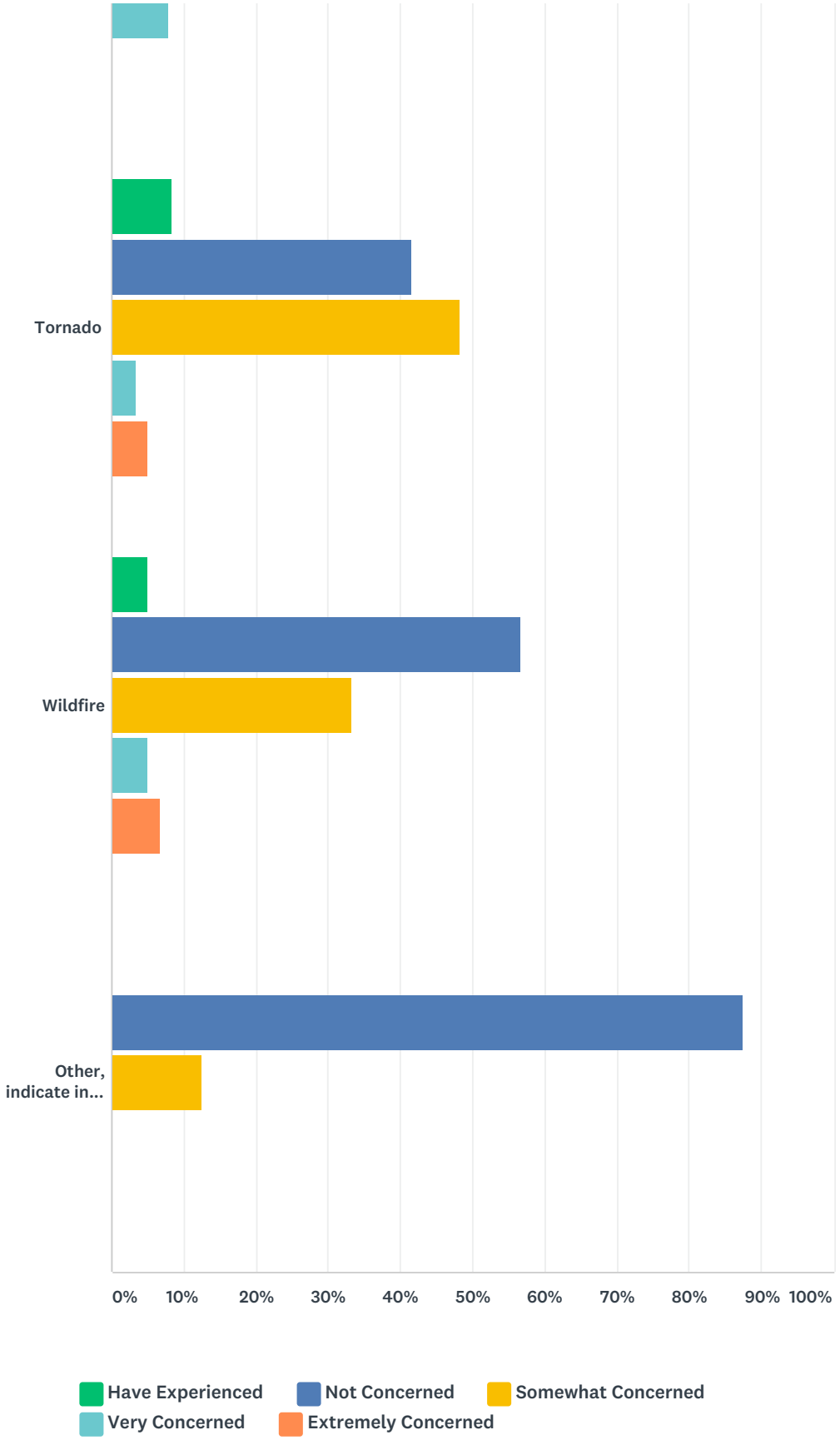
Answered: 72 Skipped: 14




Earthquake
Extreme Temperatures
Flooding - Street/Property
Flooding - Basement


Flooding - 1st Floor or above
Ground Failure (Landslide,...
Hurricane\Tropical Storm
Infestation (e.g. beaver...


Ice Storm
Nor'easter
Severe Storm (wind,...
Severe Winter Storms...
Streambank Erosion



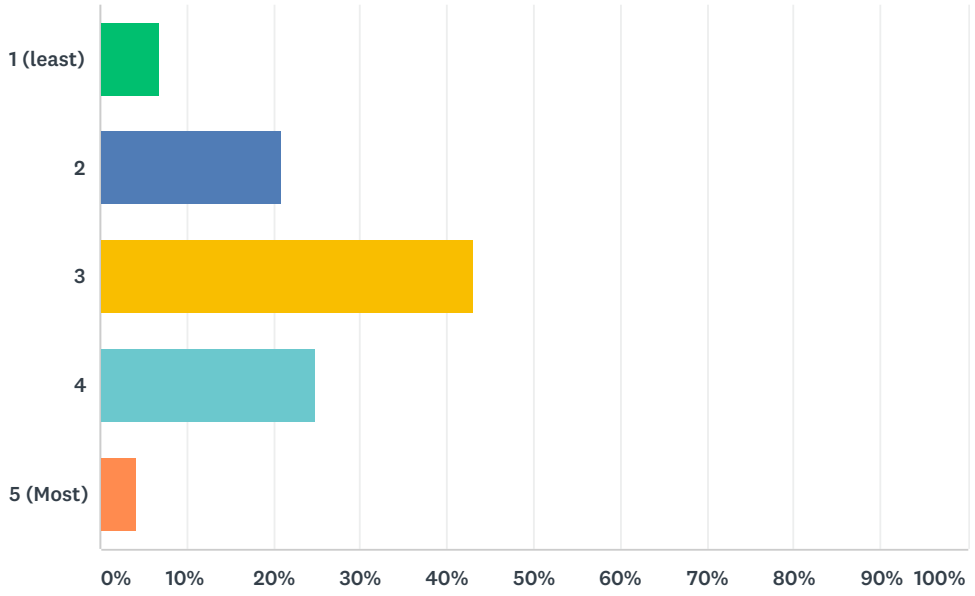
	HAVE EXPERIENCED	NOT CONCERNED	SOMEWHAT CONCERNED	VERY CONCERNED	EXTREMELY CONCERNED	TOTAL RESPONDENTS

Climate Change	21.88% 14	26.56% 17	48.44% 31	14.06% 9	7.81% 5	64
Dam Failure (incl. beaver dams)	6.78% 4	62.71% 37	27.12% 16	5.08% 3	3.39% 2	59
Drought	16.13% 10	11.29% 7	58.06% 36	24.19% 15	4.84% 3	62
Earthquake	13.11% 8	54.10% 33	39.34% 24	3.28% 2	0.00% 0	61
Extreme Temperatures	20.97% 13	32.26% 20	51.61% 32	11.29% 7	1.61% 1	62
Flooding - Street/Property	23.81% 15	42.86% 27	34.92% 22	14.29% 9	0.00% 0	63
Flooding - Basement	27.27% 18	33.33% 22	42.42% 28	13.64% 9	3.03% 2	66
Flooding - 1st Floor or above	1.72% 1	70.69% 41	22.41% 13	6.90% 4	0.00% 0	58
Ground Failure (Landslide, Sinkholes)	1.67% 1	66.67% 40	28.33% 17	5.00% 3	0.00% 0	60
Hurricane\Tropical Storm	22.95% 14	36.07% 22	44.26% 27	8.20% 5	3.28% 2	61
Infestation (e.g. beavers, Emerald Ash Borer)	7.94% 5	38.10% 24	38.10% 24	20.63% 13	3.17% 2	63
Ice Storm	48.57% 34	15.71% 11	40.00% 28	25.71% 18	11.43% 8	70
Nor'easter	53.62% 37	15.94% 11	40.58% 28	23.19% 16	8.70% 6	69
Severe Storm (wind, lightning, hail)	58.57% 41	11.43% 8	44.29% 31	25.71% 18	7.14% 5	70
Severe Winter Storms (Blizzard, Heavy Snow, Ice)	53.52% 38	12.68% 9	40.85% 29	26.76% 19	9.86% 7	71
Streambank Erosion	12.70% 8	52.38% 33	38.10% 24	7.94% 5	0.00% 0	63
Tornado	8.33% 5	41.67% 25	48.33% 29	3.33% 2	5.00% 3	60
Wildfire	5.00% 3	56.67% 34	33.33% 20	5.00% 3	6.67% 4	60
Other, indicate in comment box below	0.00% 0	87.50% 7	12.50% 1	0.00% 0	0.00% 0	8

#	OTHER (PLEASE SPECIFY)	DATE
1	Very concerned about some items because of our antiquated phone system and no cell service. When we lose our phone, with no cell service, if we have a fire or medical emergency, we are screwed, but we can't seem to find anyone who cares	8/25/2016 4:09 PM
2	Contaminated water supplies	8/9/2016 2:17 PM

Q7 Please rank how prepared you feel you and your household are for natural disaster events likely to occur within your municipality. Rank on a scale of 1 to 5, with 5 representing the most prepared.

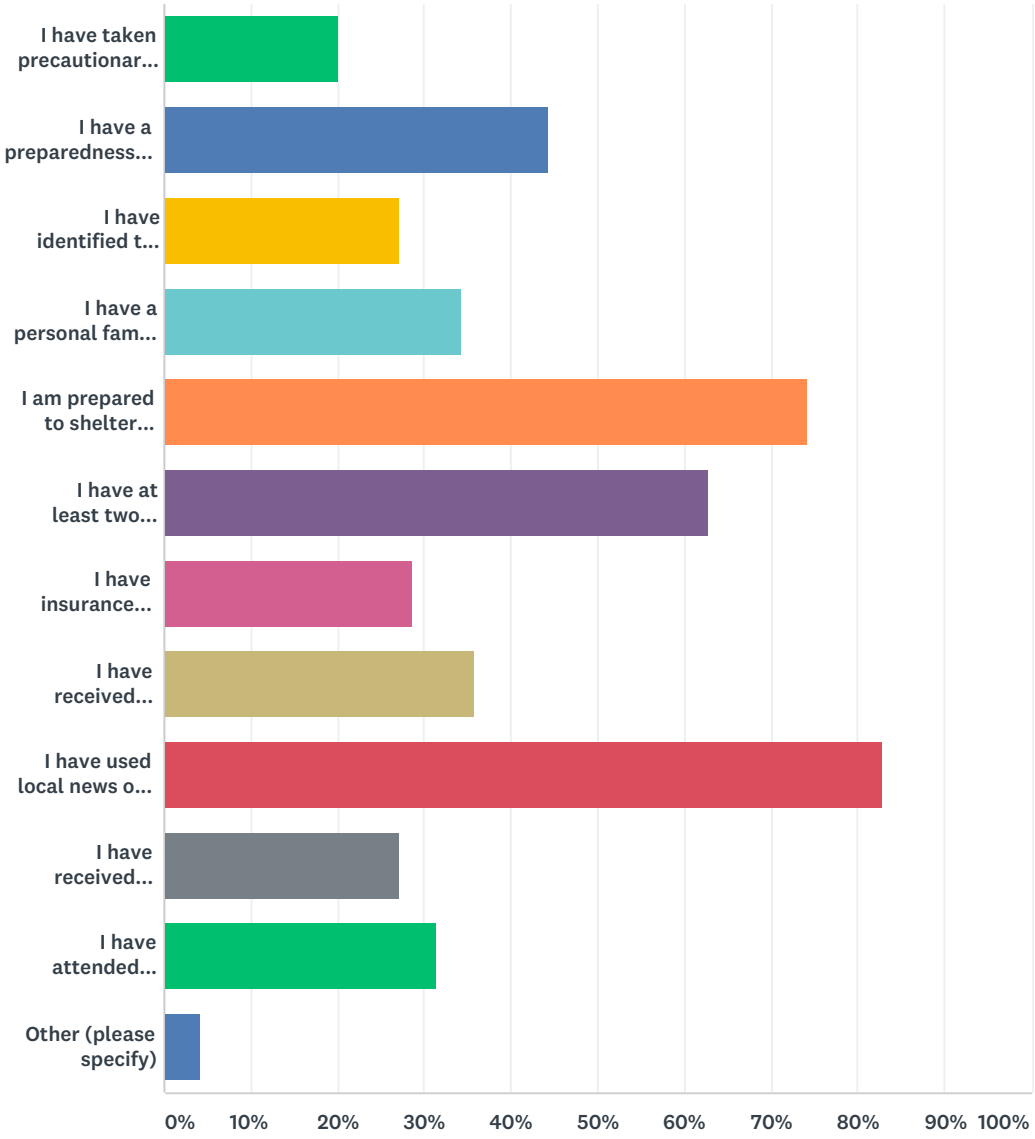
Answered: 72 Skipped: 14



ANSWER CHOICES	RESPONSES	
1 (least)	6.94%	5
2	20.83%	15
3	43.06%	31
4	25.00%	18
5 (Most)	4.17%	3
TOTAL		72

Q8 In what ways do you believe you are prepared for a natural disaster that may occur within your municipality? (Please check all that apply)

Answered: 70 Skipped: 16



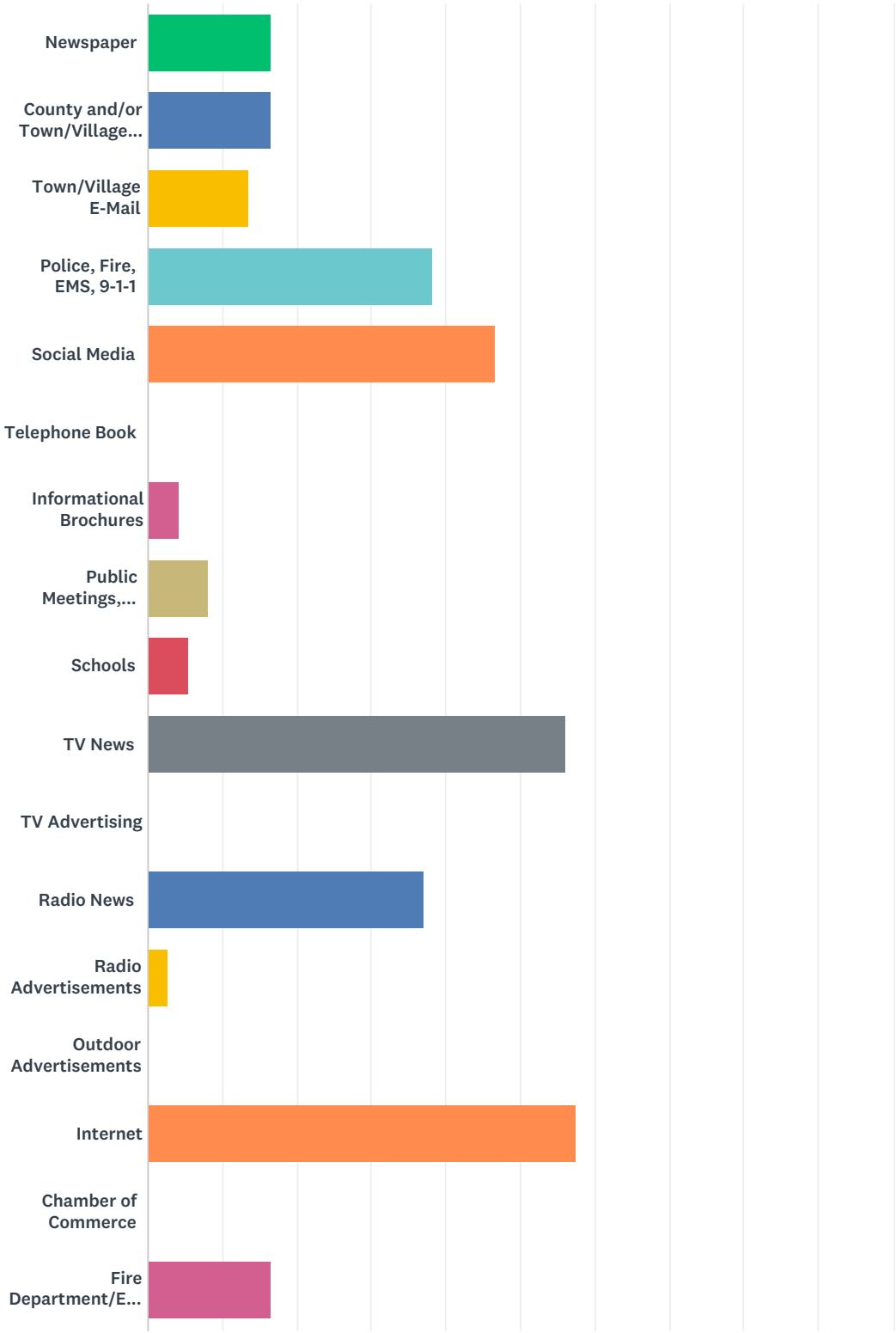
ANSWER CHOICES	RESPONSES	
I have taken precautionary measures to protect my property though retrofits or when constructed	20.00%	14
I have a preparedness kit consisting of basic supplies and materials for my family and myself	44.29%	31
I have identified the location of the nearest severe weather shelter	27.14%	19
I have a personal family emergency preparedness plan, and have discussed it with my family and others for whom I have responsibility	34.29%	24
I am prepared to shelter in-place if that is the best available option	74.29%	52
I have at least two methods for receiving emergency notifications and for information during severe weather or other potential emergency situations	62.86%	44

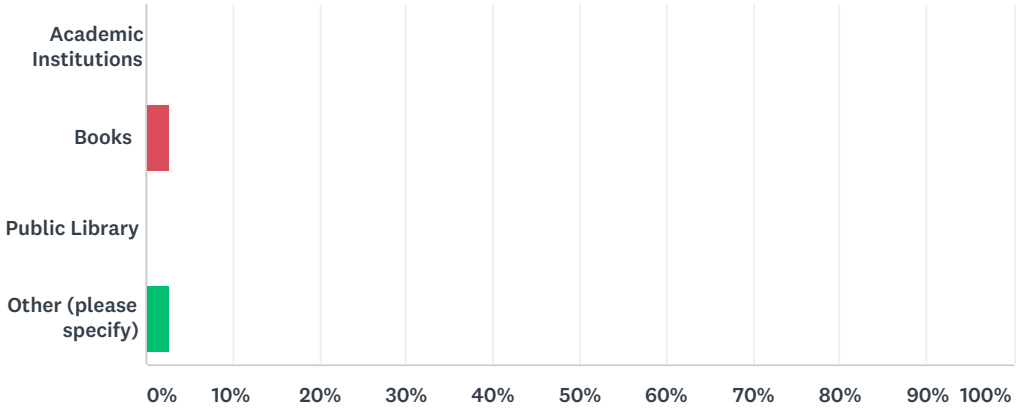
I have insurance policies to cover losses from specific risks (e.g. flood insurance)	28.57%	20
I have received emergency preparedness information from a government source (e.g., federal, state, or local emergency management)	35.71%	25
I have used local news or other media to obtain information	82.86%	58
I have received information from schools and other academic institutions	27.14%	19
I have attended meetings that have dealt with disaster preparedness	31.43%	22
Other (please specify)	4.29%	3
Total Respondents: 70		

#	OTHER (PLEASE SPECIFY)	DATE
1	fireman	10/26/2016 11:56 AM
2	I have weapons of mass distruction training from the federal govt.	10/25/2016 8:00 PM
3	I am a volunteer firefighter	8/2/2016 12:34 PM

Q9 How do you receive your information concerning a natural disaster? Of the information sources below, please identify the top three (3) that are MOST EFFECTIVE in providing you with information to make your home safer and better able to withstand the impact of natural disaster events.

Answered: 73 Skipped: 13



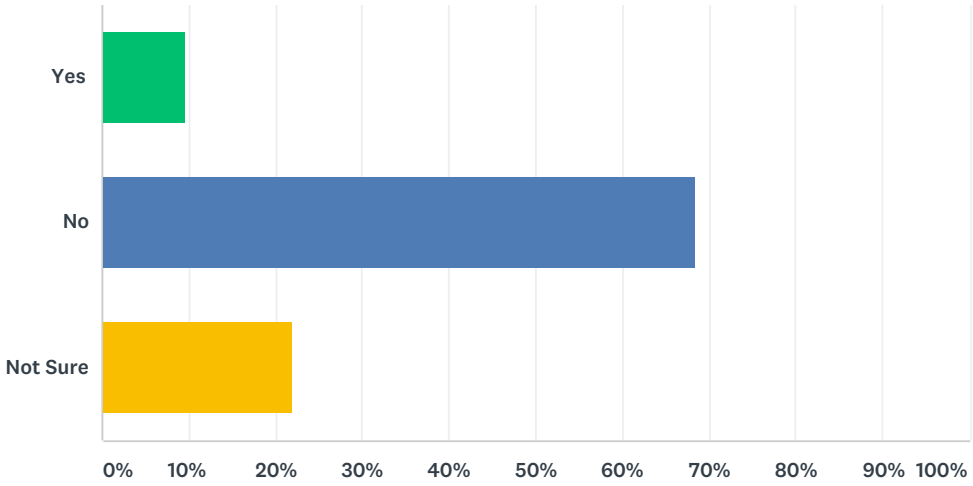


ANSWER CHOICES	RESPONSES	
Newspaper	16.44%	12
County and/or Town/Village Websites	16.44%	12
Town/Village E-Mail	13.70%	10
Police, Fire, EMS, 9-1-1	38.36%	28
Social Media	46.58%	34
Telephone Book	0.00%	0
Informational Brochures	4.11%	3
Public Meetings, Workshops, or Public Awareness Events	8.22%	6
Schools	5.48%	4
TV News	56.16%	41
TV Advertising	0.00%	0
Radio News	36.99%	27
Radio Advertisements	2.74%	2
Outdoor Advertisements	0.00%	0
Internet	57.53%	42
Chamber of Commerce	0.00%	0
Fire Department/EMS Agency	16.44%	12
Academic Institutions	0.00%	0
Books	2.74%	2
Public Library	0.00%	0
Other (please specify)	2.74%	2
Total Respondents: 73		

#	OTHER (PLEASE SPECIFY)	DATE
1	Cell phone text updates	10/27/2016 7:19 AM
2	Twitter And facebook. Everyone is not on both!	8/2/2016 11:00 AM

Q10 To the best of your knowledge is your property located in a designated floodplain?If you do not know, or are not sure, you may check the following online sources:FEMA National Flood Insurance Program site: https://www.floodsmart.govYou can also view paper copies of the NFIP Flood Insurance Rate Maps at your Municipal Hall.

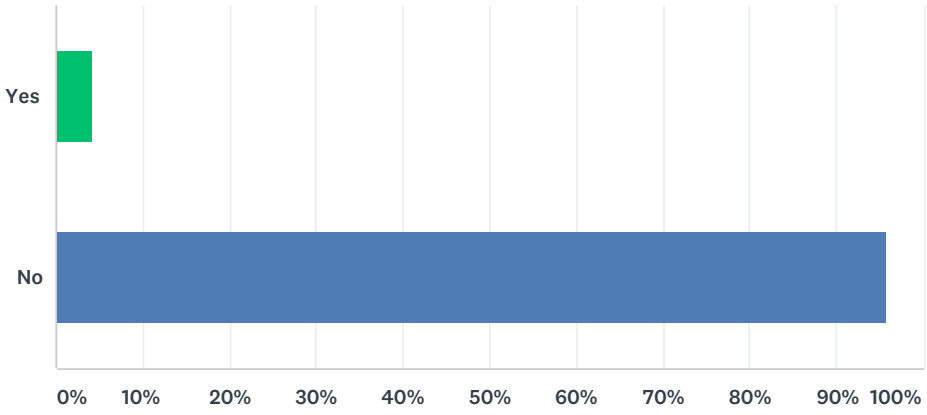
Answered: 73 Skipped: 13



ANSWER CHOICES	RESPONSES	
Yes	9.59%	7
No	68.49%	50
Not Sure	21.92%	16
TOTAL		73

Q11 Do you have flood insurance?

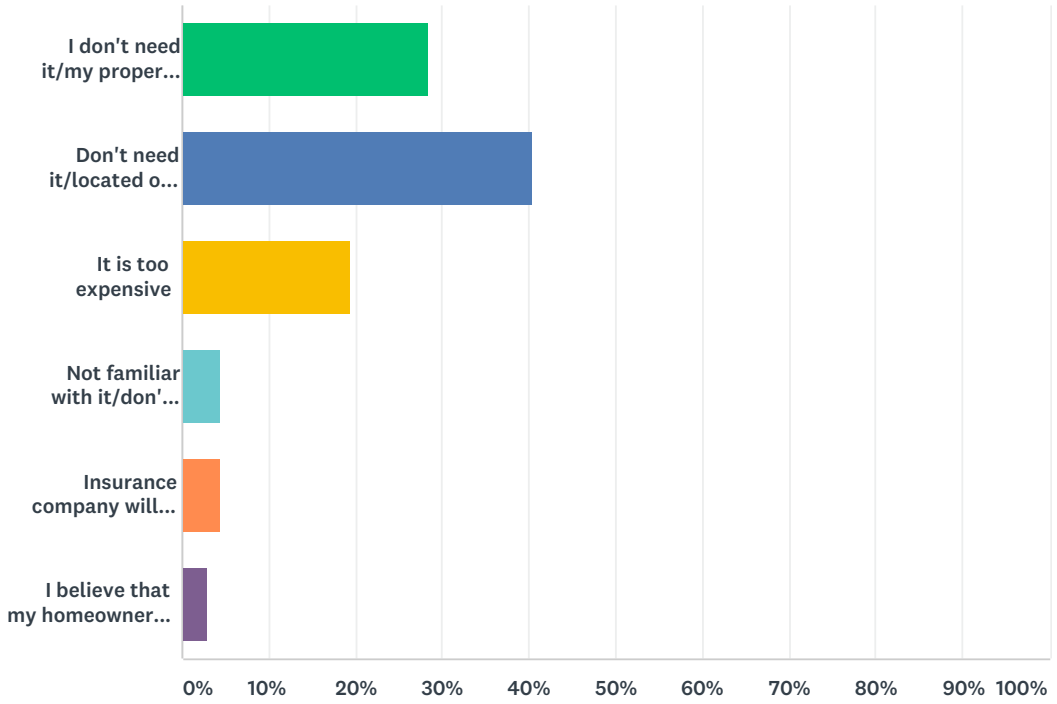
Answered: 72 Skipped: 14



ANSWER CHOICES	RESPONSES	
Yes	4.17%	3
No	95.83%	69
TOTAL		72

Q12 If you do NOT have flood insurance, what is the primary reason?

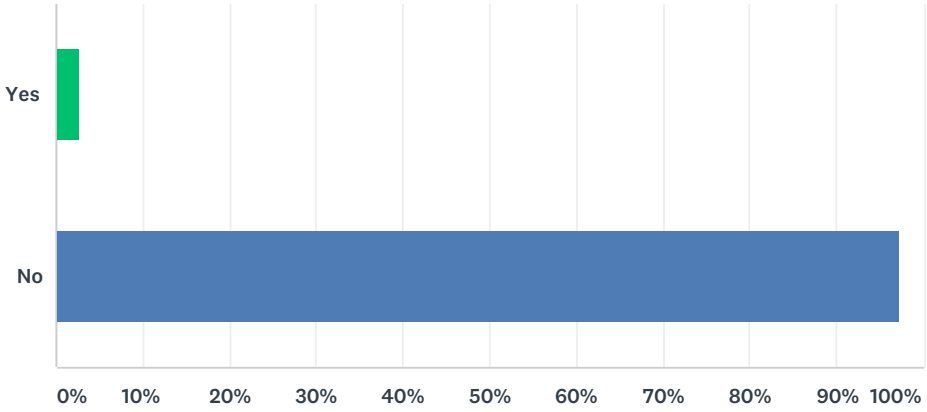
Answered: 67 Skipped: 19



ANSWER CHOICES	RESPONSES	
I don't need it/my property has never flooded	28.36%	19
Don't need it/located on high ground	40.30%	27
It is too expensive	19.40%	13
Not familiar with it/don't know about it	4.48%	3
Insurance company will not provide	4.48%	3
I believe that my homeowners insurance will cover me	2.99%	2
TOTAL		67

Q13 Do you or did you have problems getting homeowners/renters insurance due to risks from natural hazards?

Answered: 73 Skipped: 13



ANSWER CHOICES	RESPONSES	
Yes	2.74%	2
No	97.26%	71
TOTAL		73

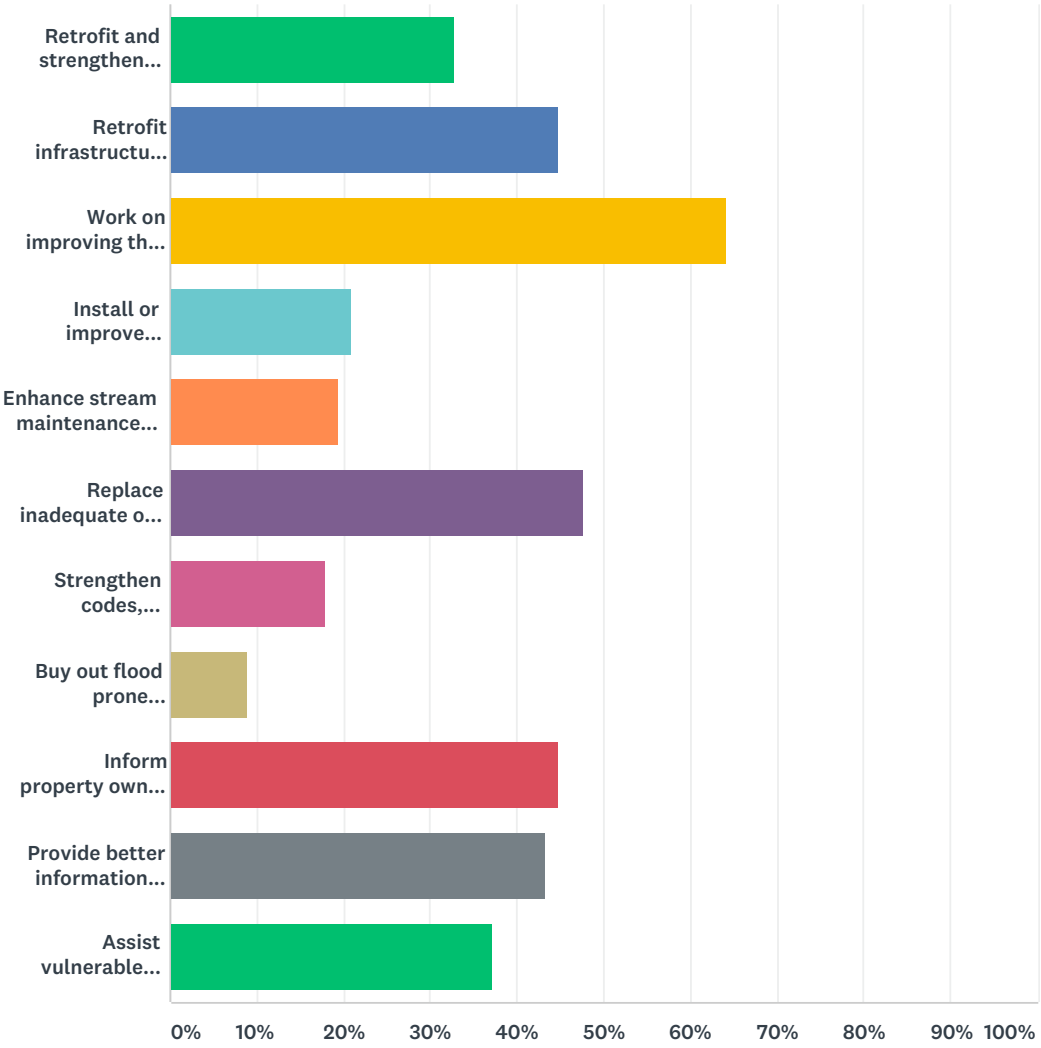
Q14 If you answered "yes" to the previous question, please identify the natural hazard risk that caused you to have problems obtaining homeowners/renters insurance.

Answered: 2 Skipped: 84

#	RESPONSES	DATE
1	Our insurance co said there are no flood plain maps for our area	8/25/2016 4:09 PM
2	Flooding	8/11/2016 9:24 PM

Q15 What types of projects do you believe local, county, state or federal government agencies could be doing in order to reduce the damage and disruption of natural disasters in Washngton County? Select your top three choices

Answered: 67 Skipped: 19

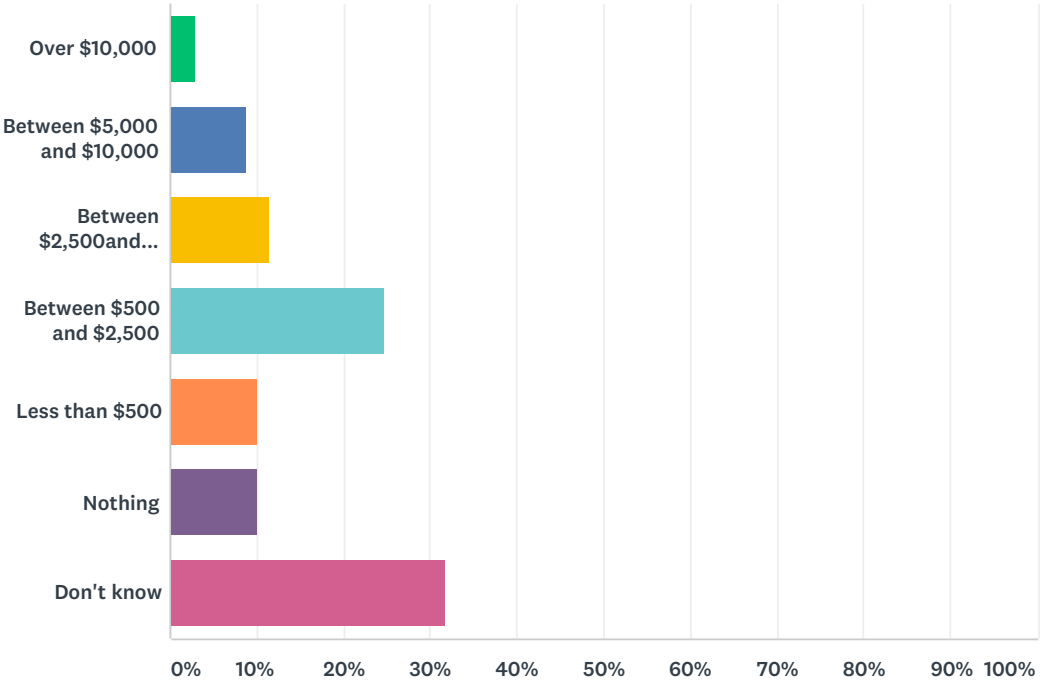


ANSWER CHOICES	RESPONSES	
Retrofit and strengthen essential facilities such as police, schools, hospitals	32.84%	22
Retrofit infrastructure, such as elevating roadways and improving drainage systems	44.78%	30
Work on improving the damage resistance of utilities (electricity, communications, water/wastewater facilities etc.)	64.18%	43
Install or improve protective structures, such as floodwalls, levees, bulkheads, firebreaks	20.90%	14
Enhance stream maintenance programs/projects	19.40%	13
Replace inadequate or vulnerable bridges and causeways	47.76%	32
Strengthen codes, ordinances and plans to require higher hazard risk management standards and/or provide greater control over development in high hazard areas	17.91%	12

Buy out flood prone properties and maintain as open-space	8.96%	6
Inform property owners of ways they can mitigate damage to their properties	44.78%	30
Provide better information about hazard risks and high-hazard areas	43.28%	29
Assist vulnerable property owners with securing funding to mitigate their properties	37.31%	25
Total Respondents: 67		

Q16 How much money would you be willing to spend on your current home to help protect it from the impacts of potential future natural disasters within our community? Examples are: elevating a flood-prone home; elevating utilities in flood-prone basements; strengthening your roof, siding, doors or windows to withstand high winds; removing threatening trees or branches.

Answered: 69 Skipped: 17



ANSWER CHOICES	RESPONSES	
Over $10,000	2.90%	2
Between $5,000 and $10,000	8.70%	6
Between $2,500and $5,000	11.59%	8
Between $500 and $2,500	24.64%	17
Less than $500	10.14%	7
Nothing	10.14%	7
Don't know	31.88%	22
TOTAL		69

Q17 If you have already had to spend money to mitigate your property, how much have you spent and on what?

Answered: 16 Skipped: 70

#	RESPONSES	DATE
1	$300-500	10/27/2016 5:38 PM
2	No	10/27/2016 12:50 PM
3	$20000+/- upgraded pond drainage and dam, removed trees, regarded driveway and cleaned streamed area of debris and trees	10/26/2016 5:56 AM
4	$200. Had Tink cut a tree.	10/25/2016 9:36 PM
5	$1,000 to remove threatening branches and trees.	10/25/2016 9:10 PM
6	@2k have trees removed. Will be spending more as we have it to do the same.	8/25/2016 4:12 PM
7	tree removal, 1,000	8/23/2016 4:06 PM
8	3000	8/11/2016 9:26 PM
9	1500 5 new Windows 3000 new roof on lower half of flat roof	8/10/2016 11:41 PM
10	Had to replace roof due to wind and rain damage mostly covered by insurance.	8/8/2016 11:07 AM
11	Raising electrical box; tiling back yard to reroute road run-off	8/6/2016 1:09 PM
12	$2700 to have large trees cut down but we had to remove the debris. Couldn't afford to have them clean up.	8/4/2016 11:37 AM
13	Roof upgrade, Tree removal	8/3/2016 3:17 PM
14	New Roof $8,000.00 (significant structure stabilizing during the process)	8/3/2016 11:23 AM
15	Removed 1 tree $900 Installed 2 sump pumps and waterproofed basement walls $500	8/3/2016 11:16 AM
16	$3000 never clog gutters	8/2/2016 9:08 AM

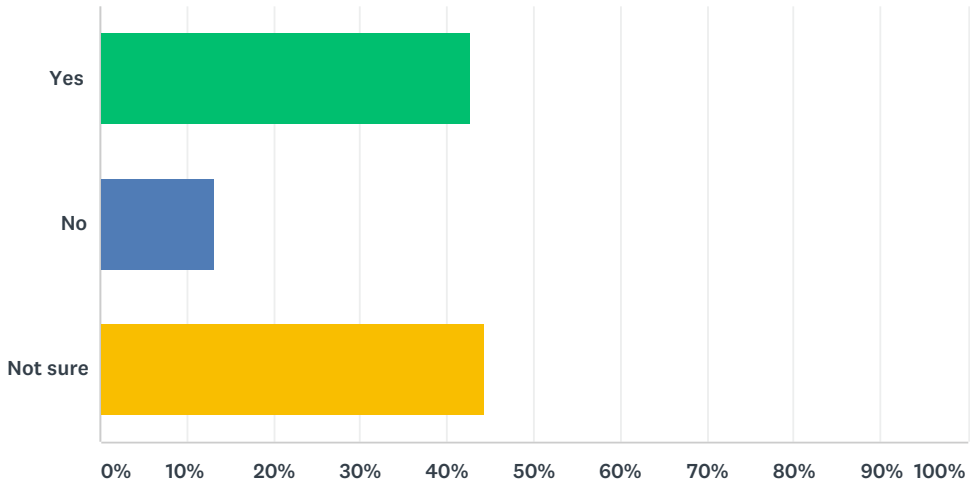
Q18 Which, if any incentives would motivate you to spend money on protecting your home from the possible impacts of a natural disaster? (such as lower interest rates, grant funding, waivers, etc.)

Answered: 28 Skipped: 58

#	RESPONSES	DATE
1	grant funding	10/27/2016 2:15 PM
2	Grant Funding- Made easily available	10/27/2016 7:21 AM
3	Tax rebate or tax break, low interest rates	10/26/2016 4:35 PM
4	grant funding or tax write off	10/26/2016 10:05 AM
5	Tax incentives	10/26/2016 5:56 AM
6	Allow multi-residential single owner properties to be served by one electrical meter/account, Thus owner can easily provide multiple emergency power to ALL structures and residences (on his property!).	10/25/2016 9:36 PM
7	Grant funding	10/25/2016 7:48 PM
8	grant funding, waivers	8/23/2016 4:06 PM
9	Tax breaks or incentives	8/18/2016 2:15 PM
10	Funding grant	8/11/2016 9:26 PM
11	Grant funding	8/10/2016 11:41 PM
12	Grant funding	8/10/2016 9:09 PM
13	grant funding	8/10/2016 1:40 PM
14	Grant funding	8/9/2016 12:53 PM
15	grant funding	8/9/2016 12:43 PM
16	Grant Funding	8/8/2016 1:05 PM
17	grant funding	8/6/2016 1:09 PM
18	Grant funding to replace roof.	8/4/2016 11:37 AM
19	Grants	8/3/2016 3:17 PM
20	Free Money, so Grant Funding, I guess	8/3/2016 11:23 AM
21	Grant funding	8/3/2016 11:16 AM
22	grant funding, programs for lower middle class, lower interest	8/3/2016 8:36 AM
23	grants	8/2/2016 11:54 AM
24	grant funding	8/2/2016 11:54 AM
25	Grant funding	8/2/2016 9:37 AM
26	lower interest rates and reimbursements to help cover costs	8/2/2016 9:36 AM
27	tax breaks	8/2/2016 9:08 AM
28	Grant funding, waivers, cheaper insurance cost	8/2/2016 9:06 AM

Q19 If your property were located in a designated high hazard area (e.g. NFIP flood zone, storm surge zone), or had received repeated damages from a natural disaster event, would you consider a "buyout", "elevation" of the structure, or "relocation"?

Answered: 61 Skipped: 25



ANSWER CHOICES	RESPONSES	
Yes	42.62%	26
No	13.11%	8
Not sure	44.26%	27
TOTAL		61

Q20 Please list any additional types of projects you believe local, county, state or federal government agencies could be doing in order to reduce the damage and disruption of natural diasters in Washington County?

Answered: 13 Skipped: 73

#	RESPONSES	DATE
1	don't sell property in flood plains	11/27/2016 8:06 PM
2	IMprove funding for first responders (Fire, EMS and Police)	10/27/2016 12:50 PM
3	Culvert replacements, ditch cleaning and tree maintenance	10/26/2016 5:56 AM
4	Remove trees from power lines.	10/25/2016 9:10 PM
5	Improving residential phone and cell phone service	8/25/2016 4:12 PM
6	Provide information sessions to the public	8/23/2016 4:06 PM
7	Grant funding , subsidized repairs for seniors	8/10/2016 11:41 PM
8	Roads/ bridge repair	8/10/2016 11:07 AM
9	I hope that someone is tracking senior citizens that may be isolated from the news or have no one watching out for them, especially in the rural areas.	8/9/2016 2:20 PM
10	Satisfied with Current Level	8/3/2016 11:23 AM
11	Reverse 911 notification	8/3/2016 11:16 AM
12	Have a plan in place with local fire, Ems, dpw and police agencies and have drill so everyone is on the same page	8/2/2016 12:37 PM
13	Fix the Bridges!!	8/2/2016 9:28 AM

Q21 Do you have any other comments, questions, or concerns?

Answered: 7 Skipped: 79

#	RESPONSES	DATE
1	Mark evacuation routes, advertise shelters, teach the kids in school	11/27/2016 8:06 PM
2	This sounds like you are gearing up this survey to use public funds to buy properties that are located in vulnerable areas. I do not approve of this type of use of public funds. Public funds are to build infrastructure and provide services, not protect citizens from making poor decisions of where to live. When you move into an area, it is the buyer's obligation to do due diligence to avoid potential issues. I choose wisely, someone else does not and I pay for both! Signed - Upset!	10/27/2016 9:48 AM
3	Shouldn't the insurance companies do any buyouts instead of government?	10/25/2016 9:36 PM
4	Identify vulnerable homes: populations with disabled and elderly inhabitants.	10/25/2016 9:10 PM
5	Thank you for allowing the public to comment. This is a great example of public outreach and I really appreciate it.	8/15/2016 9:41 AM
6	Encourage interagency cooperation and less departmental posturing-physical damage from natural disasters cannot be prevented. Agencies continue to struggle for control or do not work well together. Without cooperation amongst these agencies, the loss of property and unfortunately life is more at risk than the lack of a strong infrastructure.	8/6/2016 1:09 PM
7	Through reverse 911, I feel I am informed when I need to be.	8/3/2016 11:23 AM

Q1 Name of your EMS facility:

Answered: 2 Skipped: 0

#	RESPONSES	DATE
1	Washington County Dept of Public Safety	8/2/2016 9:45 AM
2	Fort ann rescue squad.	8/2/2016 9:32 AM

Q2 Name of Respondent:

Answered: 2 Skipped: 0

#	RESPONSES	DATE
1	Regina Ladd	8/2/2016 9:45 AM
2	Cody J	8/2/2016 9:32 AM

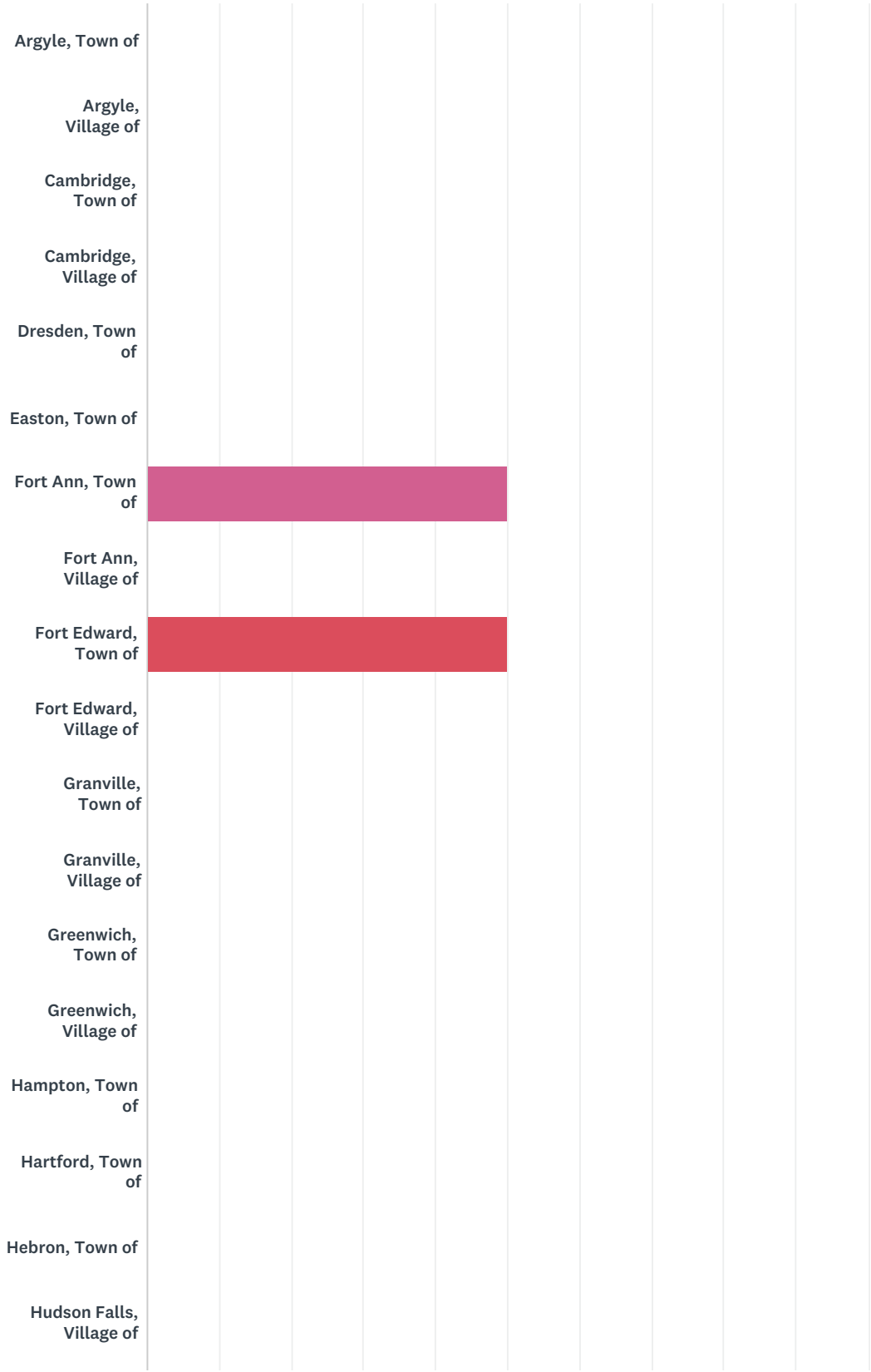
Q3 Contact information (email address or phone number) - optional:

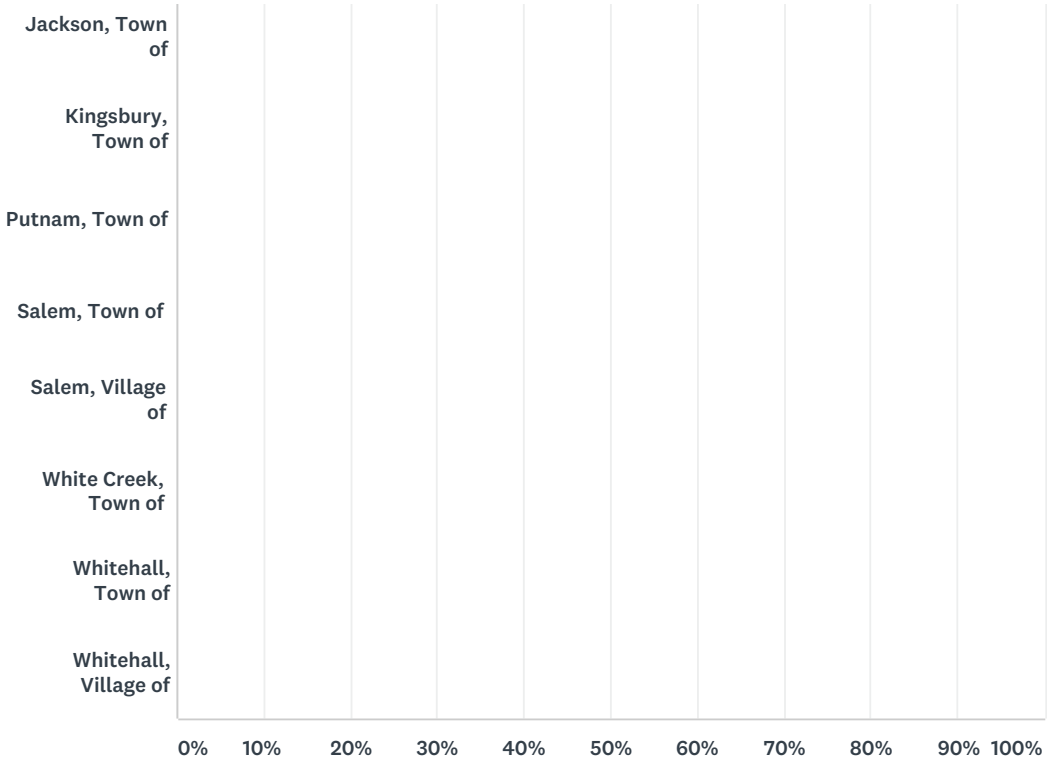
Answered: 2 Skipped: 0

#	RESPONSES	DATE
1	518-747-5851	8/2/2016 9:45 AM
2	518-955-5511	8/2/2016 9:32 AM

Q4 Please identify the location of your facility(ies) and or primary service area:

Answered: 2 Skipped: 0





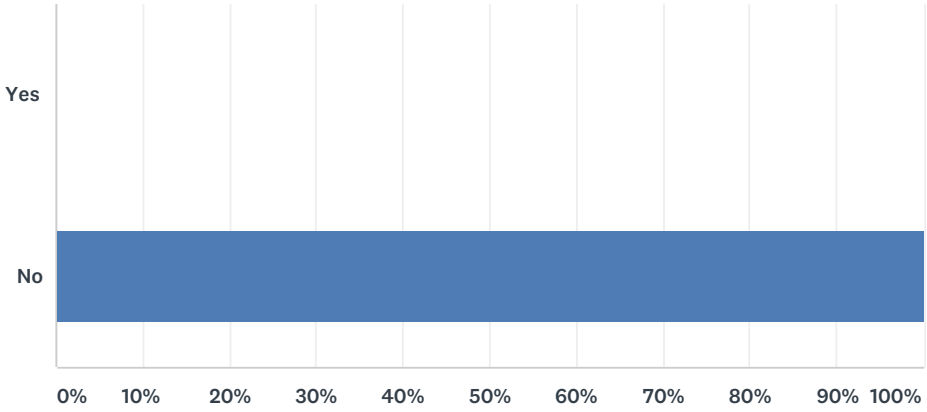
ANSWER CHOICES	RESPONSES	
Argyle, Town of	0.00%	0
Argyle, Village of	0.00%	0
Cambridge, Town of	0.00%	0
Cambridge, Village of	0.00%	0
Dresden, Town of	0.00%	0
Easton, Town of	0.00%	0
Fort Ann, Town of	50.00%	1
Fort Ann, Village of	0.00%	0
Fort Edward, Town of	50.00%	1
Fort Edward, Village of	0.00%	0
Granville, Town of	0.00%	0
Granville, Village of	0.00%	0
Greenwich, Town of	0.00%	0
Greenwich, Village of	0.00%	0
Hampton, Town of	0.00%	0
Hartford, Town of	0.00%	0
Hebron, Town of	0.00%	0
Hudson Falls, Village of	0.00%	0

Jackson, Town of	0.00%	0
Kingsbury, Town of	0.00%	0
Putnam, Town of	0.00%	0
Salem, Town of	0.00%	0
Salem, Village of	0.00%	0
White Creek, Town of	0.00%	0
Whitehall, Town of	0.00%	0
Whitehall, Village of	0.00%	0
TOTAL		2

#	OTHER (PLEASE SPECIFY)	DATE
	There are no responses.	

Q5 Has your EMS facility been impacted by natural hazard events (damaged, closed for extended periods, etc.)?

Answered: 2 Skipped: 0

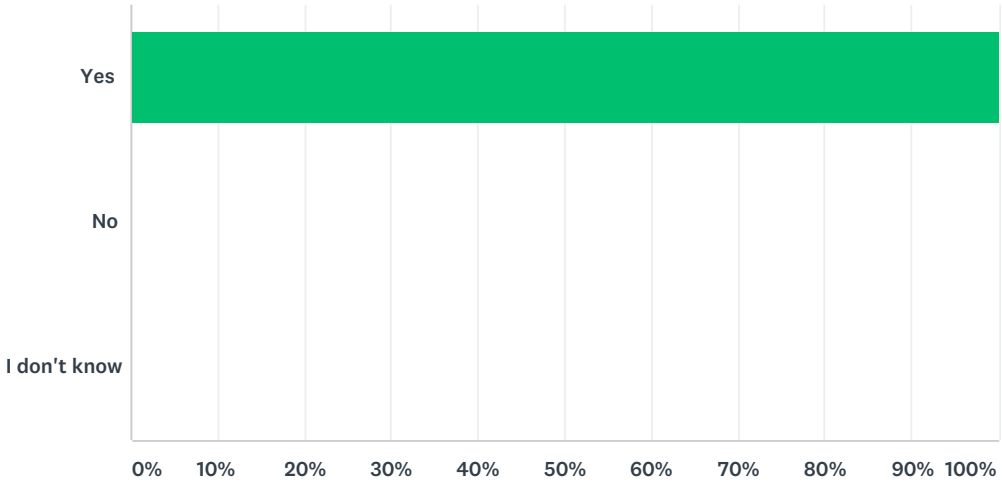


ANSWER CHOICES	RESPONSES	
Yes	0.00%	0
No	100.00%	2
TOTAL		2

#	IF YOU ANSWERED "YES", PLEASE IDENTIFY THE EVENTS AND PROVIDE A BRIEF DESCRIPTION OF THE DAMAGES OR LOSS OF SERVICE	DATE
	There are no responses.	

Q6 Do you think that critical and essential facilities (incl. EMS facilities, hospitals and medical centers) are disaster-resistant (e.g. are properly located and constructed, and have back-up power as appropriate)?

Answered: 2 Skipped: 0

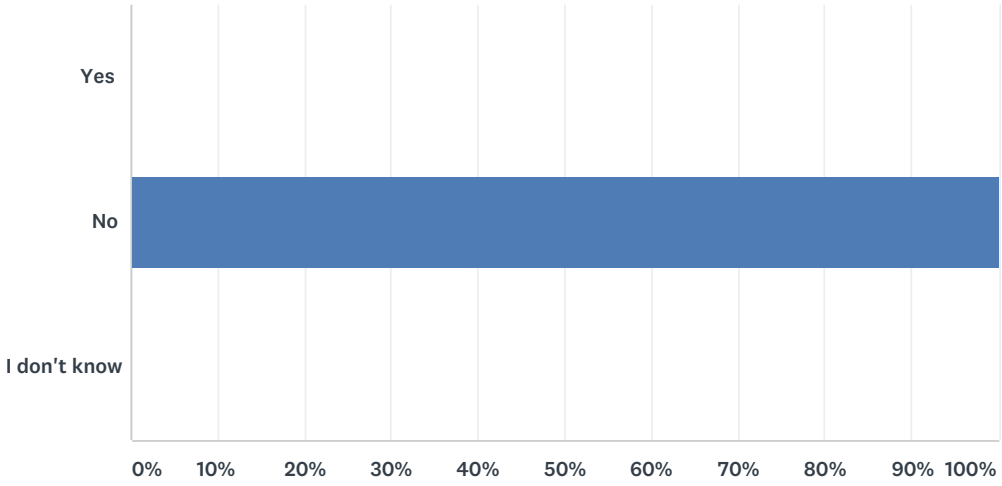


ANSWER CHOICES	RESPONSES	
Yes	100.00%	2
No	0.00%	0
I don't know	0.00%	0
TOTAL		2

#	PLEASE EXPLAIN	DATE
	There are no responses.	

Q7 Do you think that the transportation infrastructure serving your facilities (e.g. roads and bridges) are properly designed to withstand closures and/or damage due to natural hazards?

Answered: 2 Skipped: 0

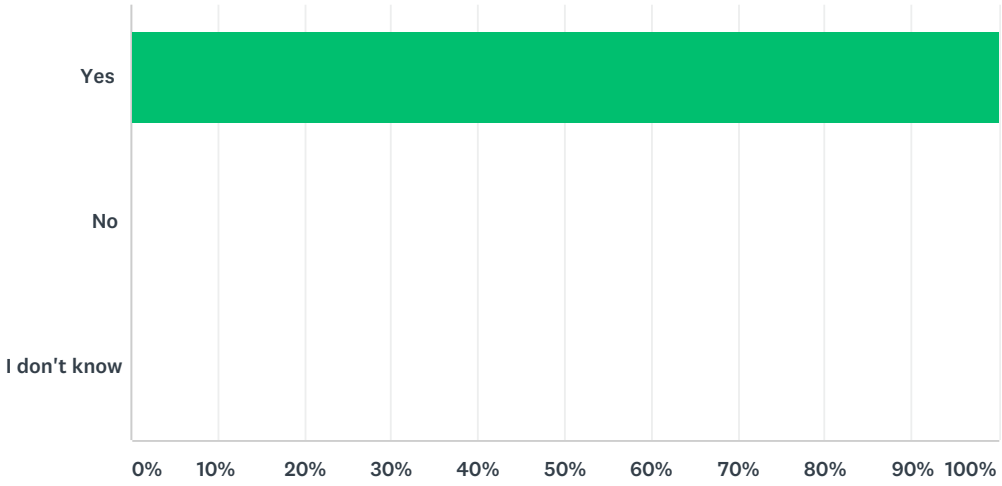


ANSWER CHOICES	RESPONSES	
Yes	0.00%	0
No	100.00%	2
I don't know	0.00%	0
TOTAL		2

#	PLEASE EXPLAIN	DATE
1	Decommissioned bridges in our district which require several mile detour if main route is closed. Additional bridges in response area are in severe distress and have been identified as risk by state and are in need of repair. Once fixed they still have low weight limits.	8/2/2016 9:32 AM

Q8 Do you think that the utility infrastructure (specifically electricity and communications) is sufficiently disaster-resistant to support EMS functions during and after natural hazard events?

Answered: 2 Skipped: 0

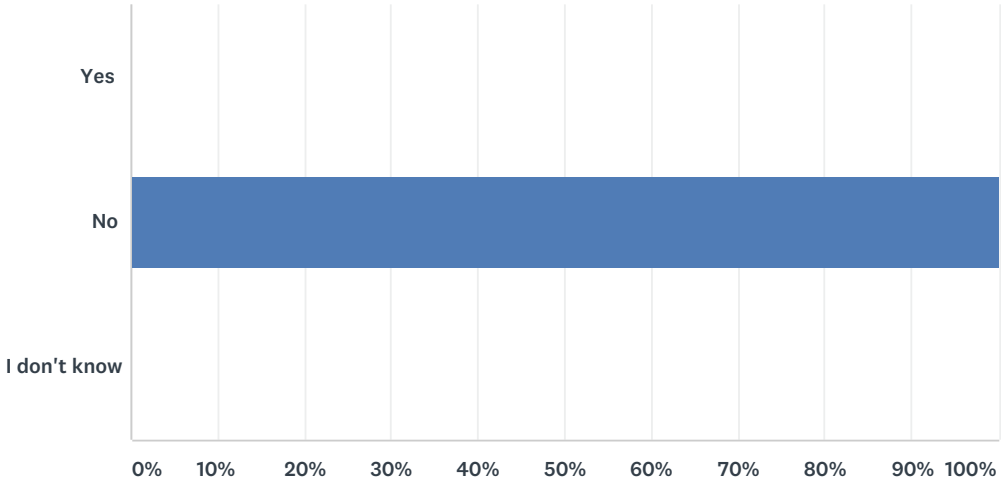


ANSWER CHOICES	RESPONSES	
Yes	100.00%	2
No	0.00%	0
I don't know	0.00%	0
TOTAL		2

#	PLEASE EXPLAIN	DATE
	There are no responses.	

Q9 Do you think that local public education and awareness programs are effective at informing the public on what they should do to be prepared for and reduce their personal risk to natural disasters, so as not to increase the need for EMS during hazard events?

Answered: 2 Skipped: 0

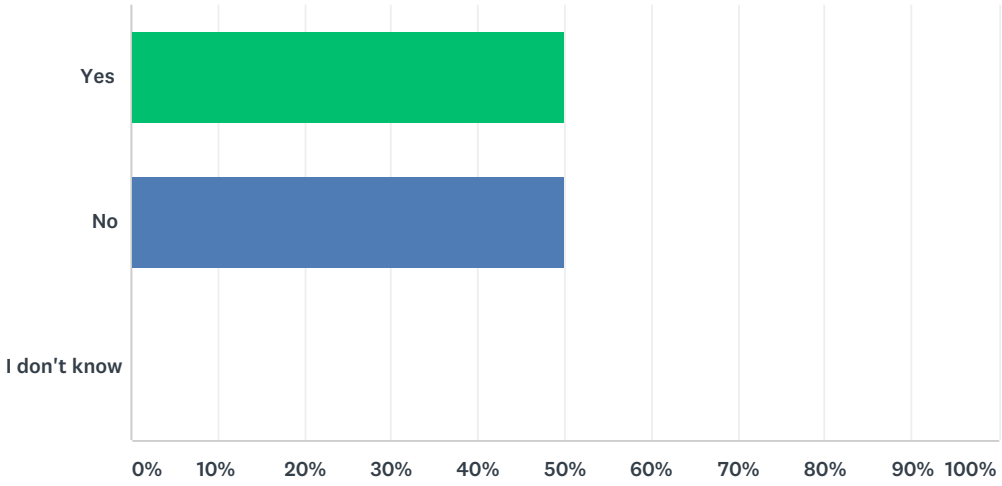


ANSWER CHOICES	RESPONSES	
Yes	0.00%	0
No	100.00%	2
I don't know	0.00%	0
TOTAL		2

#	PLEASE EXPLAIN	DATE
	There are no responses.	

Q10 Do you think that announcements of road closures and pending road closures are sufficiently accurate and available to support EMS functions during natural hazard events?

Answered: 2 Skipped: 0

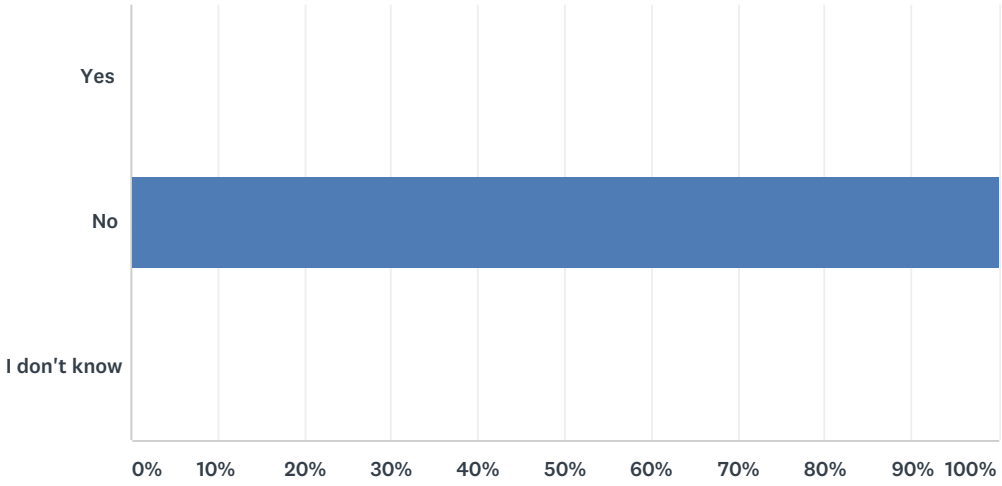


ANSWER CHOICES	RESPONSES	
Yes	50.00%	1
No	50.00%	1
I don't know	0.00%	0
TOTAL		2

#	PLEASE EXPLAIN	DATE
	There are no responses.	

Q11 Do you think that the public is aware of, understands, and takes advantage of emergency warning and notification systems and services (reverse 911, audible alerts, cell and text services)?

Answered: 2 Skipped: 0

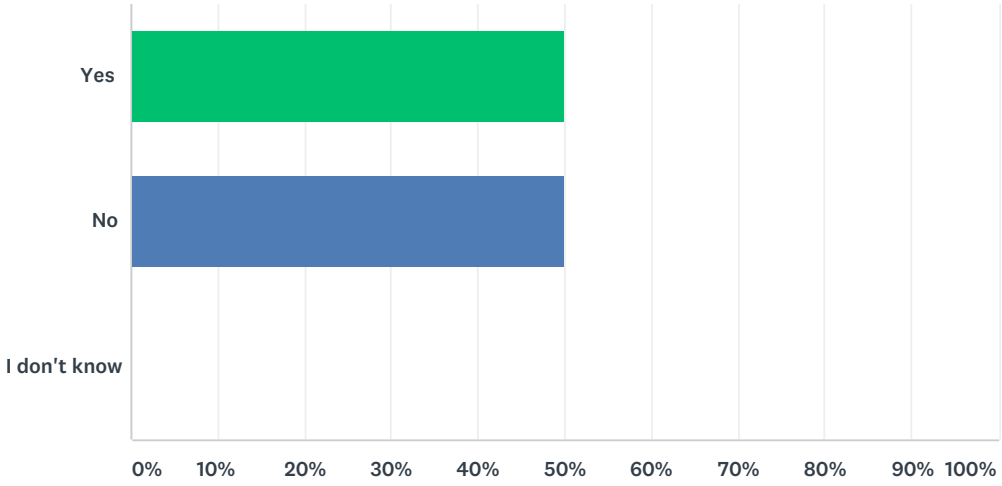


ANSWER CHOICES	RESPONSES	
Yes	0.00%	0
No	100.00%	2
I don't know	0.00%	0
TOTAL		2

#	PLEASE EXPLAIN	DATE
1	Most people we come across are not aware of county information programs. Maybe issue EMS handouts which outline programs to give to the community as we deal with the community daily.	8/2/2016 9:35 AM

Q12 Do you think that your EMS company works to inform your constituents of how they can better manage their risk to natural hazards?

Answered: 2 Skipped: 0

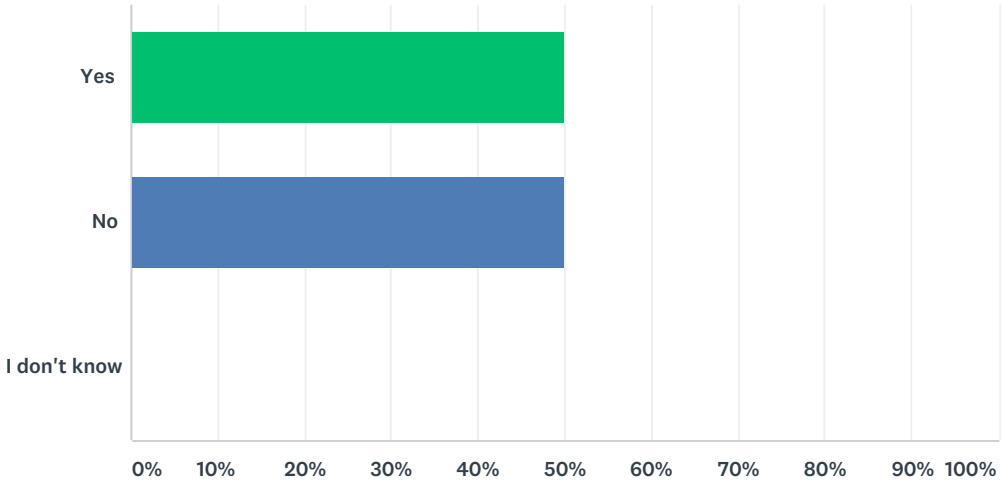


ANSWER CHOICES	RESPONSES	
Yes	50.00%	1
No	50.00%	1
I don't know	0.00%	0
TOTAL		2

#	PLEASE EXPLAIN	DATE
	There are no responses.	

Q13 Do you think that emergency response planning, services, and equipment are adequate to manage and respond properly to natural disasters in your community?

Answered: 2 Skipped: 0

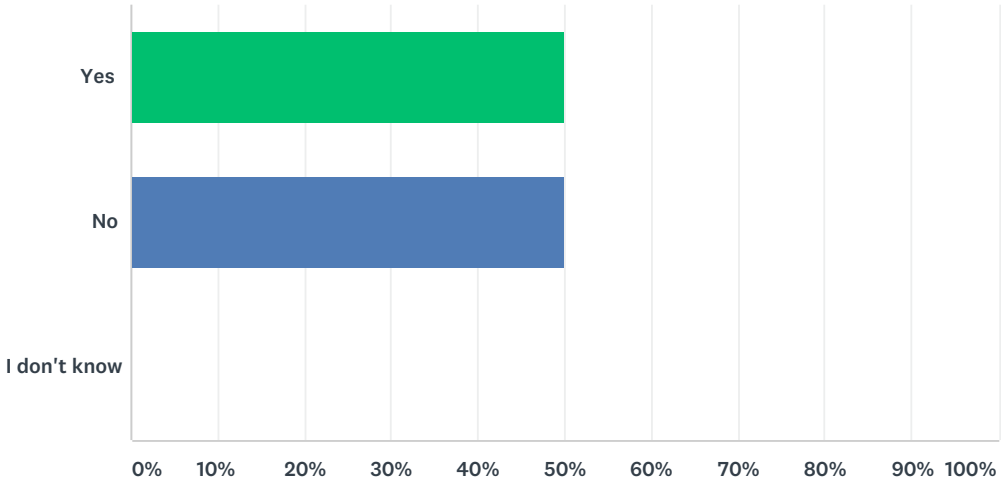


ANSWER CHOICES	RESPONSES	
Yes	50.00%	1
No	50.00%	1
I don't know	0.00%	0
TOTAL		2

#	PLEASE EXPLAIN	DATE
	There are no responses.	

Q14 Do you think that local government understands, supports, and possess the resources for natural hazard risk reduction efforts in the community?

Answered: 2 Skipped: 0

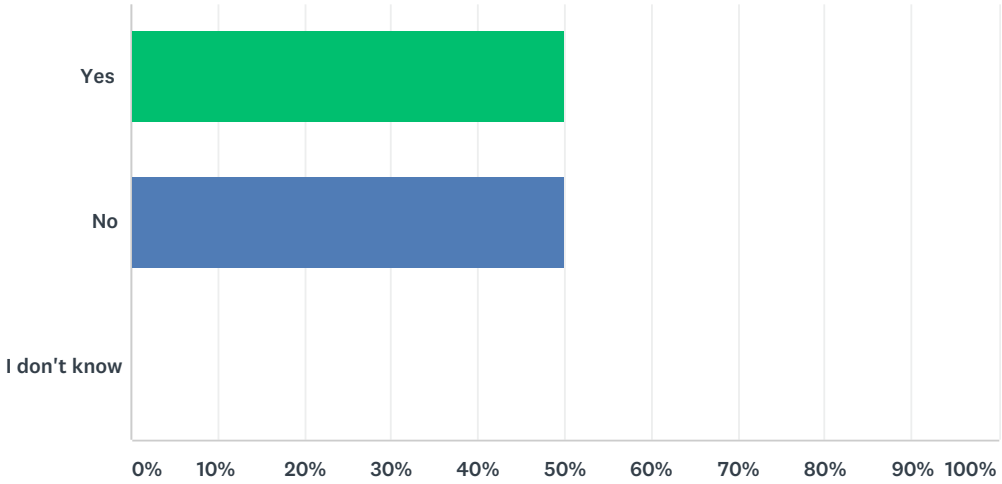


ANSWER CHOICES	RESPONSES	
Yes	50.00%	1
No	50.00%	1
I don't know	0.00%	0
TOTAL		2

#	PLEASE EXPLAIN	DATE
	There are no responses.	

Q15 Is your organization covered by a Continuity of Operations (COOP) plan? COOP plans examine an organization's ability to perform minimum essential functions during any situation, and support the continuance of organization functions.

Answered: 2 Skipped: 0



ANSWER CHOICES	RESPONSES	
Yes	50.00%	1
No	50.00%	1
I don't know	0.00%	0
TOTAL		2

#	IF "YES", PLEASE EXPLAIN.	DATE
	There are no responses.	

Q16 Can you identify projects or programs that will reduce your facility's vulnerability to damages and losses, including loss of operation/service, to hazard events?

Answered: 0 Skipped: 2

#	RESPONSES	DATE
	There are no responses.	

Q17 Do you have any other comments, questions, or concerns?

Answered: 0 Skipped: 2

#	RESPONSES	DATE
	There are no responses.	

Q1 Name of your fire department or district:

Answered: 10 Skipped: 0

#	RESPONSES	DATE
1	Hartford Vol. Fire Co.	9/21/2016 4:50 PM
2	salem fire dept.	8/13/2016 7:44 AM
3	putnam volunteer fire dept	8/10/2016 8:37 AM
4	Middle Falls Fire Department	8/9/2016 7:39 PM
5	KINGSBURY VOL HOSE CO INC #1	8/9/2016 2:33 PM
6	SALEM	8/4/2016 8:09 AM
7	Granville FD	8/4/2016 5:27 AM
8	Wells Vol. Fire Dept. Inc.	8/2/2016 7:15 PM
9	EASTON VOLUNTEER FIRE COMPANY	8/2/2016 6:40 PM
10	Washington County Dept of Public Safety	8/2/2016 9:44 AM

Q2 Name of respondent:

Answered: 9 Skipped: 1

#	RESPONSES	DATE
1	Brian Jones	9/21/2016 4:50 PM
2	dennis johnson	8/10/2016 8:37 AM
3	Adam Gillis	8/9/2016 7:39 PM
4	NELSON CHASE CHIEF	8/9/2016 2:33 PM
5	STEPHEN DOUGHERTY	8/4/2016 8:09 AM
6	Dan McClenning	8/4/2016 5:27 AM
7	Chief Todd Fenton	8/2/2016 7:15 PM
8	CRAIG HANSEN	8/2/2016 6:40 PM
9	Regina Ladd	8/2/2016 9:44 AM

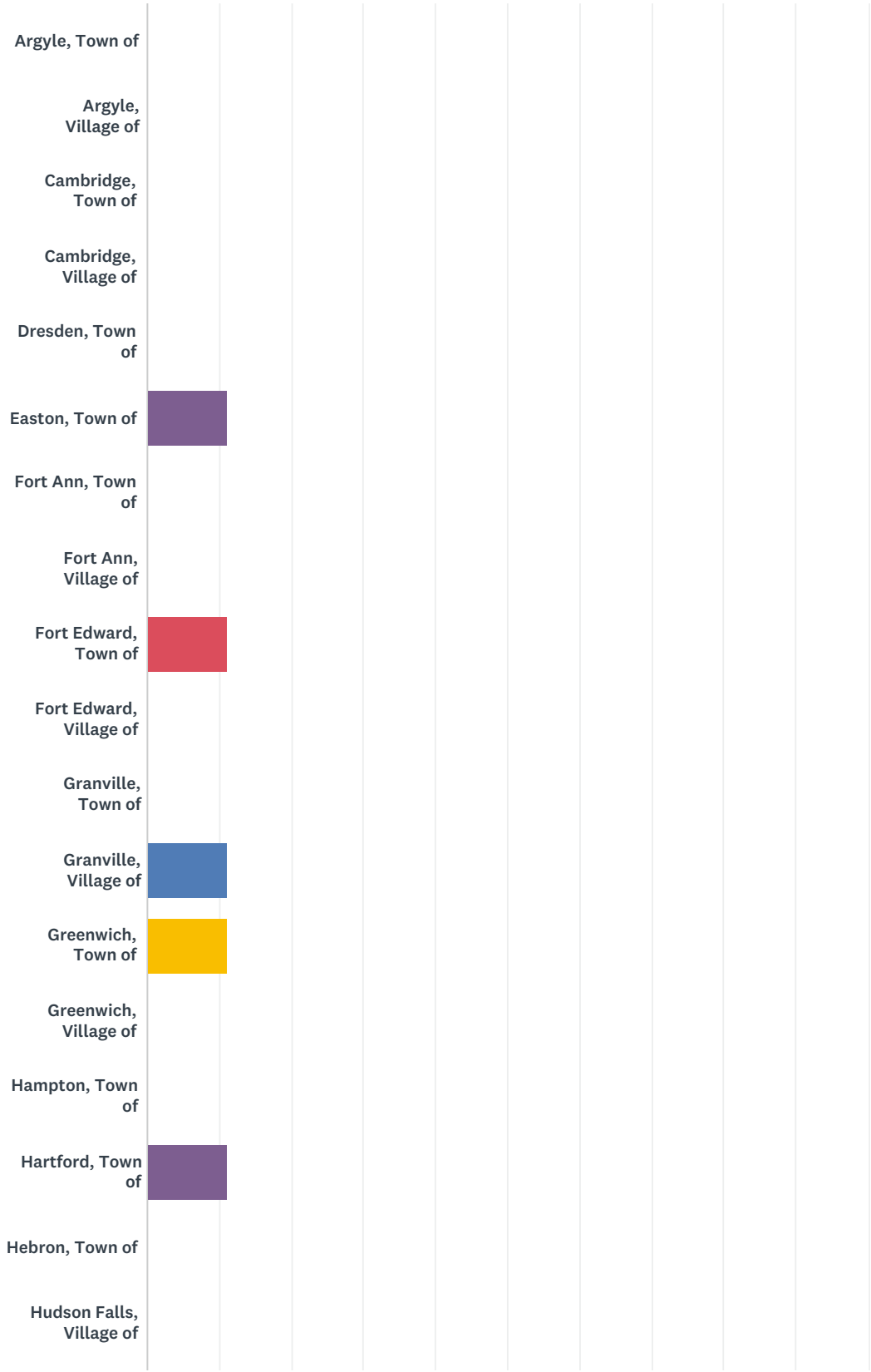
Q3 Contact information (email address or phone number) - optional:

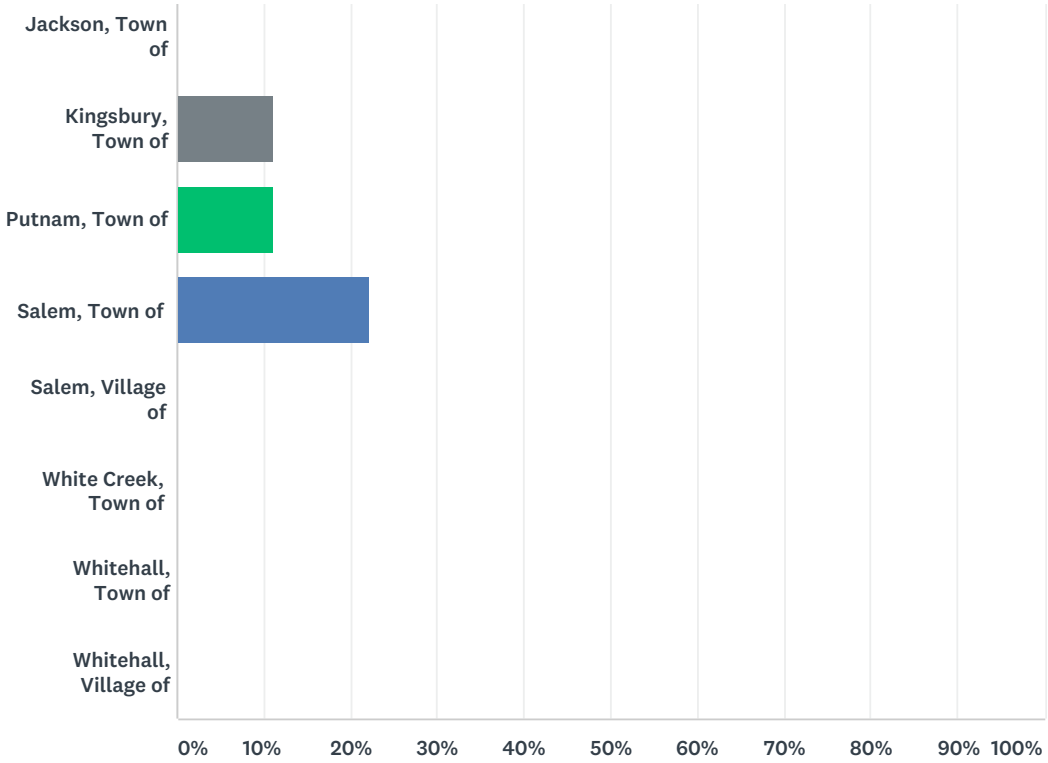
Answered: 7 Skipped: 3

#	RESPONSES	DATE
1	Brian Jones 632-5326 or 932-1754	9/21/2016 4:50 PM
2	dennis2essexcountypd.com	8/10/2016 8:37 AM
3	hamtheyankeefan9@aim.com	8/9/2016 7:39 PM
4	1-518-747-4990	8/9/2016 2:33 PM
5	wellsfire@hotmail.com	8/2/2016 7:15 PM
6	easton25@nycap.rr.com 518-222-0687	8/2/2016 6:40 PM
7	518-747-5851	8/2/2016 9:44 AM

Q4 Please identify the location of your facility(ies) and or primary service area:

Answered: 9 Skipped: 1





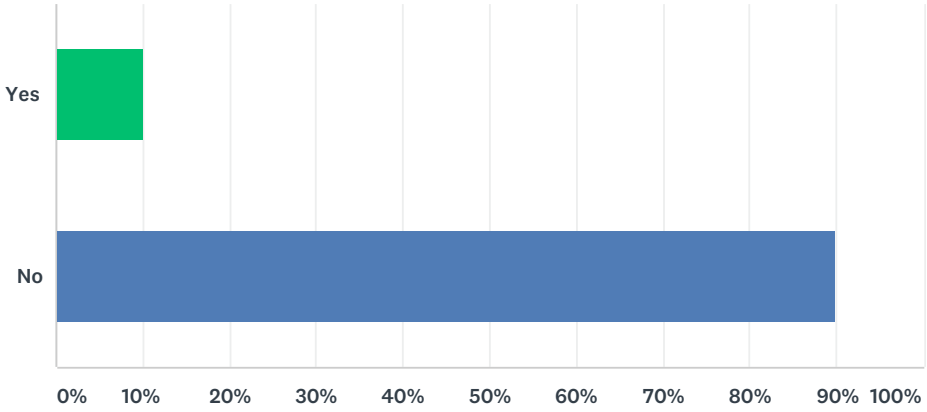
ANSWER CHOICES	RESPONSES	
Argyle, Town of	0.00%	0
Argyle, Village of	0.00%	0
Cambridge, Town of	0.00%	0
Cambridge, Village of	0.00%	0
Dresden, Town of	0.00%	0
Easton, Town of	11.11%	1
Fort Ann, Town of	0.00%	0
Fort Ann, Village of	0.00%	0
Fort Edward, Town of	11.11%	1
Fort Edward, Village of	0.00%	0
Granville, Town of	0.00%	0
Granville, Village of	11.11%	1
Greenwich, Town of	11.11%	1
Greenwich, Village of	0.00%	0
Hampton, Town of	0.00%	0
Hartford, Town of	11.11%	1
Hebron, Town of	0.00%	0
Hudson Falls, Village of	0.00%	0

Jackson, Town of	0.00%	0
Kingsbury, Town of	11.11%	1
Putnam, Town of	11.11%	1
Salem, Town of	22.22%	2
Salem, Village of	0.00%	0
White Creek, Town of	0.00%	0
Whitehall, Town of	0.00%	0
Whitehall, Village of	0.00%	0
TOTAL		9

#	OTHER (PLEASE SPECIFY)	DATE
1	Wells, Town of	8/2/2016 7:15 PM

Q5 Has your fire department been impacted by natural hazard events (damaged, closed for extended periods, etc.)?

Answered: 10 Skipped: 0

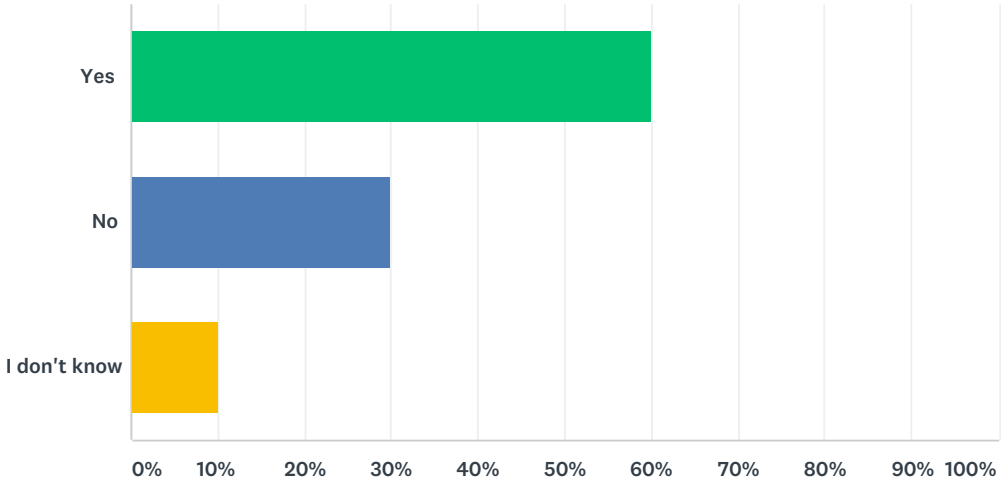


ANSWER CHOICES	RESPONSES	
Yes	10.00%	1
No	90.00%	9
TOTAL		10

#	IF YOU ANSWERED "YES", PLEASE IDENTIFY THE EVENTS AND PROVIDE A BRIEF DESCRIPTION OF THE DAMAGES OR LOSS OF SERVICE	DATE
1	Hurricane Irene power outage for extended periods, roads washed out, flooding	8/2/2016 7:15 PM

Q6 Do you think that critical and essential facilities (incl. fire departments, EMS, hospitals and medical centers) are disaster-resistant (e.g. are properly located and constructed, and have back-up power as appropriate)?

Answered: 10 Skipped: 0

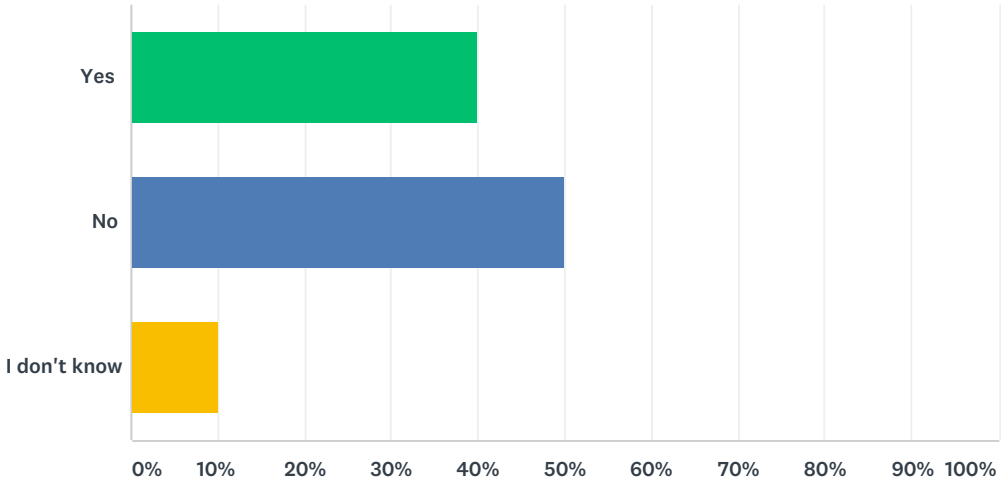


ANSWER CHOICES	RESPONSES	
Yes	60.00%	6
No	30.00%	3
I don't know	10.00%	1
TOTAL		10

#	PLEASE EXPLAIN	DATE
1	The location might be fine but mother nature could have the upper hand.	9/21/2016 4:50 PM
2	back up power by portable generator only in firehouse	8/10/2016 8:37 AM
3	NEW FIREHOUSE HAS GENERATOR BACK UP POWER AND IS LOCATED IN A FAIRLY SAFE LOCATION FROM FLOODING.	8/4/2016 8:09 AM
4	All fire dept.s should have back up power since they are the first res ponders.	8/2/2016 7:15 PM

Q7 Do you think that the transportation infrastructure serving your facilities (e.g. roads and bridges) are properly designed to withstand closures and/or damage due to natural hazards?

Answered: 10 Skipped: 0

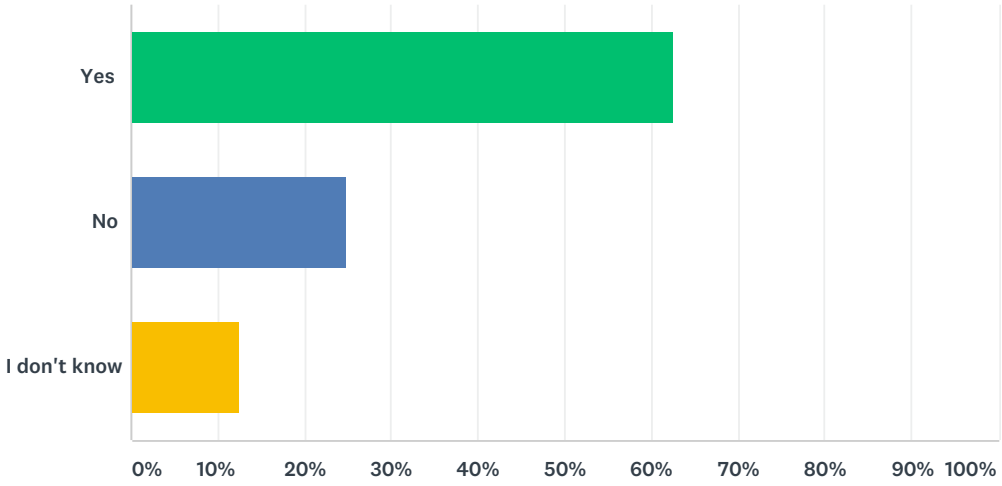


ANSWER CHOICES	RESPONSES	
Yes	40.00%	4
No	50.00%	5
I don't know	10.00%	1
TOTAL		10

#	PLEASE EXPLAIN	DATE
1	For the most part yes, you can go more than one way to get where you need to go.	9/21/2016 4:50 PM
2	BRIDGES ARE INADEQUATE TO WITHSTAND THE HIGN VOLUMES OF WATER DURING SERIOUS FLOODING INSTANCES.	8/4/2016 8:09 AM
3	They are a mixed, most are designed for regular natural weather and some can take more, others on the bad side are not ready for severe weather.	8/2/2016 7:15 PM

Q8 Do you think that the utility infrastructure (specifically electricity and communications) is sufficiently disaster-resistant to support school functions after natural hazard events?

Answered: 8 Skipped: 2

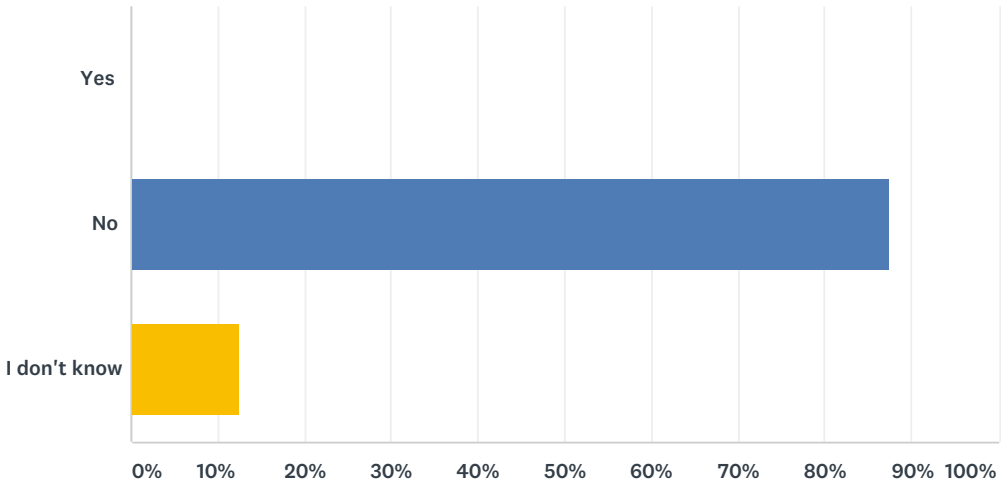


ANSWER CHOICES	RESPONSES	
Yes	62.50%	5
No	25.00%	2
I don't know	12.50%	1
TOTAL		8

#	PLEASE EXPLAIN	DATE
1	limited internet access, etc	8/10/2016 8:44 AM
2	The power companies on both sides of the border do their best to keep their lines free and clear.	8/2/2016 7:22 PM

Q9 Do you think that local public education and awareness programs are effective at informing the public on what they should do to be prepared for and reduce their personal risk to natural disasters, so as not to increase the need for fire fighting services during hazard events?

Answered: 8 Skipped: 2

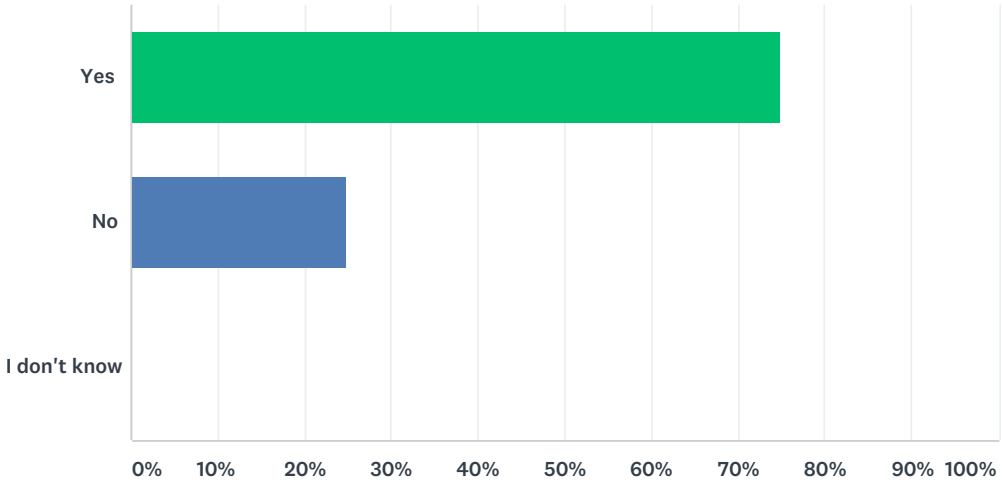


ANSWER CHOICES	RESPONSES	
Yes	0.00%	0
No	87.50%	7
I don't know	12.50%	1
TOTAL		8

#	PLEASE EXPLAIN	DATE
1	many Putnam residents very limited on gaining further info, since internet media tv is limited in area	8/10/2016 8:44 AM
2	Most towns don't explain to their citizens enough of where to evacuate to or what to do in severe weather situations.	8/2/2016 7:22 PM

Q10 Do you think that announcements of road closures and pending road closures are sufficiently accurate and available to support fire department functions during natural hazard events?

Answered: 8 Skipped: 2

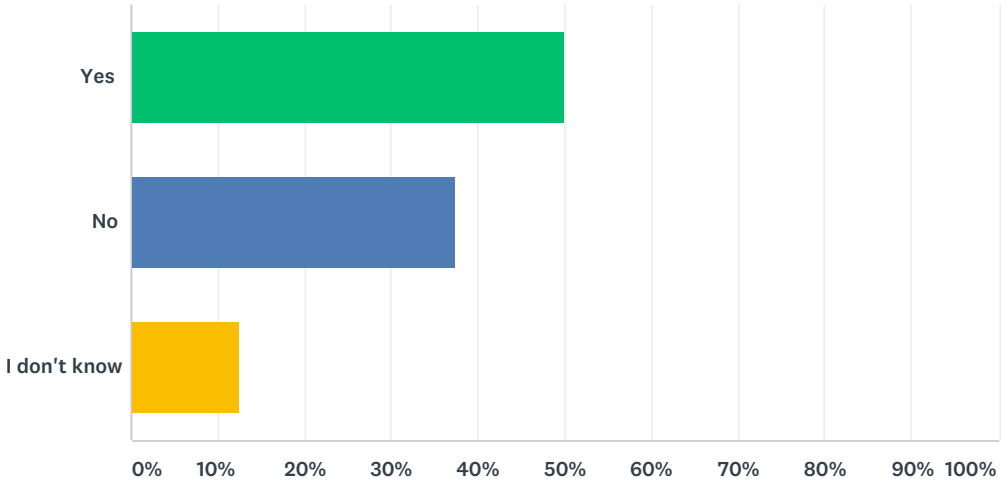


ANSWER CHOICES	RESPONSES	
Yes	75.00%	6
No	25.00%	2
I don't know	0.00%	0
TOTAL		8

#	PLEASE EXPLAIN	DATE
1	Washington county does a good job of this	8/2/2016 7:22 PM
2	to help us know what roads we can go on for emergency	8/2/2016 6:47 PM

Q11 Do you think that the public is aware of, understands, and takes advantage of emergency warning and notification systems and services (reverse 911, audible alerts, cell and text services)?

Answered: 8 Skipped: 2

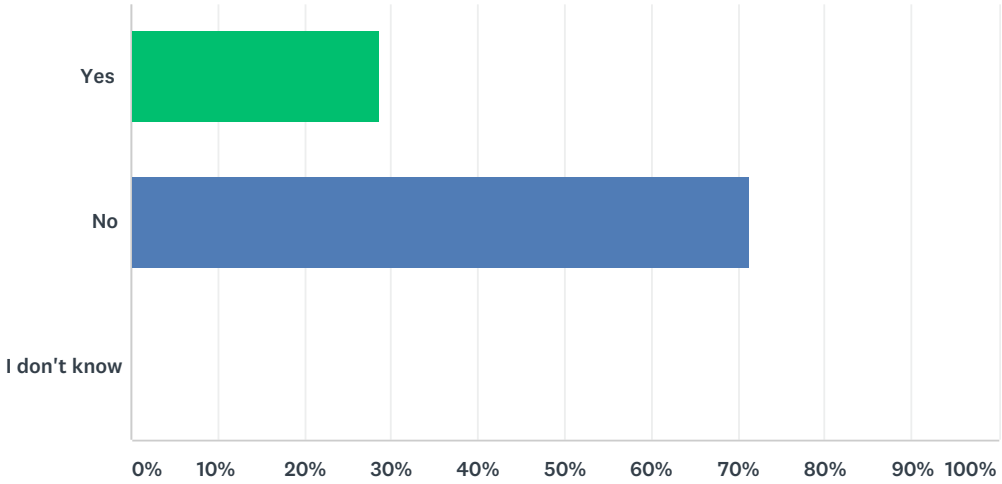


ANSWER CHOICES	RESPONSES	
Yes	50.00%	4
No	37.50%	3
I don't know	12.50%	1
TOTAL		8

#	PLEASE EXPLAIN	DATE
1	large amount of full time population does not use texting, internet, etc	8/10/2016 8:44 AM
2	Both sides do well in this area	8/2/2016 7:22 PM

Q12 Do you think that your department/fire district works to inform your constituents of how they can better manage their risk to natural hazards (e.g. proper use of portable heaters and generators, defensible space for wildfires, etc.)?

Answered: 7 Skipped: 3

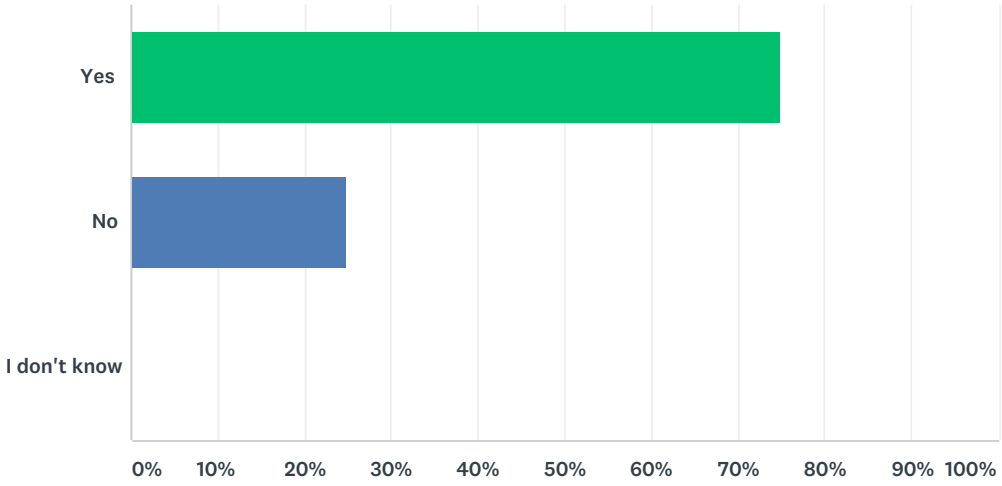


ANSWER CHOICES	RESPONSES	
Yes	28.57%	2
No	71.43%	5
I don't know	0.00%	0
TOTAL		7

#	PLEASE EXPLAIN	DATE
	There are no responses.	

Q13 Do you think that emergency response planning, services, and equipment are adequate to manage and respond properly to natural disasters in your community?

Answered: 8 Skipped: 2

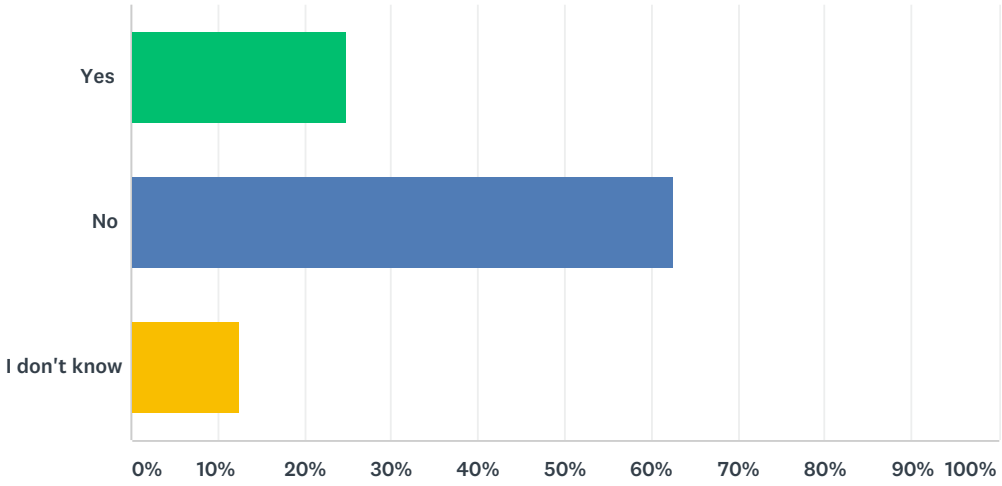


ANSWER CHOICES	RESPONSES	
Yes	75.00%	6
No	25.00%	2
I don't know	0.00%	0
TOTAL		8

#	PLEASE EXPLAIN	DATE
1	I know our plan is ready and up to date.	8/2/2016 7:22 PM

Q14 Do you think that local government understands, supports, and possess the resources for natural hazard risk reduction efforts in the community?

Answered: 8 Skipped: 2

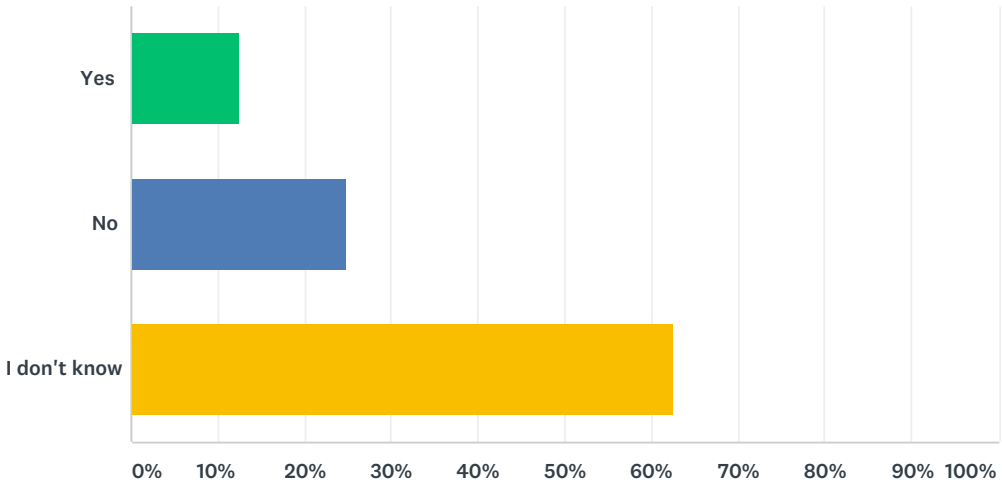


ANSWER CHOICES	RESPONSES	
Yes	25.00%	2
No	62.50%	5
I don't know	12.50%	1
TOTAL		8

#	PLEASE EXPLAIN	DATE
1	wouold be nice to update plan with new officers	8/10/2016 8:44 AM
2	SALEM SEEMS TO DRAG THEIR FEET WHEN IT COMES TO SOLVING PROBLEMS OF THIS TYPE.	8/4/2016 8:11 AM
3	I believe they don't fully realize the importance of letting the communities know.	8/2/2016 7:22 PM

Q15 Is your organization covered by a Continuity of Operations (COOP) plan? COOP plans examine an organization's ability to perform minimum essential functions during any situation, and support the continuance of your organization's functions.

Answered: 8 Skipped: 2



ANSWER CHOICES	RESPONSES	
Yes	12.50%	1
No	25.00%	2
I don't know	62.50%	5
TOTAL		8

#	IF "YES", PLEASE EXPLAIN.	DATE
	There are no responses.	

Q16 Can you identify projects or programs that will reduce your facility's vulnerability to damages and losses, including loss of operation/service, to hazard events?

Answered: 2 Skipped: 8

#	RESPONSES	DATE
1	OPEN HOUSE,FIRE PREVENTION PROGRAMS	8/9/2016 2:37 PM
2	Our town has a hazard mitigation plan.	8/2/2016 7:23 PM

Q17 Do you have any other comments, questions, or concerns?

Answered: 1 Skipped: 9

#	RESPONSES	DATE
1	NO	8/9/2016 2:37 PM

Q1 Name of your police department or law enforcement agency:

Answered: 11 Skipped: 0

#	RESPONSES	DATE
1	whitehall Police	9/27/2016 2:30 PM
2	Cambridge-Greenwich Police Department	8/11/2016 7:51 AM
3	State Police	8/10/2016 8:18 PM
4	Whitehall Police Department	8/10/2016 5:56 AM
5	Whitehall Police	8/3/2016 7:26 AM
6	Washington County Sheriff's Office	8/3/2016 7:14 AM
7	Granville Police Department	8/3/2016 7:07 AM
8	Washington County Sheriff's Office	8/2/2016 10:59 AM
9	Washington County Sheriff's Office	8/2/2016 10:27 AM
10	Washington County Dept of Public Safety	8/2/2016 9:37 AM
11	Washingon	8/2/2016 9:25 AM

Q2 Name of Respondent:

Answered: 10 Skipped: 1

#	RESPONSES	DATE
1	William Humphries	9/27/2016 2:30 PM
2	Chief George G Bell	8/11/2016 7:51 AM
3	Paul Liebeck	8/10/2016 8:18 PM
4	Chief Ernest Bassett Jr.	8/10/2016 5:56 AM
5	William Humphries	8/3/2016 7:26 AM
6	Matthew Lohret	8/3/2016 7:14 AM
7	Chief Ernest Bassett Jr.	8/3/2016 7:07 AM
8	Jeff Tucker	8/2/2016 10:59 AM
9	Regina Ladd	8/2/2016 9:37 AM
10	Jeffrey J. Murphy	8/2/2016 9:25 AM

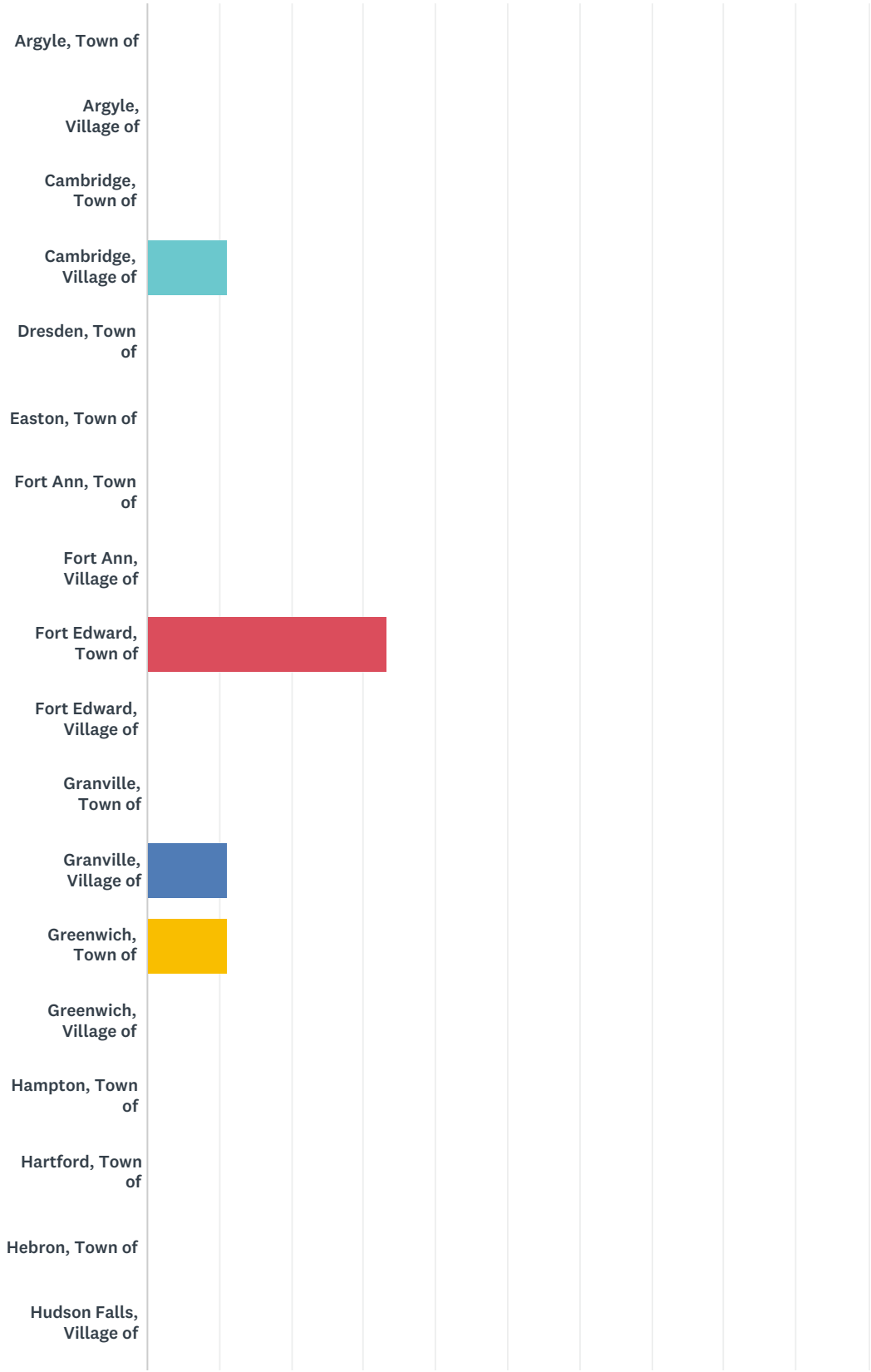
Q3 Contact information (email address or phone number) - optional:

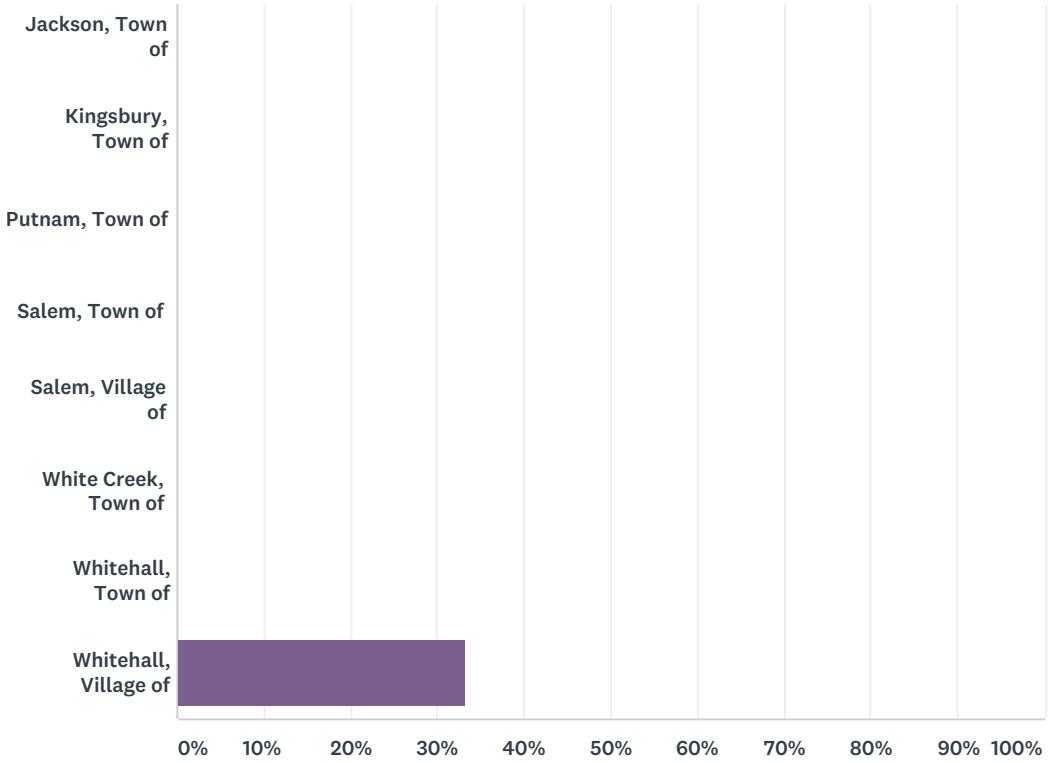
Answered: 10 Skipped: 1

#	RESPONSES	DATE
1	518-361-8685	9/27/2016 2:30 PM
2	chiefbell@cambridgeny.gov	8/11/2016 7:51 AM
3	Paul.Liebeck@troopers.ny.gov	8/10/2016 8:18 PM
4	granvillepd101@hotmail.com	8/10/2016 5:56 AM
5	518.361.8685	8/3/2016 7:26 AM
6	mlohret@co.washington.ny.us	8/3/2016 7:14 AM
7	granvillepd101@hotmail.com	8/3/2016 7:07 AM
8	JTucker@co.washington.ny.us	8/2/2016 10:59 AM
9	rladd@co.washington.ny.us	8/2/2016 9:37 AM
10	sheriffmurphy@co.washington.ny.us	8/2/2016 9:25 AM

Q4 Please identify the location of your facility(ies) and or primary service area:

Answered: 9 Skipped: 2





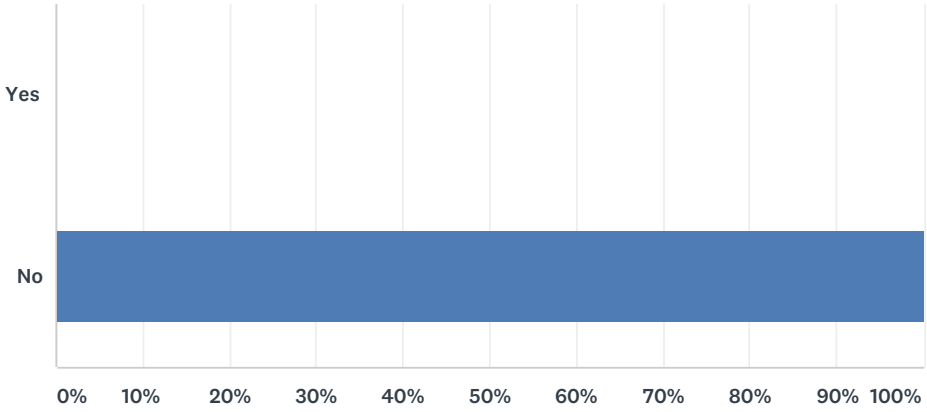
ANSWER CHOICES	RESPONSES	
Argyle, Town of	0.00%	0
Argyle, Village of	0.00%	0
Cambridge, Town of	0.00%	0
Cambridge, Village of	11.11%	1
Dresden, Town of	0.00%	0
Easton, Town of	0.00%	0
Fort Ann, Town of	0.00%	0
Fort Ann, Village of	0.00%	0
Fort Edward, Town of	33.33%	3
Fort Edward, Village of	0.00%	0
Granville, Town of	0.00%	0
Granville, Village of	11.11%	1
Greenwich, Town of	11.11%	1
Greenwich, Village of	0.00%	0
Hampton, Town of	0.00%	0
Hartford, Town of	0.00%	0
Hebron, Town of	0.00%	0
Hudson Falls, Village of	0.00%	0

Jackson, Town of	0.00%	0
Kingsbury, Town of	0.00%	0
Putnam, Town of	0.00%	0
Salem, Town of	0.00%	0
Salem, Village of	0.00%	0
White Creek, Town of	0.00%	0
Whitehall, Town of	0.00%	0
Whitehall, Village of	33.33%	3
TOTAL		9

#	OTHER (PLEASE SPECIFY)	DATE
1	Service entire County	8/3/2016 7:14 AM
2	Entire County Offices in Ft Edward and Salem	8/2/2016 10:59 AM
3	All	8/2/2016 10:27 AM

Q5 Have your facilities been impacted by natural hazard events (damaged, closed for extended periods, etc.)?

Answered: 11 Skipped: 0

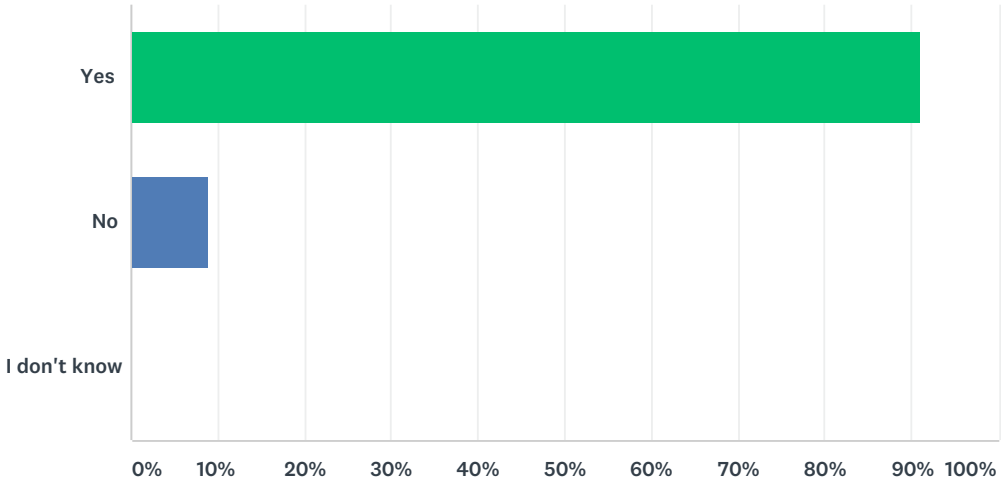


ANSWER CHOICES	RESPONSES	
Yes	0.00%	0
No	100.00%	11
TOTAL		11

#	IF YOU ANSWERED "YES", PLEASE IDENTIFY THE EVENTS AND PROVIDE A BRIEF DESCRIPTION OF THE DAMAGES OR LOSS OF SERVICE	DATE
	There are no responses.	

Q6 Do you think that critical and essential facilities (incl. police stations, jails and detention centers) are disaster-resistant (e.g. are properly located and constructed, and have back-up power as appropriate)?

Answered: 11 Skipped: 0

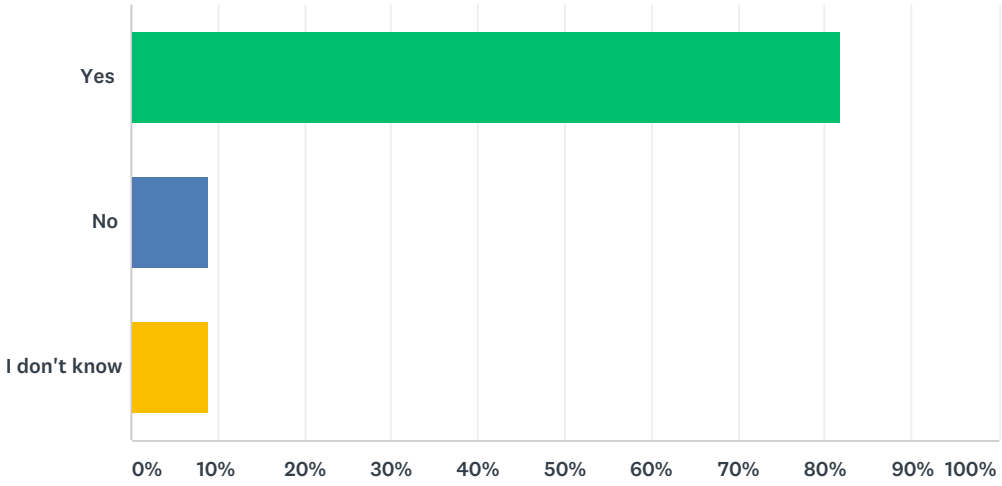


ANSWER CHOICES	RESPONSES	
Yes	90.91%	10
No	9.09%	1
I don't know	0.00%	0
TOTAL		11

#	PLEASE EXPLAIN	DATE
1	I have no back up power at either of my stations	8/11/2016 7:51 AM

Q7 Do you think that the transportation infrastructure serving your facilities (e.g. roads and bridges) are properly designed to withstand closures and/or damage due to natural hazards?

Answered: 11 Skipped: 0

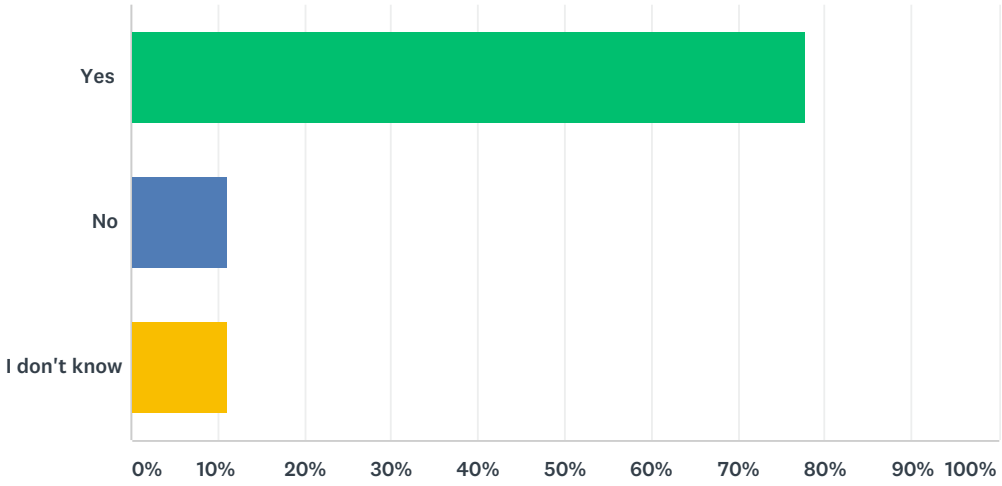


ANSWER CHOICES	RESPONSES	
Yes	81.82%	9
No	9.09%	1
I don't know	9.09%	1
TOTAL		11

#	PLEASE EXPLAIN	DATE
1	Bridge on State Route 197 in the Village of Fort Edward the sides are buckled and appears to be unsafe.	8/3/2016 7:14 AM
2	Hurricane Irene put this through the test. Improvements have been made on certain parts of the Mettowee River to assist with water flow to help ensure the bridges remain above the water levels during such events.	8/3/2016 7:07 AM

Q8 Do you think that the utility infrastructure (specifically electricity and communications) is sufficiently disaster-resistant to support law enforcement functions during and after natural hazard events?

Answered: 9 Skipped: 2

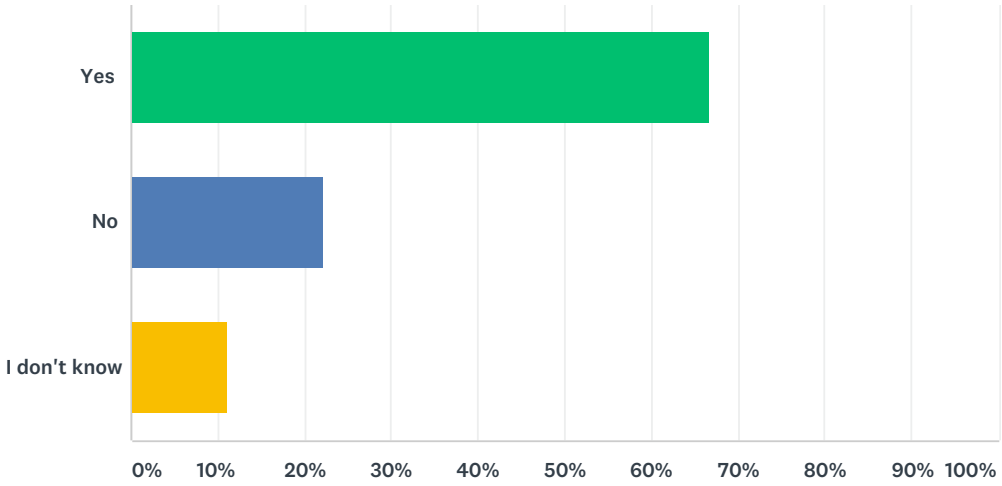


ANSWER CHOICES	RESPONSES	
Yes	77.78%	7
No	11.11%	1
I don't know	11.11%	1
TOTAL		9

#	PLEASE EXPLAIN	DATE
	There are no responses.	

Q9 Do you think that local public education and awareness programs are effective at informing the public on what they should do to be prepared for and reduce their personal risk to natural disasters, so as not to increase the need for law enforcement and police protective services during hazard events?

Answered: 9 Skipped: 2

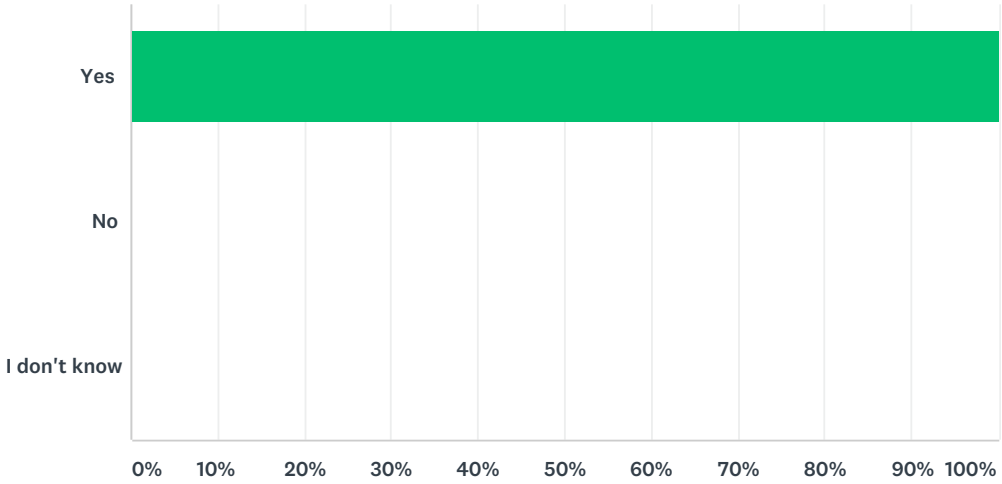


ANSWER CHOICES	RESPONSES	
Yes	66.67%	6
No	22.22%	2
I don't know	11.11%	1
TOTAL		9

#	PLEASE EXPLAIN	DATE
	There are no responses.	

Q10 Do you think that announcements of road closures and pending road closures are sufficiently accurate and available to support law enforcement and police protective service functions during natural hazard events?

Answered: 9 Skipped: 2

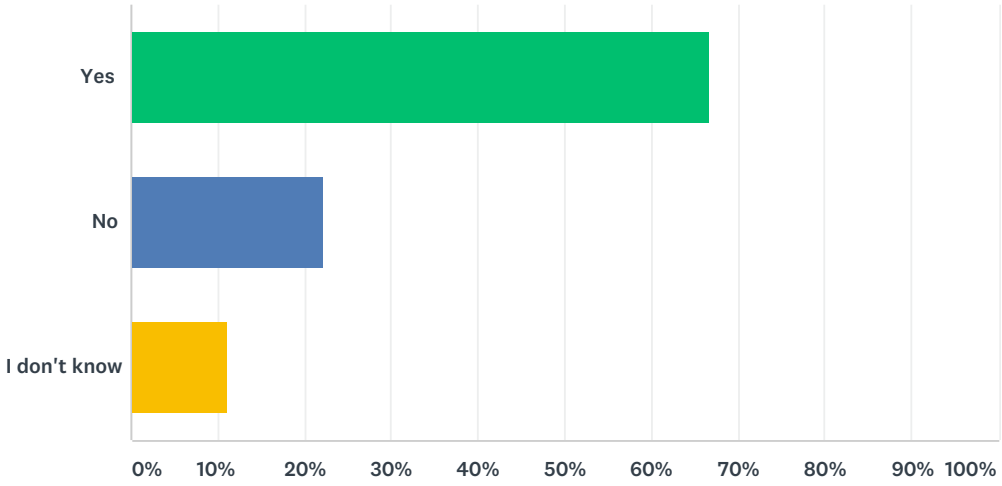


ANSWER CHOICES	RESPONSES	
Yes	100.00%	9
No	0.00%	0
I don't know	0.00%	0
TOTAL		9

#	PLEASE EXPLAIN	DATE
	There are no responses.	

Q11 Do you think that the public is aware of, understands, and takes advantage of emergency warning and notification systems and services (reverse 911, audible alerts, cell and text services)?

Answered: 9 Skipped: 2

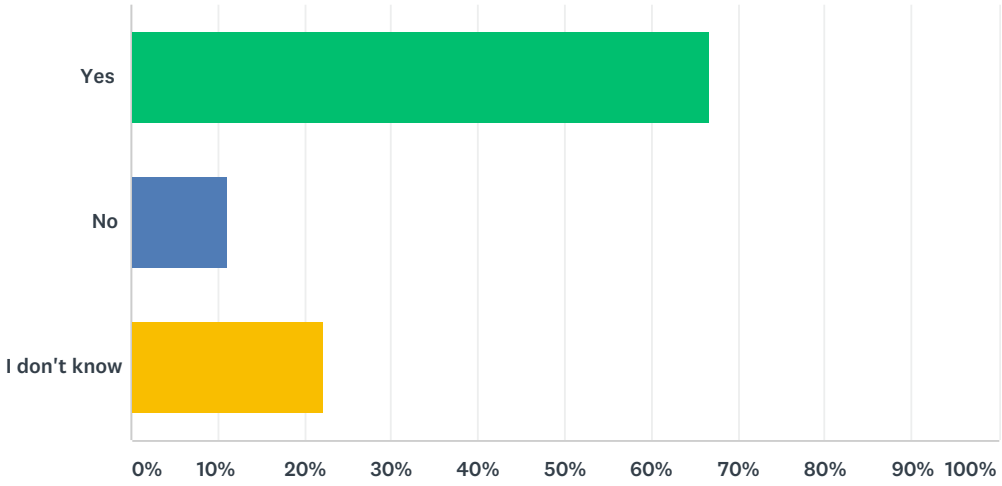


ANSWER CHOICES	RESPONSES	
Yes	66.67%	6
No	22.22%	2
I don't know	11.11%	1
TOTAL		9

#	PLEASE EXPLAIN	DATE
	There are no responses.	

Q12 Do you think that emergency response planning, services, and equipment are adequate to manage and respond properly to natural disasters in your community?

Answered: 9 Skipped: 2

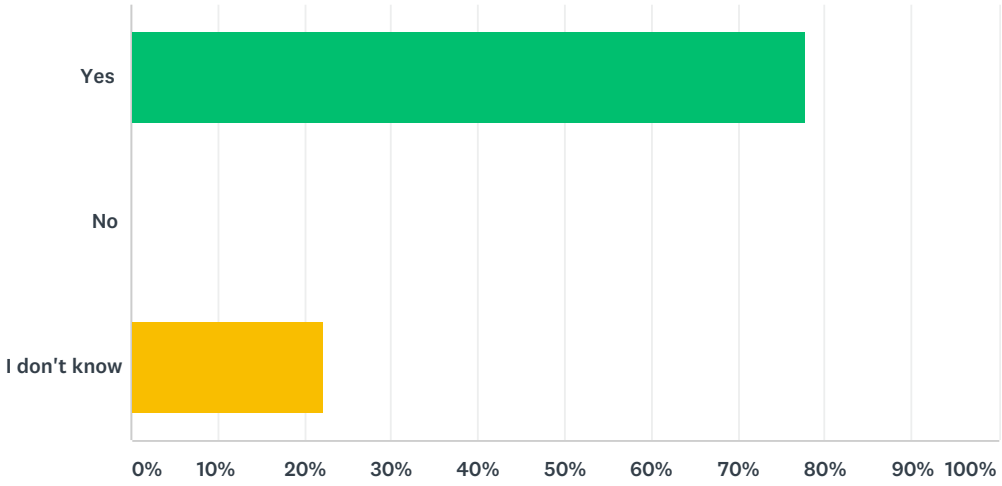


ANSWER CHOICES	RESPONSES	
Yes	66.67%	6
No	11.11%	1
I don't know	22.22%	2
TOTAL		9

#	PLEASE EXPLAIN	DATE
	There are no responses.	

Q13 Do you think that local government understands, supports, and possess the resources for natural hazard risk reduction efforts in the community?

Answered: 9 Skipped: 2

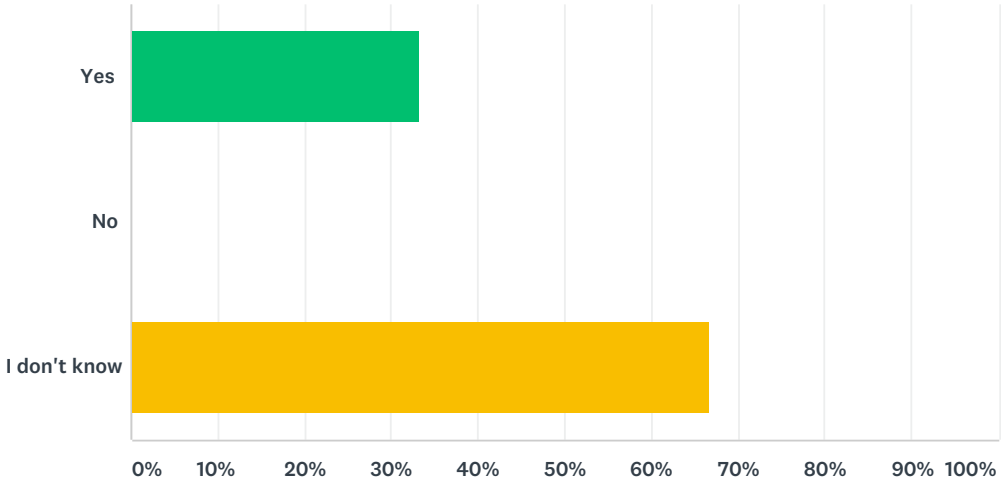


ANSWER CHOICES	RESPONSES	
Yes	77.78%	7
No	0.00%	0
I don't know	22.22%	2
TOTAL		9

#	PLEASE EXPLAIN	DATE
	There are no responses.	

Q14 Is your organization covered by a Continuity of Operations (COOP) plan? COOP plans examine an organization's ability to perform minimum essential functions during any situation, and support the continuance of your organization's functions.

Answered: 9 Skipped: 2



ANSWER CHOICES	RESPONSES	
Yes	33.33%	3
No	0.00%	0
I don't know	66.67%	6
TOTAL		9

#	IF "YES", PLEASE EXPLAIN.	DATE
1	Can not say that I have heard of this specific plan.	8/3/2016 7:17 AM

Q15 Can you identify projects or programs that will reduce your facility's vulnerability to damages and losses, including loss of operation/service, to hazard events?

Answered: 2 Skipped: 9

#	RESPONSES	DATE
1	This has been ongoing since Hurricanes Irene and Sandy. River work, bridge work and projects to ensure Village equipment is placed in areas above the listed flood plan have been addressed.	8/3/2016 7:17 AM
2	no	8/3/2016 7:16 AM

Q16 Please provide any additional comments here. Thank you!

Answered: 0 Skipped: 11

#	RESPONSES	DATE
	There are no responses.	

Q1 Name of your municipality

Answered: 11 Skipped: 0

#	RESPONSES	DATE
1	Argyle Highway Department	9/15/2016 8:31 AM
2	Town of Granville	9/12/2016 2:42 PM
3	Town of Putnam	9/8/2016 10:33 AM
4	Town of Putnam	9/8/2016 10:26 AM
5	Village of Argyle	9/7/2016 1:08 PM
6	Village of Whitehall	9/7/2016 11:10 AM
7	Town of Fort Ann	9/6/2016 11:53 AM
8	Town of Cambridge	9/6/2016 10:31 AM
9	Town of Greenwich	9/6/2016 9:18 AM
10	Washington County	8/30/2016 2:34 PM
11	Town of Test	8/30/2016 11:03 AM

Q2 Name and Title of primary municipal point of contact attending:

Answered: 11 Skipped: 0

ANSWER CHOICES	RESPONSES	
Name	100.00%	11
Title	100.00%	11
Department	72.73%	8

#	NAME	DATE
1	Robert W. Humiston	9/15/2016 8:31 AM
2	Eric Towne	9/12/2016 2:42 PM
3	Dennis Johnson	9/8/2016 10:33 AM
4	Gary Treadway	9/8/2016 10:26 AM
5	Wes Clark	9/7/2016 1:08 PM
6	Kenneth Bartholomew	9/7/2016 11:10 AM
7	Richard Moore	9/6/2016 11:53 AM
8	Jim Buckley Jr.	9/6/2016 10:31 AM
9	Kellie Blake	9/6/2016 9:18 AM
10	Jonathan Pease	8/30/2016 2:34 PM
11	Test	8/30/2016 11:03 AM
#	TITLE	DATE
1	Highway Superintendent	9/15/2016 8:31 AM
2	Highway Supt.	9/12/2016 2:42 PM
3	Putnam Vol. Fire Dept. Assistant Chief	9/8/2016 10:33 AM
4	Highway Superintendent/ Public Works	9/8/2016 10:26 AM
5	Mayor	9/7/2016 1:08 PM
6	Mayor	9/7/2016 11:10 AM
7	Supervisor	9/6/2016 11:53 AM
8	Highway Superintendent	9/6/2016 10:31 AM
9	Clerk to the Supervisor, High Supt. & Planning Board	9/6/2016 9:18 AM
10	Emergency Management Coordinator	8/30/2016 2:34 PM
11	Test	8/30/2016 11:03 AM
#	DEPARTMENT	DATE
1	Highway	9/15/2016 8:31 AM
2	Highway dept.	9/12/2016 2:42 PM
3	Fire Department	9/8/2016 10:33 AM
4	Highway/Department of Public Works	9/8/2016 10:26 AM
5	Village of Whitehall	9/7/2016 11:10 AM
6	Highway Department	9/6/2016 10:31 AM

7	Department of Public Safety	8/30/2016 2:34 PM
8	Test	8/30/2016 11:03 AM

Q3 How many representatives will be attending? We encourage broad participation, so please bring everyone who is relevant to this project.

Answered: 11 Skipped: 0

#	RESPONSES	DATE
1	One	9/15/2016 8:31 AM
2	Just myself	9/12/2016 2:42 PM
3	1	9/8/2016 10:33 AM
4	1	9/8/2016 10:26 AM
5	1	9/7/2016 1:08 PM
6	3	9/7/2016 11:10 AM
7	3	9/6/2016 11:53 AM
8	2	9/6/2016 10:31 AM
9	2-3	9/6/2016 9:18 AM
10	1	8/30/2016 2:34 PM
11	3	8/30/2016 11:03 AM

Q4 Please provide an email to receive confirmation of your workshop date and time

Answered: 11 Skipped: 0

#	RESPONSES	DATE
1	esther6454@msn.com	9/15/2016 8:31 AM
2	gvltownhwy@albany.twcbc.com	9/12/2016 2:42 PM
3	townclerk@townofputnamny.com	9/8/2016 10:33 AM
4	townclerk@townofputnamny.com	9/8/2016 10:26 AM
5	walgclark@juno.com	9/7/2016 1:08 PM
6	villageofwhitehall@nycap.rr.com	9/7/2016 11:10 AM
7	supervisorfortann@gmail.com	9/6/2016 11:53 AM
8	hgreenawalt@gmail.com	9/6/2016 10:31 AM
9	bookkeeper@nycap.rr.com	9/6/2016 9:18 AM
10	jpease@co.washington.ny.us	8/30/2016 2:34 PM
11	test@test.com	8/30/2016 11:03 AM

Washington County, NY Hazard Mitigation Plan - Citizen Survey

1. Introduction

Washington County Residents,

A Steering Committee, along with the support of county, regional and state agencies and stakeholders, has recently been formed to address natural disasters that may occur in Washington County and develop strategies to mitigate against losses. In order to identify and plan for future natural disasters, we need assistance from the citizens of Washington County.

This questionnaire is designed to help us gauge the level of knowledge local citizens already have about natural disaster issues. Our questionnaire also asks for information you may have about areas vulnerable to any type of natural disaster. The information you provide will help us coordinate activities to reduce the risk of injury or property damage in the future.

You will be asked if your home is located in a floodplain. If you do not know, or are not sure, you may check the following online sources:
FEMA National Flood Insurance Program site: https://www.floodsmart.gov

You can also view paper copies of the NFIP Flood Insurance Rate Maps at your Municipal Hall.

This survey consists of 21 questions and will take less than 15 minutes to complete.

The Washington County Hazard Mitigation Steering Committee thanks you for taking the time to participate in this information-gathering process.

Washington County, NY Hazard Mitigation Plan - Citizen Survey

2. General Household Information

The answers provided in this section will be treated as CONFIDENTIAL and will be used solely for the preparation of this plan.

1. Please indicate your age range:

◯ 18 to 30 ◯ 31 to 40 ◯ 41 to 50 ◯ 51 to 60 ◯ 60 or over

2. Please indicate in which municipality you live:

◯ Argyle, Town of
◯ Argyle, Village of
◯ Cambridge, Town of
◯ Cambridge, Village of
◯ Dresden, Town of
◯ Easton, Town of
◯ Fort Ann, Town of
◯ Fort Ann, Village of
◯ Fort Edward, Town of
◯ Other (please specify)

[ ]

◯ Fort Edward, Village of
◯ Granville, Town of
◯ Granville, Village of
◯ Greenwich, Town of
◯ Greenwich, Village of
◯ Hampton, Town of
◯ Hartford, Town of
◯ Hebron, Town of
◯ Hudson Falls, Village of

◯ Jackson, Town of
◯ Kingsbury, Town of
◯ Putnam, Town of
◯ Salem, Town of
◯ Salem, Village of
◯ White Creek, Town of
◯ Whitehall, Town of
◯ Whitehall, Village of

3. How long have you lived here?

◯ Less than 1 year
◯ 1 to 5 years
◯ 6 to 9 years
◯ 10 to 19 years
◯ 20 years or more

4. Do you own or rent your place of residence?

◯ Own ◯ Rent

5. What is your home address? (optional, will be kept confidential - only used to identify localized hazard areas such as flooding)

3. Natural Hazard Information

6. In the past 10 years, which of the following types of hazards/natural disasters have you or someone in your household experienced within Washington County, or sustained damage as a result of, and how concerned are you about the following natural hazards impacting the County? (In the first column indicate if you have experienced the hazard, then indicate your level of concern).

	Have Experienced	Not Concerned	Somewhat Concerned	Very Concerned	Extremely Concerned
Climate Change	☐	☐	☐	☐	☐
Dam Failure (incl. beaver dams)	☐	☐	☐	☐	☐
Drought	☐	☐	☐	☐	☐
Earthquake	☐	☐	☐	☐	☐
Extreme Temperatures	☐	☐	☐	☐	☐
Flooding - Street/Property	☐	☐	☐	☐	☐
Flooding - Basement	☐	☐	☐	☐	☐
Flooding - 1st Floor or above	☐	☐	☐	☐	☐
Ground Failure (Landslide, Sinkholes)	☐	☐	☐	☐	☐
Hurricane\Tropical Storm	☐	☐	☐	☐	☐
Infestation (e.g. beavers, Emerald Ash Borer)	☐	☐	☐	☐	☐
Ice Storm	☐	☐	☐	☐	☐
Nor'easter	☐	☐	☐	☐	☐
Severe Storm (wind, lightning, hail)	☐	☐	☐	☐	☐
Severe Winter Storms (Blizzard, Heavy Snow, Ice)	☐	☐	☐	☐	☐
Streambank Erosion	☐	☐	☐	☐	☐
Tornado	☐	☐	☐	☐	☐
Wildfire	☐	☐	☐	☐	☐
Other, indicate in comment box below	☐	☐	☐	☐	☐

Other (please specify)

7. Please rank how prepared you feel you and your household are for natural disaster events likely to occur within your municipality. Rank on a scale of 1 to 5, with 5 representing the most prepared.

◯ 1 (least) ◯ 2 ◯ 3 ◯ 4 ◯ 5 (Most)

8. In what ways do you believe you are prepared for a natural disaster that may occur within your municipality? (Please check all that apply)

- ☐ I have taken precautionary measures to protect my property though retrofits or when constructed
- ☐ I have a preparedness kit consisting of basic supplies and materials for my family and myself
- ☐ I have identified the location of the nearest severe weather shelter
- ☐ I have a personal family emergency preparedness plan, and have discussed it with my family and others for whom I have responsibility
- ☐ I am prepared to shelter in-place if that is the best available option
- ☐ I have at least two methods for receiving emergency notifications and for information during severe weather or other potential emergency situations
- ☐ I have insurance policies to cover losses from specific risks (e.g. flood insurance)
- ☐ I have received emergency preparedness information from a government source (e.g., federal, state, or local emergency management)
- ☐ I have used local news or other media to obtain information
- ☐ I have received information from schools and other academic institutions
- ☐ I have attended meetings that have dealt with disaster preparedness
- ☐ Other (please specify)

9. How do you receive your information concerning a natural disaster? Of the information sources below, please identify the top three (3) that are MOST EFFECTIVE in providing you with information to make your home safer and better able to withstand the impact of natural disaster events.

- ☐ Newspaper
- ☐ County and/or Town/Village Websites
- ☐ Town/Village E-Mail
- ☐ Police, Fire, EMS, 9-1-1
- ☐ Social Media
- ☐ Telephone Book
- ☐ Informational Brochures
- ☐ Public Meetings, Workshops, or Public Awareness Events
- ☐ Schools
- ☐ TV News
- ☐ TV Advertising
- ☐ Radio News
- ☐ Radio Advertisements
- ☐ Outdoor Advertisements
- ☐ Internet
- ☐ Chamber of Commerce
- ☐ Fire Department/EMS Agency
- ☐ Academic Institutions
- ☐ Books
- ☐ Public Library
- ☐ Other (please specify)

10. To the best of your knowledge is your property located in a designated floodplain?

If you do not know, or are not sure, you may check the following online sources:
FEMA National Flood Insurance Program site: https://www.floodsmart.gov

You can also view paper copies of the NFIP Flood Insurance Rate Maps at your Municipal Hall.

◯ Yes ◯ No ◯ Not Sure

11. Do you have flood insurance?

◯ Yes ◯ No

12. If you do NOT have flood insurance, what is the primary reason?

- ◯ I don't need it/my property has never flooded
- ◯ Don't need it/located on high ground
- ◯ It is too expensive
- ◯ Not familiar with it/don't know about it
- ◯ Insurance company will not provide
- ◯ I believe that my homeowners insurance will cover me

13. Do you or did you have problems getting homeowners/renters insurance due to risks from natural hazards?

◯ Yes ◯ No

14. If you answered "yes" to the previous question, please identify the natural hazard risk that caused you to have problems obtaining homeowners/renters insurance.

Washington County, NY Hazard Mitigation Plan - Citizen Survey

4. Natural Hazard Mitigation

The term mitigation in this respect means to prevent future property damage. Mitigation activities are those types of actions that can be taken to protect public and private property and infrastructure from natural hazard events such as floods, severe storms, landslides and wildfires. Washington County and its municipalities are in the process of updating their 2010 county-wide Hazard Mitigation Plan. This process is designed to aid our county and municipalities in protecting life and property from the impacts of future natural disasters.

15. What types of projects do you believe local, county, state or federal government agencies could be doing in order to reduce the damage and disruption of natural disasters in Washngton County? Select your top three choices

- ☐ Retrofit and strengthen essential facilities such as police, schools, hospitals
- ☐ Retrofit infrastructure, such as elevating roadways and improving drainage systems
- ☐ Work on improving the damage resistance of utilities (electricity, communications, water/wastewater facilities etc.)
- ☐ Install or improve protective structures, such as floodwalls, levees, bulkheads, firebreaks
- ☐ Enhance stream maintenance programs/projects
- ☐ Replace inadequate or vulnerable bridges and causeways
- ☐ Strengthen codes, ordinances and plans to require higher hazard risk management standards and/or provide greater control over development in high hazard areas
- ☐ Buy out flood prone properties and maintain as open-space
- ☐ Inform property owners of ways they can mitigate damage to their properties
- ☐ Provide better information about hazard risks and high-hazard areas
- ☐ Assist vulnerable property owners with securing funding to mitigate their properties

16. How much money would you be willing to spend on your current home to help protect it from the impacts of potential future natural disasters within our community? Examples are: elevating a flood-prone home; elevating utilities in flood-prone basements; strengthening your roof, siding, doors or windows to withstand high winds; removing threatening trees or branches.

- ◯ Over $10,000
- ◯ Between $5,000 and $10,000
- ◯ Between $2,500and $5,000
- ◯ Between $500 and $2,500
- ◯ Less than $500
- ◯ Nothing
- ◯ Don't know

17. If you have already had to spend money to mitigate your property, how much have you spent and on what?

18. Which, if any incentives would motivate you to spend money on protecting your home from the possible impacts of a natural disaster? (such as lower interest rates, grant funding, waivers, etc.)

19. If your property were located in a designated high hazard area (e.g. NFIP flood zone, storm surge zone), or had received repeated damages from a natural disaster event, would you consider a "buyout", "elevation" of the structure, or "relocation"?

◯ Yes ◯ No ◯ Not sure

20. Please list any additional types of projects you believe local, county, state or federal government agencies could be doing in order to reduce the damage and disruption of natural diasters in Washington County?

21. Do you have any other comments, questions, or concerns?

Washington County, NY Hazard Mitigation Plan - Academia Survey

Hazard Mitigation: Any action taken to reduce the loss of life and property by lessening the impact of disasters (natural, technological and man-made).

Washington County, along with its inclusive municipalities, is in the process of updating its 2010 Hazard Mitigation Plan in order to be eligible for federal grant funding for public and private mitigation projects. The HMP must provide a “blueprint” by which local governments can make coordinated, cost-effective efforts towards reducing losses from natural hazards (flooding, severe storms, severe winter storms, etc.).

The following survey is designed to help identify general needs for mitigation within the County from your perspective, as well as to identify specific projects that may be included in the mitigation plan.

Please review and answer the following questions regarding potential mitigation that affects schools, school districts and higher educational facilities within Washington County. Provide as much detail as possible to support your choice in the Comments box. Where possible, identify specific areas (locations, facilities, programs, policies, etc.) that need to be improved, and your suggestions for possible improvements. If there are other important issues that you feel are not covered by these survey questions, please let us know.

Washington County, NY Hazard Mitigation Plan - Academia Survey

* 1. Name of your Academic Institution (school, district, higher education institution):

2. Name of Respondent:

3. Contact information (email address or phone number) - optional:

4. Please identify the location of your facility(ies) and or primary service area:

- Argyle, Town of
- Argyle, Village of
- Cambridge, Town of
- Cambridge, Village of
- Dresden, Town of
- Easton, Town of
- Fort Ann, Town of
- Fort Ann, Village of
- Fort Edward, Town of
- Fort Edward, Village of
- Granville, Town of
- Granville, Village of
- Greenwich, Town of
- Greenwich, Village of
- Hampton, Town of
- Hartford, Town of
- Hebron, Town of
- Hudson Falls, Village of
- Jackson, Town of
- Kingsbury, Town of
- Putnam, Town of
- Salem, Town of
- Salem, Village of
- White Creek, Town of
- Whitehall, Town of
- Whitehall, Village of

Other (please specify)

5. Has your academic institution been impacted by natural hazard events (damaged, closed for extended periods, etc.)?

- ◯ Yes
- ◯ No

If you answered "YES", please identify the events and provide a brief description of the damages or loss of service

6. Do your facilities provide sheltering services during hazard events?

- ◯ Yes
- ◯ No

If you answered "YES", please indicate those services that you are capable of providing.

7. Do you believe that your facilities and associated infrastructure are disaster-resistant, or capable of withstanding a natural disaster (e.g. are properly located and constructed, and have back-up power as appropriate)?

- ◯ Yes
- ◯ No
- ◯ I don't know

Please explain

8. Do you think that the transportation infrastructure serving your facilities (e.g. roads and bridges) are properly designed to withstand closures and/or damage due to natural hazards?

- ◯ Yes
- ◯ No
- ◯ I don't know

Please explain

9. Do you think that the utility infrastructure (specifically electricity and communications) is sufficiently disaster-resistant to support your academic functions during and after natural hazard events?

- ◯ Yes
- ◯ No
- ◯ I don't know

Please explain

10. If your facilities are American Red Cross designated shelters, do you believe they are adequately designed and equipped to support sheltering during and after natural hazard events? Do your facilities have generator capabilities to support sheltering needs?

- ◯ Yes
- ◯ No
- ◯ I don't know

Please explain

11. Do you think that weather forecasts and announcements of road closures and pending road closures are sufficiently accurate and available to support your institution's operation and student transportation decisions in the event of natural hazard events?

- ◯ Yes
- ◯ No
- ◯ I don't know

Please explain

12. Do you believe that emergency response planning, services, and equipment are capable of managing and responding properly to natural disasters in your community?

- ◯ Yes
- ◯ No
- ◯ I don't know

Please explain

13. Do you believe that local government understands, supports, and possesses adequate resources for natural hazard risk reduction efforts in the community?

- ◯ Yes
- ◯ No
- ◯ I don't know

Please explain

14. Is your institution covered by a Continuity of Operations (COOP) plan? COOP plans examine an institution's ability to perform minimum essential functions during any situation, and support the continuance of institution functions.

- ◯ Yes
- ◯ No
- ◯ I don't know

If "Yes", please explain.

15. Can you identify projects or programs that will reduce your facility's vulnerability to damages and losses, including loss of operation/service, to hazard events?

16. Do you have any other comments, questions, or concerns?

Washington County, NY Hazard Mitigation Plan - Business/Commerce Survey

Hazard Mitigation: Any action taken to reduce the loss of life and property by lessening the impact of disasters (natural, technological and man-made).

Washington County, along with its inclusive municipalities, is in the process of updating its 2010 Hazard Mitigation Plan in order to be eligible for federal grant funding for public and private mitigation projects. The HMP must provide a “blueprint” by which local governments can make coordinated, cost-effective efforts towards reducing losses from natural hazards (flooding, severe storms, severe winter storms, etc.).

The following survey is designed to help identify general needs for mitigation within the County from your perspective, as well as to identify specific projects that may be included in the mitigation plan.

Please review and answer the following questions regarding potential mitigation that affects businesses and commercial interests within Washington County. Provide as much detail as possible to support your choice in the Comments box. Where possible, identify specific areas (locations, facilities, programs, policies, etc.) that need to be improved, and your suggestions for possible improvements. If there are other important issues that you feel are not covered by these survey questions, please let us know.

Washington County, NY Hazard Mitigation Plan - Business/Commerce Survey

* 1. Name of your Business:

2. Name of Respondent:

3. Contact information (email address or phone number) - optional:

4. Please identify the location of your facility(ies) and or primary service area:

- Argyle, Town of
- Argyle, Village of
- Cambridge, Town of
- Cambridge, Village of
- Dresden, Town of
- Easton, Town of
- Fort Ann, Town of
- Fort Ann, Village of
- Fort Edward, Town of
- Fort Edward, Village of
- Granville, Town of
- Granville, Village of
- Greenwich, Town of
- Greenwich, Village of
- Hampton, Town of
- Hartford, Town of
- Hebron, Town of
- Hudson Falls, Village of
- Jackson, Town of
- Kingsbury, Town of
- Putnam, Town of
- Salem, Town of
- Salem, Village of
- White Creek, Town of
- Whitehall, Town of
- Whitehall, Village of

Other (please specify)

5. Has your business been impacted by natural hazard events (damaged, closed for extended periods, etc.)?

- ◯ Yes
- ◯ No

If you answered "YES", please identify the events and provide a brief description of the damages or loss of service

6. Do you believe that your facilities are disaster-resistant, or capable of withstanding a natural disaster (e.g. are properly located and constructed, and have back-up power as appropriate)?

- ◯ Yes
- ◯ No
- ◯ I don't know

Please explain

7. Do you think that the transportation infrastructure serving your facilities (e.g. roads and bridges) are properly designed to withstand closures and/or damage due to natural hazards, and thus provides longterm support for your business and commerical needs?

- ◯ Yes
- ◯ No
- ◯ I don't know

Please explain

8. Do you think that the utility infrastructure (specifically electricity and communications) is sufficiently disaster-resistant to support your business and commercial needs?

- ◯ Yes
- ◯ No
- ◯ I don't know

Please explain

9. Do you believe that natural hazard risks (e.g. flood zones, landslide/steep slope areas, wildfire risk zones) are considered when developing or expanding commercial or industrial areas?

- ◯ Yes
- ◯ No
- ◯ I don't know

Please explain

10. Do you believe that business organizations/associations, chambers of commerce, etc., are a valuable resource in helping business owners protect themselves pre-disaster, and/or recover post-disaster?

- ◯ Yes
- ◯ No
- ◯ I don't know

Please explain

11. Do you believe that businesses are aware and take appropriate advantage of flood insurance and other risk management resources and programs to help protect them from losses, as well as to support recovery from disasters?

- ◯ Yes
- ◯ No
- ◯ I don't know

Please explain

12. Do you believe that emergency planning, services, and equipment are adequate to manage and respond properly to natural disasters that may impact your business or commercial interests?

- ◯ Yes
- ◯ No
- ◯ I don't know

Please explain

13. Do you believe that local government understands, supports, and possesses adequate resources for natural hazard risk reduction efforts in the community?

- ◯ Yes
- ◯ No
- ◯ I don't know

Please explain

14. Is your business covered by a Continuity of Operations / Continuity of Government (COOP / COG) plan? COOP / COG plans examine an business's ability to perform minimum essential functions during any situation. COOP activities support the continuance of business functions, while COG activities support the continuance of business governance.

- ◯ Yes
- ◯ No
- ◯ I don't know

If "Yes", please explain.

15. Can you identify projects or programs that will reduce your facility's vulnerability to damages and losses, including loss of operation/service, to hazard events?

16. Do you have any other comments, questions, or concerns?

Washington County, NY HMP - Emergency Medical Services Survey

Hazard Mitigation: Any action taken to reduce the loss of life and property by lessening the impact of disasters (natural, technological and man-made).

Washington County, along with its inclusive municipalities, is in the process of updating its 2010 Hazard Mitigation Plan in order to be eligible for federal grant funding for public and private mitigation projects. The HMP must provide a “blueprint” by which local governments can make coordinated, cost-effective efforts towards reducing losses from natural hazards (flooding, severe storms, severe winter storms, etc.).

The following survey is designed to help identify general needs for mitigation within the County from your perspective, as well as to identify specific projects that may be included in the mitigation plan.

Please review and answer the following questions regarding potential mitigation that affects Emergency Medical Service providers within Washington County. Provide as much detail as possible to support your choice in the Comments box. Where possible, identify specific areas (locations, facilities, programs, policies, etc.) that need to be improved, and your suggestions for possible improvements. If there are other important issues that you feel are not covered by these survey questions, please let us know.

Washington County, NY HMP - Emergency Medical Services Survey

* 1. Name of your EMS facility:

2. Name of Respondent:

3. Contact information (email address or phone number) - optional:

4. Please identify the location of your facility(ies) and or primary service area:

- Argyle, Town of
- Argyle, Village of
- Cambridge, Town of
- Cambridge, Village of
- Dresden, Town of
- Easton, Town of
- Fort Ann, Town of
- Fort Ann, Village of
- Fort Edward, Town of
- Fort Edward, Village of
- Granville, Town of
- Granville, Village of
- Greenwich, Town of
- Greenwich, Village of
- Hampton, Town of
- Hartford, Town of
- Hebron, Town of
- Hudson Falls, Village of
- Jackson, Town of
- Kingsbury, Town of
- Putnam, Town of
- Salem, Town of
- Salem, Village of
- White Creek, Town of
- Whitehall, Town of
- Whitehall, Village of

Other (please specify)

5. Has your EMS facility been impacted by natural hazard events (damaged, closed for extended periods, etc.)?

- ◯ Yes
- ◯ No

If you answered "YES", please identify the events and provide a brief description of the damages or loss of service

6. Do you think that critical and essential facilities (incl. EMS facilities, hospitals and medical centers) are disaster-resistant (e.g. are properly located and constructed, and have back-up power as appropriate)?

- ◯ Yes
- ◯ No
- ◯ I don't know

Please explain

7. Do you think that the transportation infrastructure serving your facilities (e.g. roads and bridges) are properly designed to withstand closures and/or damage due to natural hazards?

- ◯ Yes
- ◯ No
- ◯ I don't know

Please explain

Washington County, NY HMP - Emergency Medical Services Survey

8. Do you think that the utility infrastructure (specifically electricity and communications) is sufficiently disaster-resistant to support EMS functions during and after natural hazard events?

- ◯ Yes
- ◯ No
- ◯ I don't know

Please explain

9. Do you think that local public education and awareness programs are effective at informing the public on what they should do to be prepared for and reduce their personal risk to natural disasters, so as not to increase the need for EMS during hazard events?

- ◯ Yes
- ◯ No
- ◯ I don't know

Please explain

10. Do you think that announcements of road closures and pending road closures are sufficiently accurate and available to support EMS functions during natural hazard events?

- ◯ Yes
- ◯ No
- ◯ I don't know

Please explain

11. Do you think that the public is aware of, understands, and takes advantage of emergency warning and notification systems and services (reverse 911, audible alerts, cell and text services)?

- ◯ Yes
- ◯ No
- ◯ I don't know

Please explain

12. Do you think that your EMS company works to inform your constituents of how they can better manage their risk to natural hazards?

- ◯ Yes
- ◯ No
- ◯ I don't know

Please explain

13. Do you think that emergency response planning, services, and equipment are adequate to manage and respond properly to natural disasters in your community?

- ◯ Yes
- ◯ No
- ◯ I don't know

Please explain

14. Do you think that local government understands, supports, and possess the resources for natural hazard risk reduction efforts in the community?

- ◯ Yes
- ◯ No
- ◯ I don't know

Please explain

15. Is your organization covered by a Continuity of Operations (COOP) plan? COOP plans examine an organization's ability to perform minimum essential functions during any situation, and support the continuance of organization functions.

- ◯ Yes
- ◯ No
- ◯ I don't know

If "Yes", please explain.

16. Can you identify projects or programs that will reduce your facility's vulnerability to damages and losses, including loss of operation/service, to hazard events?

17. Do you have any other comments, questions, or concerns?

Washington County, NY Hazard Mitigation Plan - Firefighter Survey

Hazard Mitigation: Any action taken to reduce the loss of life and property by lessening the impact of disasters (natural, technological and man-made).

Washington County, along with its inclusive municipalities, is in the process of updating its 2010 Hazard Mitigation Plan in order to be eligible for federal grant funding for public and private mitigation projects. The HMP must provide a “blueprint” by which local governments can make coordinated, cost-effective efforts towards reducing losses from natural hazards (flooding, severe storms, severe winter storms, etc.).

The following survey is designed to help identify general needs for mitigation within the County from your perspective, as well as to identify specific projects that may be included in the mitigation plan.

Please review and answer the following questions regarding potential mitigation that affects fire departments within Washington County. Provide as much detail as possible to support your choice in the Comments box. Where possible, identify specific areas (locations, facilities, programs, policies, etc.) that need to be improved, and your suggestions for possible improvements. If there are other important issues that you feel are not covered by these survey questions, please let us know.

Washington County, NY Hazard Mitigation Plan - Firefighter Survey

* 1. Name of your fire department or district:

2. Name of respondent:

3. Contact information (email address or phone number) - optional:

4. Please identify the location of your facility(ies) and or primary service area:

- Argyle, Town of
- Argyle, Village of
- Cambridge, Town of
- Cambridge, Village of
- Dresden, Town of
- Easton, Town of
- Fort Ann, Town of
- Fort Ann, Village of
- Fort Edward, Town of
- Fort Edward, Village of
- Granville, Town of
- Granville, Village of
- Greenwich, Town of
- Greenwich, Village of
- Hampton, Town of
- Hartford, Town of
- Hebron, Town of
- Hudson Falls, Village of
- Jackson, Town of
- Kingsbury, Town of
- Putnam, Town of
- Salem, Town of
- Salem, Village of
- White Creek, Town of
- Whitehall, Town of
- Whitehall, Village of

Other (please specify)

5. Has your fire department been impacted by natural hazard events (damaged, closed for extended periods, etc.)?

- Yes
- No

If you answered "YES", please identify the events and provide a brief description of the damages or loss of service

6. Do you think that critical and essential facilities (incl. fire departments, EMS, hospitals and medical centers) are disaster-resistant (e.g. are properly located and constructed, and have back-up power as appropriate)?

- Yes
- No
- I don't know

Please explain

7. Do you think that the transportation infrastructure serving your facilities (e.g. roads and bridges) are properly designed to withstand closures and/or damage due to natural hazards?

- Yes
- No
- I don't know

Please explain

8. Do you think that the utility infrastructure (specifically electricity and communications) is sufficiently disaster-resistant to support school functions after natural hazard events?

- Yes
- No
- I don't know

Please explain

9. Do you think that local public education and awareness programs are effective at informing the public on what they should do to be prepared for and reduce their personal risk to natural disasters, so as not to increase the need for fire fighting services during hazard events?

- Yes
- No
- I don't know

Please explain

10. Do you think that announcements of road closures and pending road closures are sufficiently accurate and available to support fire department functions during natural hazard events?

- Yes
- No
- I don't know

Please explain

11. Do you think that the public is aware of, understands, and takes advantage of emergency warning and notification systems and services (reverse 911, audible alerts, cell and text services)?

- Yes
- No
- I don't know

Please explain

12. Do you think that your department/fire district works to inform your constituents of how they can better manage their risk to natural hazards (e.g. proper use of portable heaters and generators, defensible space for wildfires, etc.)?

- Yes
- No
- I don't know

Please explain

13. Do you think that emergency response planning, services, and equipment are adequate to manage and respond properly to natural disasters in your community?

- Yes
- No
- I don't know

Please explain

14. Do you think that local government understands, supports, and possess the resources for natural hazard risk reduction efforts in the community?

- Yes
- No
- I don't know

Please explain

15. Is your organization covered by a Continuity of Operations (COOP) plan? COOP plans examine an organization's ability to perform minimum essential functions during any situation, and support the continuance of your organization's functions.

- Yes
- No
- I don't know

If "Yes", please explain.

16. Can you identify projects or programs that will reduce your facility's vulnerability to damages and losses, including loss of operation/service, to hazard events?

17. Do you have any other comments, questions, or concerns?

Washington County, NY Hazard Mitigation Plan - Hospital and Health Care Provider Survey

Hazard Mitigation: Any action taken to reduce the loss of life and property by lessening the impact of disasters (natural, technological and man-made).

Washington County, along with its inclusive municipalities, is in the process of updating its 2010 Hazard Mitigation Plan in order to be eligible for federal grant funding for public and private mitigation projects. The HMP must provide a “blueprint” by which local governments can make coordinated, cost-effective efforts towards reducing losses from natural hazards (flooding, severe storms, severe winter storms, etc.).

The following survey is designed to help identify general needs for mitigation within the County from your perspective, as well as to identify specific projects that may be included in the mitigation plan.

Please review and answer the following questions regarding potential mitigation that affects hospitals and health care facilities within Washington County. Provide as much detail as possible to support your choice in the Comments box. Where possible, identify specific areas (locations, facilities, programs, policies, etc.) that need to be improved, and your suggestions for possible improvements. If there are other important issues that you feel are not covered by these survey questions, please let us know.

Washington County, NY Hazard Mitigation Plan - Hospital and Health Care Provider Survey

* 1. Name of your health care facility:

2. Name of respondent:

3. Contact information (email address or phone number) - optional:

4. Please identify the location of your facility(ies) and or primary service area:

- Argyle, Town of
- Argyle, Village of
- Cambridge, Town of
- Cambridge, Village of
- Dresden, Town of
- Easton, Town of
- Fort Ann, Town of
- Fort Ann, Village of
- Fort Edward, Town of
- Fort Edward, Village of
- Granville, Town of
- Granville, Village of
- Greenwich, Town of
- Greenwich, Village of
- Hampton, Town of
- Hartford, Town of
- Hebron, Town of
- Hudson Falls, Village of
- Jackson, Town of
- Kingsbury, Town of
- Putnam, Town of
- Salem, Town of
- Salem, Village of
- White Creek, Town of
- Whitehall, Town of
- Whitehall, Village of

Other (please specify)

5. Have your facilities been impacted by natural hazard events (damaged, closed for extended periods, etc.)?

- ◯ Yes
- ◯ No

If you answered "YES", please identify the events and provide a brief description of the damages or loss of service

6. Do you think that critical and essential facilities (incl. hospitals and medical centers, EMS facilities, schools, etc.) are disaster-resistant (e.g. are properly located and constructed, and have back-up power as appropriate)?

- ◯ Yes
- ◯ No
- ◯ I don't know

Please explain

7. Do you think that the transportation infrastructure serving your facilities (e.g. roads and bridges) are properly designed to withstand closures and/or damage due to natural hazards?

- ◯ Yes
- ◯ No
- ◯ I don't know

Please explain

Washington County, NY Hazard Mitigation Plan - Hospital and Health Care Provider Survey

8. Do you think that the utility infrastructure (specifically electricity and communications) is sufficiently disaster-resistant to support your facility's health care functions during and after natural hazard events?

- ◯ Yes
- ◯ No
- ◯ I don't know

Please explain

9. Do you think that local public education and awareness programs are effective at informing the public on what they should do to be prepared for and reduce their personal risk to natural disasters, so as not to increase the need for health care services during hazard events?

- ◯ Yes
- ◯ No
- ◯ I don't know

Please explain

10. Do you think that announcements of road closures and pending road closures are sufficiently accurate and available to support hospital functions during natural hazard events?

- ◯ Yes
- ◯ No
- ◯ I don't know

Please explain

11. Do you think that the public is aware of, understands, and takes advantage of emergency warning and notification systems and services (reverse 911, audible alerts, cell and text services)?

- ◯ Yes
- ◯ No
- ◯ I don't know

Please explain

12. Do you think that your organization works to inform your constituents of how they can better manage their risk to natural hazards?

- ◯ Yes
- ◯ No
- ◯ Not applicable

Please explain

13. Do you think that emergency response planning, services, and equipment are adequate to manage and respond properly to natural disasters in your community?

- ◯ Yes
- ◯ No
- ◯ I don't know

Please explain

14. Do you think that local government understands, supports, and possess the resources for natural hazard risk reduction efforts in the community?

- ◯ Yes
- ◯ No
- ◯ I don't know

Please explain

15. Is your organization covered by a Continuity of Operations (COOP) plan? COOP plans examine an organization's ability to perform minimum essential functions during any situation, and support the continuance of organization functions.

- ◯ Yes
- ◯ No
- ◯ I don't know

If "Yes", please explain.

16. Can you identify projects or programs that will reduce your facility's vulnerability to damages and losses, including loss of operation/service, to hazard events?

17. Do you have any other comments, questions, or concerns?

Washington County, NY Hazard Mitigation Plan - Law Enforcement Survey

Warren County - Law Enforcement Survey

Hazard Mitigation: Any action taken to reduce the loss of life and property by lessening the impact of disasters (natural, technological and man-made).

Washington County, along with its inclusive municipalities, is in the process of updating its 2010 Hazard Mitigation Plan in order to be eligible for federal grant funding for public and private mitigation projects. The HMP must provide a “blueprint” by which local governments can make coordinated, cost-effective efforts towards reducing losses from natural hazards (flooding, severe storms, severe winter storms, etc.).

The following survey is designed to help identify general needs for mitigation within the County from your perspective, as well as to identify specific projects that may be included in the mitigation plan.

Please review and answer the following questions regarding potential mitigation that affects law enforcement facilities and operations within Washingtonn County. Provide as much detail as possible to support your choice in the Comments box. Where possible, identify specific areas (locations, facilities, programs, policies, etc.) that need to be improved, and your suggestions for possible improvements. If there are other important issues that you feel are not covered by these survey questions, please let us know.

Washington County, NY Hazard Mitigation Plan - Law Enforcement Survey

* 1. Name of your police department or law enforcement agency:

2. Name of Respondent:

3. Contact information (email address or phone number) - optional:

4. Please identify the location of your facility(ies) and or primary service area:

- Argyle, Town of
- Argyle, Village of
- Cambridge, Town of
- Cambridge, Village of
- Dresden, Town of
- Easton, Town of
- Fort Ann, Town of
- Fort Ann, Village of
- Fort Edward, Town of
- Fort Edward, Village of
- Granville, Town of
- Granville, Village of
- Greenwich, Town of
- Greenwich, Village of
- Hampton, Town of
- Hartford, Town of
- Hebron, Town of
- Hudson Falls, Village of
- Jackson, Town of
- Kingsbury, Town of
- Putnam, Town of
- Salem, Town of
- Salem, Village of
- White Creek, Town of
- Whitehall, Town of
- Whitehall, Village of

Other (please specify)

5. Have your facilities been impacted by natural hazard events (damaged, closed for extended periods, etc.)?

- ◯ Yes
- ◯ No

If you answered "YES", please identify the events and provide a brief description of the damages or loss of service

6. Do you think that critical and essential facilities (incl. police stations, jails and detention centers) are disaster-resistant (e.g. are properly located and constructed, and have back-up power as appropriate)?

- ◯ Yes
- ◯ No
- ◯ I don't know

Please explain

7. Do you think that the transportation infrastructure serving your facilities (e.g. roads and bridges) are properly designed to withstand closures and/or damage due to natural hazards?

- ◯ Yes
- ◯ No
- ◯ I don't know

Please explain

8. Do you think that the utility infrastructure (specifically electricity and communications) is sufficiently disaster-resistant to support law enforcement functions during and after natural hazard events?

- ◯ Yes
- ◯ No
- ◯ I don't know

Please explain

9. Do you think that local public education and awareness programs are effective at informing the public on what they should do to be prepared for and reduce their personal risk to natural disasters, so as not to increase the need for law enforcement and police protective services during hazard events?

- ◯ Yes
- ◯ No
- ◯ I don't know

Please explain

10. Do you think that announcements of road closures and pending road closures are sufficiently accurate and available to support law enforcement and police protective service functions during natural hazard events?

- ◯ Yes
- ◯ No
- ◯ I don't know

Please explain

11. Do you think that the public is aware of, understands, and takes advantage of emergency warning and notification systems and services (reverse 911, audible alerts, cell and text services)?

- ◯ Yes
- ◯ No
- ◯ I don't know

Please explain

12. Do you think that emergency response planning, services, and equipment are adequate to manage and respond properly to natural disasters in your community?

- ◯ Yes
- ◯ No
- ◯ I don't know

Please explain

13. Do you think that local government understands, supports, and possess the resources for natural hazard risk reduction efforts in the community?

- ◯ Yes
- ◯ No
- ◯ I don't know

Please explain

14. Is your organization covered by a Continuity of Operations (COOP) plan? COOP plans examine an organization's ability to perform minimum essential functions during any situation, and support the continuance of your organization's functions.

- ◯ Yes
- ◯ No
- ◯ I don't know

If "Yes", please explain.

15. Can you identify projects or programs that will reduce your facility's vulnerability to damages and losses, including loss of operation/service, to hazard events?

16. Please provide any additional comments here. Thank you!

Washington County, NY Hazard Mitigation Plan - Utility Survey

Hazard Mitigation: Any action taken to reduce the loss of life and property by lessening the impact of disasters (natural, technological and man-made).

Washington County, along with its inclusive municipalities, is in the process of updating its 2010 Hazard Mitigation Plan in order to be eligible for federal grant funding for public and private mitigation projects. The HMP must provide a “blueprint” by which local governments can make coordinated, cost-effective efforts towards reducing losses from natural hazards (flooding, severe storms, severe winter stormsures, etc.).

The following survey is designed to help identify general needs for mitigation within the County from your perspective, as well as to identify specific projects that may be included in the mitigation plan.

Please review and answer the following questions regarding potential mitigation that affects utilities within Washington County. Provide as much detail as possible to support your choice in the Comments box. Where possible, identify specific areas (locations, facilities, programs, policies, etc.) that need to be improved, and your suggestions for possible improvements. If there are other important issues that you feel are not covered by these survey questions, please let us know.

Washington County, NY Hazard Mitigation Plan - Utility Survey

* 1. Name of your utility:

2. Name of respondent:

3. Contact information (email address or phone number) - optional:

4. Please identify the location of your facility(ies) and or primary service area (you may pick more than one choice):

- [ ] Argyle, Town of
- [ ] Argyle, Village of
- [ ] Cambridge, Town of
- [ ] Cambridge, Village of
- [ ] Dresden, Town of
- [ ] Easton, Town of
- [ ] Fort Ann, Town of
- [ ] Fort Ann, Village of
- [ ] Fort Edward, Town of
- [ ] Fort Edward, Village of
- [ ] Granville, Town of
- [ ] Granville, Village of
- [ ] Greenwich, Town of
- [ ] Greenwich, Village of
- [ ] Hampton, Town of
- [ ] Hartford, Town of
- [ ] Hebron, Town of
- [ ] Hudson Falls, Village of
- [ ] Jackson, Town of
- [ ] Kingsbury, Town of
- [ ] Putnam, Town of
- [ ] Salem, Town of
- [ ] Salem, Village of
- [ ] White Creek, Town of
- [ ] Whitehall, Town of
- [ ] Whitehall, Village of

Other (please specify)

5. Has your utility been impacted by natural hazard events (damaged, closed for extended periods, etc.)?

- ◯ Yes
- ◯ No

If you answered "YES", please identify the events and provide a brief description of the damages or loss of service

6. Do you believe that your facilities and infrastructure are disaster-resistant (e.g. are properly located, constructed, and protected from damage from natural hazards)?

- ◯ Yes
- ◯ No
- ◯ I don't know

Please explain

7. Do you believe that your facilities and infrastructure have sufficient redundancy and/or are sufficiently networked to provide a minimal level of service to your customers (esp. critical and essential services such as police, fire, hospitals) in the event that you suffer damage/loss to your equipment?

- ◯ Yes
- ◯ No
- ◯ I don't know

Please explain

8. Do you think that local public education and awareness programs are effective at informing the public on what they should do to be prepared for and reduce their personal risk to natural disasters, so as to reduce their reliance on your services during and after hazard events?

- ◯ Yes
- ◯ No
- ◯ I don't know

Please explain

9. Do you think that announcements of utility outages and service restoration schedules are sufficiently accurate and available to support the needs of emergency management, as well as owners/operators of critical and essential facilities?

- ◯ Yes
- ◯ No
- ◯ I don't know

Please explain

10. Do you think that the public is aware of, understands, and takes advantage of emergency warning and notification systems and services (reverse 911, audible alerts, cell and text services)?

- ◯ Yes
- ◯ No
- ◯ I don't know

Please explain

11. Do you think that vegetation management programs (e.g. tree trimming and removal) are sufficient to manage the risk of utility outages during natural hazard events?

- ◯ Yes
- ◯ No
- ◯ I don't know

Please explain

12. Do you think that emergency response planning, services, and equipment are adequate to manage and respond properly to natural disasters in your community?

- ◯ Yes
- ◯ No
- ◯ I don't know

Please explain

13. Do you think that local government understands, supports, and possess the resources for natural hazard risk reduction efforts in the community?

- ◯ Yes
- ◯ No
- ◯ I don't know

Please explain

14. Is your organization covered by a Continuity of Operations (COOP) plan? COOP plans examine an organization's ability to perform minimum essential functions during any situation, and support the continuance of your organization's functions.

- ◯ Yes
- ◯ No
- ◯ I don't know

If "Yes", please explain.

15. Can you identify projects or programs that will reduce your facility's vulnerability to damages and losses, including loss of operation/service, to hazard events?

16. Do you have any other comments, questions, or concerns?

Name	Title / Position	Attended Meeting(s)	Completed Information Gathering Worksheets / Surveys	Provided Data and Information	Reviewed/Updated Inventories (e.g. Critical Facilities)	Identified vulnerabilities	Identified progress on original Mitigation Strategy	Supported update of Mitigation Strategy	Facilitated/Supported public and stakeholder outreach	Supported Integration/Coordination with other Planning Mechanisms	Reviewed/Approved Draft and Final Plan Sections	Designated Project Point of Contact
Washington County												
Jonathan Pease	Department of Public Safety	X	X									
Glen Gosnell	Department of Public Safety	X										
Timothy Hardy	Department of Public Safety	X										
Chris DeBolt	County Administrator	X										
Heather Weller	Real Property Tax Service; GIS	X		X								
Corrina Aldrich	Soil and Water Conservation District; District Mgr.	X										
Steve Haskins	Department of Public Works, Superintendent	X										
Todd Konifka	Department of Public Works; Deputy Super.	X										
Steven Smith	Code Enforcement Officer	X										
Layne Darfler	Junior Planner	X										
Joseph Brilling	Sewer District; Executive Director			X	X	X		X				
Town of Argyle												
Robert A. Henke	Supervisor	X	X	X		X	X					X
Bob Humiston	Highway Superintendent	X	X	X		X		X				X
Town of Cambridge												
Jim Buckley	Highway Superintendent	X	X	X		X	X	X		X		X
Douglas Ford	Deputy Supervisor	X										X
Catherine (Cassie) Fedler	Town Supervisor	X		X		X		X		X		X
Heather Greenawalt	Town Clerk		X									X
LaVerne Davis	Building Inspector											X
Town of Dresden												
Rick Hobus	Highway Superintendent	X	X				X	X				X
George Gang	Supervisor	X										X
Town of Easton												
Dan Shaw	Supervisor	X		X		X		X		X		X
Sharon Archambeault	Town Clerk			X								X
Steve Mueller	Highway Superintendent	X	X	X		X	X	X		X		X
Craig Hanson	Fire Chief											X

Name	Title / Position	Attended Meeting(s)	Completed Information Gathering Worksheets / Surveys	Provided Data and Information	Reviewed/Updated Inventories (e.g. Critical Facilities)	Identified vulnerabilities	Identified progress on original Mitigation Strategy	Supported update of Mitigation Strategy	Facilitated/Supported public and stakeholder outreach	Supported Integration/Coordination with other Planning Mechanisms	Reviewed/Approved Draft and Final Plan Sections	Designated Project Point of Contact
Robert Moy	Councilman											X
Town of Fort Ann												
Paul Winchell	Highway Superintendent	X						X				X
Richard Moore	Supervisor	X	X				X					X
Mark A. Miller	Code Enforcement Officer	X	X					X				X
Barbara J. Winchell	Town Clerk											X
Town of Fort Edward												
Brian Brockway	Highway Superintendent	X	X	X		X		X		X		X
Mitchell Suprenant	Supervisor	X	X				X					X
Matthew French	Code Enforcement Officer		X									X
Aimee Mahoney	Town Clerk											X
Town of Granville												
Eric Towne	Highway Superintendent	X	X	X			X	X				X
Matthew Hicks	Supervisor	X										X
Ernest Bassett Jr.	Chief of Police	X						X				X
Jenny Linda Martelle	Town Clerk											X
Town of Greenwich												
Kellie Blake	Clerk to the Supervisor	X	X	X		X	X	X		X		X
Dan O'Connor	Code Enforcement Officer		X									X
Sara S. Idleman	Supervisor											X
Town of Hampton												
Dave O'Brien	Supervisor	X	X				X					X
Herb Sady	Highway Superintendent	X										X
Town of Hartford												
Greg Brown	Highway Superintendent	X										X
Mark A. Miller	Code Enforcement Officer	X						X				X
Dana Haff	Supervisor	X										X
Town of Hebron												
Floyd Pratt	Highway Superintendent	X	X	X			X					X
Brian Campbell	Supervisor	X						X				X

Name	Title / Position	Attended Meeting(s)	Completed Information Gathering Worksheets / Surveys	Provided Data and Information	Reviewed/Updated Inventories (e.g. Critical Facilities)	Identified vulnerabilities	Identified progress on original Mitigation Strategy	Supported update of Mitigation Strategy	Facilitated/Supported public and stakeholder outreach	Supported Integration/Coordination with other Planning Mechanisms	Reviewed/Approved Draft and Final Plan Sections	Designated Project Point of Contact
Town of Jackson												
Sean Carney	Highway Superintendent	X		X		X	X	X		X		X
Tammy Skellie-Gilbert	Town Clerk	X	X									X
Jay Skellie	Supervisor		X									X
Town of Kingsbury												
Dana Hogan	Supervisor	X	X	X								X
Ross Cortese	Code Officer	X	X					X				X
Town of Putnam												
John R. LaPointe	Supervisor	X										X
Gary Treadway	Highway Superintendent	X	X					X				X
Darlene Kerr	Town Clerk											X
Town of Salem												
Seth M. Pitts	Supervisor	X	X				X					X
Tina Fleming	Citizen	X										X
Alton Knapp	NFIP FPA		X									X
Town of White Creek												
Chris Rieben	Highway Superintendent	X	X	X		X	X	X		X		X
Robert Shay	Town Supervisor	X	X				X					X
Town of Whitehall												
George Armstrong	Supervisor	X	X				X	X				X
Louis Pratt	Highway Superintendent	X	X					X				
Ernest Bassett Jr.	Chief of Police	X						X				
Vernon Schribner	NFIP FPA	X	X					X				X
George Rockenstire	Chief Water/Wastewater Plan Operator											X
Steven Brock	DPW Foreman											X
Village of Argyle												
Wesley Clark	Mayor	X	X					X				X
Joyann Stimpson	Clerk/Treasurer											X
Robert A. Henke	Supervisor											X
Village of Cambridge												

Name	Title / Position	Attended Meeting(s)	Completed Information Gathering Worksheets / Surveys	Provided Data and Information	Reviewed/Updated Inventories (e.g. Critical Facilities)	Identified vulnerabilities	Identified progress on original Mitigation Strategy	Supported update of Mitigation Strategy	Facilitated/Supported public and stakeholder outreach	Supported Integration/Coordination with other Planning Mechanisms	Reviewed/Approved Draft and Final Plan Sections	Designated Project Point of Contact
Matt Toleman	Public Works/DPW Superintendent	X										X
Carman Bogle	Village Mayor	X										X
Lance Allen Wang	Village Clerk		X									X
Village of Fort Ann												
Richard Foran	Mayor											X
Linda Blondin	Town Clerk											X
Village of Fort Edward												
Bryan Etu	Highway Superintendent											X
Thomas Wolfe	Highway Department		X	X								X
Matthew Traver	Mayor											X
Janelle M Rose	Deputy Village Clerk		X									X
Darlene DeVoe	Village Trustee											X
Village of Granville												
Dan Williams	Superintendent Public Works	X	X									X
George Johnson	Asst. Superintendent Public Works	X						X				X
Scott Mackey	Asst. Chief Operator	X						X				X
Rick Roberts	Village & ZBA Clerk			X								
Fred Roberts	Local Ordinance Official		X									
Village of Greenwich												
Pam Fuller	Mayor											X
Village of Hudson Falls												
Michael Fiorillo	Highway Superintendent											X
Randy Diamond	Chief of Police											X
Ellen Brayman	Clerk/Treasurer											X
Village of Whitehall												
Kenneth Bartholomew	Mayor	X	X				X	X				X
George Rockenstire	Chief Water / Wastewater Plant Operator	X										X
Steven Brock	DPW Foreman	X						X				X
Peter Telisky	Compliance/Zoning Enforcement		X									X

FPA *Floodplain Administrator*

GIS	*Geographic Information System*
LOIP	*Letter of Intent to Participate*
NFIP	*National Flood Insurance Program*
SC	*Steering Committee*
WC	*Washington County*

This appendix provides the Action Worksheet template, including instructions for its completion, used by the participating jurisdictions to document applicable projects identified in their mitigation strategy, including a summary of the action evaluation and prioritization process.

WASHINGTON COUNTY HAZARD MITIGATION PLAN UPDATE

Mitigation Action Worksheet

Please complete the following two tables per **NEW action/project** with as much detail as possible, using the guidance beginning on page 3.

Name of Jurisdiction: _____

Name and Title Completing Worksheet: _____

Action Number: _____

Mitigation Action Name: _____

Assessing the Risk	
Hazard(s) addressed:	
Specific problem being mitigated:	
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	
Action/Project Intended for Implementation	
Description of Selected Action/Project	
Mitigation Action Type	
Goals Met	
Applies to existing and or new development, or not applicable	
Benefits (losses avoided)	
Estimated Cost	
Priority*	
Plan for Implementation	
Responsible Organization	
Local Planning Mechanism	
Potential Funding Sources	
Timeline for Completion	
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

Action Number: _____

Mitigation Action Name: _____

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 (H/M/L)		

Guidance to Complete the Mitigation Action Worksheet

The following provides additional guidance on how to complete the Mitigation Action Worksheet. If you have any questions, please contact Heather Apgar – heather.apgar@tetratech.com; 973-630-8046.

Assessing the Risk

Hazard(s) addressed: Please enter the hazard of concern you are mitigating. For this plan, the hazards of concern identified for the planning area are:

- Earthquake
- Flood
- Severe Storm
- Severe Winter Storm
- Wildfire

Specific problem being mitigated: Please describe the specific problem being mitigated.

Evaluation of Potential Actions/Projects

Actions/Projects Considered: Please consider different options to mitigate the problem identified. Please describe all actions considered and a brief reason as to why an action was not selected.

Action/Project Intended for Implementation

Description of the Selected Project: Please provide a brief description of the selected project.

Mitigation Action Type:

- 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, Firewise and Climate Smart Communities.

Goals: Please insert the goals that would be met if the action/project is implemented.

- Goal 1: Project Life and Property
- Goal 2: Increase Public Awareness
- Goal 3: Encourage Partnerships

- Goal 4: Provide for Emergency Services
- 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.

Benefits: Please describe the losses avoided when the project is implemented. This includes physical property damage; loss of function; road closing/detours; etc.

Estimated Cost: Please provide the estimated cost (if known) or use the following ranges:

Low = < $10,000 Medium = $10,000 to $100,000 High = > $100,000

Priority: Please enter High/Medium/Low. Refer to the prioritization exercise and table.

Plan for Implementation

Potential Funding Source: Please identify the anticipated funding source, which could be "Grant funding with local cost share". Sources may include federal, state and local sources.

Timeline for Completion: Short = 1 to 5 years. Long Term= 5 years or greater. OG = On-going program.

Reporting on Progress

This section is for action progress reporting purposes during the five-year plan update cycle, as outlined in the plan maintenance procedures in Section 7 (Plan Maintenance).

Guidance to Complete the Prioritization Table

Complete this table to help evaluate and prioritize each mitigation action being considered by your municipality. Please use these 14 criteria below to assist in evaluating and prioritizing new mitigation actions identified. Specifically, for each new mitigation action, assign a numeric rank (-1, 0, or 1) for each of the 14 evaluation criteria in the provided table, defined as follows:

- 1 = Highly effective or feasible
- 0 = Neutral
- -1 = Ineffective or not feasible

Use the numerical results of this exercise to help prioritize your actions as "Tier I", "Tier II" or "Tier III" priority. Your municipality may recognize other factors or considerations that affect your overall prioritization; these should be identified in narrative in the Priority field of the worksheet.

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 jurisdiction 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?

Hazard Mitigation Planning Standards

Dear Hazard Mitigation Partner:

Congratulations on taking the first steps to create or update a multi-hazard mitigation plan for your community! Based on New York State's disaster history, the New York State Department of Homeland Security and Emergency Services (NYS DHSES) recommends your mitigation plan consider incorporating the standards below from the earliest planning phases.

PLEASE NOTE: These will be "required actions" for any hazard mitigation plan developed with funds administered by NYS DHSES and will be part of all contracts executed with grant recipients after October 15, 2012. All grantees are encouraged to include this information in their "Request for Proposals" and to provide it to their consultants before planning begins in earnest.

1. Counties and communities should invite (at a minimum) the following stakeholders when initiating the planning process and identifying strategies and specific projects:

    - County Hazard Mitigation Coordinators and Floodplain Professionals
    - County Emergency Managers
    - County Planners & GIS staff
    - County Soil & Water Conservation Districts
    - Regional & Metropolitan (Transportation) Planning Organizations
    - Delaware and Susquehanna River Basin Commissions (if applicable)
    - Local Hazard Mitigation Coordinators and Floodplain Managers
    - Local Code Enforcement Officials
    - Local Emergency Management (Emergency Manager, Fire & Police Chiefs)
    - Local Planners and planning consultants (if applicable)
    - Local Engineers and engineering consultants (if applicable)
    - Local Public Works or Highway Superintendents

    Inviting and encouraging participation of the local officials noted above is the best way to ensure success in the planning phases that develop a community's mitigation strategies and identify its specific projects. Plans developed without the participation of land use or community planners, and DPW officials, engineers, or others personally familiar with past damages to local infrastructure are less likely to contain viable, innovative or useful projects.

    The goal is to include the widest range of organizations and stakeholders to develop a hazard mitigation plan that best suits your community's unique needs. **Plans developed with NYS DHSES-administered funds must document that the stakeholders above were invited to participate at each phase, and whether they did or not.**

2. As part of the analysis of critical facilities, counties and communities should identify mitigation strategies and projects for any such facility that has ever sustained flooding, even if it is not located in a 100-year floodplain on a current (adopted) or draft FEMA Flood Insurance Rate Map (FIRM). Per FEMA's Part 9 regulations, critical facilities as defined by FEMA should be protected to a 500-year flood event. Identified projects should include the information described in 5a below. If mitigation projects have already been performed to address or reduce previous flooding, with or without FEMA assistance, the plan should also analyze these and document:

    - the original problem and the estimated annual damages;
    - the project, its cost, and the damages avoided since implementation;
    - other option(s) considered, their estimated costs, why they were deemed not feasible;
    - how well the project performed in subsequent events, if your basic assumptions were accurate, and what you'd change if you were doing it again;
    - social, economic or environmental considerations that support/challenge the project.

    Critical public facilities include those for police, fire protection/emergency services, medical care, education, libraries, utilities and other essential community services, the administrative and support facilities essential to their operation (as defined by FEMA), as well as major communication centers and facilities designed for bulk storage of chemicals, petrochemicals, hazardous or toxic substances or floatable materials (as defined by NYS DEC).

    Critical private non-profit (PNP) facilities include those for fire protection/emergency services, medical care, education, utilities, child care facilities, alcohol and drug rehabilitation facilities, custodial care, homeless shelters, libraries and other facilities that provide health and safety services of a governmental nature. Communities may also want to analyze risks to major employers and assess the economic impact of prolonged down-time due to disasters.

    The goal is to ensure that critical facilities remain accessible and functional before, during and after disasters to meet the community's continuity of government (COG) and continuity of operations (COOP) needs, and to support important emergency, response, government and sheltering functions. **Plans developed with NYS DHSES-administered funds must document that proposed (or already implemented) projects will protect critical facilities to a 500-year flood event or the actual worst-damage scenario, whichever is greater.**

3. Counties and communities containing a 100-year floodplain on either a current (adopted) or draft FEMA Flood Insurance Rate Map (FIRM) should identify:

    a. Sites for the placement of temporary housing units to house residents displaced by disaster. This can be an existing mobile home park, public or private land or parkland, or a site easily convertible to accept the temporary housing units, which, per the New York State Uniform Fire Prevention and Building Code, must have floor assemblies placed no less than 2' above the Base Flood Elevation (i.e., of the 100-year flood level). If sites are in a neighboring community, they should be discussed with that community and consistent with its mitigation and emergency plans, evacuation routes, etc.

    b. Potential sites within the community suitable for relocating houses out of the floodplain, or building new houses once properties in the floodplain are razed. The exploration should identify all suitable sites currently owned by the jurisdiction, and potential sites under private ownership that meet applicable local zoning requirements and floodplain laws.

The goal is to provide more immediate short-term and long-term housing options to residents in flood-prone homes, to continue their active involvement in their neighborhoods, schools or places of worship, and to avoid or reduce personal hardship and impacts to the local economy and tax base. **Plans developed with NYS DHSES-administered funds must identify potential sites and any pre-disaster actions required to make them viable, and include a letter from the local floodplain administrator listing any actions required to ensure conformance with the NYS Uniform Fire Prevention and Building Code, the applicable local floodplain law, etc.**

4. Communities with residential neighborhoods or critical facilities (see 2 above) that have been flooded, inundated, or isolated by water, even if they are not located in a 100-year floodplain on a current (adopted) or draft FEMA Flood Insurance Rate Map (FIRM), should develop evacuation routes and procedures (or analyze/update current evacuation routes and shelter procedures based on recent flooding) and identify shelters, including provisions for a range of medical needs, accommodation for pets, and compliance with the Americans with Disabilities Act (see www.ada.gov).

   The goal is to protect residents and minimize stress and personal hardship during disasters. **Plans developed with NYS DHSES-administered funds must identify evacuation routes and shelters (or refer back to such components in an existing valid plan), any pre-disaster actions required to make them viable, evidence of coordination with adjoining communities, and a project lead/point of contact and timetable for implementing new items or revisions.**

5. Counties and communities should incorporate the following items and features in the strategies and projects sections of their plans:

   a. The Plan should include all mitigation projects on the community's wish list, even those that may not meet FEMA eligibility or Benefit-Cost Analysis requirements, since funding should be sought from multiple sources to achieve a community's mitigation goals most quickly. Each project identified should include a brief description of:

      - the problem and the estimated annual damages;
      - the preferred option, its estimate cost, and the estimated annual damages that will be avoided if it is implemented;
      - how the proposal might be eligible under grant criteria other than mitigation (e.g., coastal, sustainability or climate change initiatives, brownfield funds);
      - other option(s) considered, their estimated costs, and their challenges or why they were deemed not feasible;
      - the social, economic or environmental considerations that support/challenge it;
      - any steps that need to be taken (e.g., engineering studies) before the project can be implemented, the person(s) or organization(s) with lead and supporting roles in completing those steps, and an estimated timetable for completion.

      The goal is to have all the community's projects in one place to easily and quickly identify viable candidates when grants are available from FEMA and other private, local, State or Federal agencies. **Plans developed with NYS DHSES-administered funds must use the attached template prepared by FEMA Region II as a starting point for developing a format to describe the projects identified in individual communities.**

b. The Plan should include a list of potential local, State and Federal funding sources that apply to the projects identified as well as public-private partnerships worth pursuing. This should include a brief description of the programs and links to webpages for those opportunities. (N.B.: lack of an identified funding source or program should not prevent a project's inclusion in a community's list of possible mitigation actions.)

   The goal is to link identified projects with viable funding sources, and not to rely solely on the availability of FEMA funding, making implementation that much more likely. **Plans developed with NYS DHSES-administered funds must include this list, which must incorporate active web links to the appropriate agency page.**

c. The Plan should include a section that documents mitigation projects completed by the county or the jurisdiction within its borders, whether funded locally or by private, state or federal agencies and organizations. Each project should include a brief description of:

   - the original problem and the estimated annual damages;
   - the project, its cost, and the damages avoided since implementation;
   - the other option(s) considered, their estimated costs, and their challenges or why they were deemed not feasible;
   - how well the project performed in subsequent events, if your basic assumptions were accurate, and what you'd change if you were doing it again;
   - the social, political or environmental considerations that supported/challenged the proposal, and the stakeholders, approaches and other factors that contributed to its successful implementation.

   The goal is to provide a context for the community's projects, to act as a source of ideas for mitigation projects and evaluate the accuracy of assumptions and engineering solutions to inform future, similar projects, and to support future mitigation planning and its coordination with other planning, zoning and environmental procedures within the community. **Plans developed with NYS DHSES-administered funds must use the attached template prepared by FEMA Region II as a starting point for developing a format to describe its communities' already-completed projects.**

6. Jurisdictions should also take into account how climate change may affect their vulnerability to the following hazards, specifically the increased frequency of occurrence and/or severity for: Flooding, Wildfire, Drought and Extreme Temperatures.

   If it is determined that climate change is likely to increase the frequency or severity of a specific hazard, jurisdictions should identify how they will adapt to or mitigate for these issues. Counties and communities with coastal property should also analyze their vulnerability to sea level rise.

   The goal is to plan for and accommodate climate change and sea level rise to protect residents, avoid or reduce damage to property and public infrastructure, and reduce personal hardship. **Plans developed with NYS DHSES-administered funds must include this information within their discussion of these hazards and must contain strategies and projects to address them.**

7. Draft plans should be placed on an existing county/community website, or one created for the purpose of soliciting comments, for 30 days or the time prescribed by local law, whichever is greater. The webpage should identify the name, mailing address, day phone and/or e-mail address

for the person responsible for receiving and reviewing comments on the draft hazard mitigation plan. The final plan should also be placed on an existing county/community website, or one created for the purpose of educating the public about the community's mitigation initiatives, and should contain the contact information specified above for the person responsible for maintaining the plan and answering questions about it once it has been adopted.

The goal is to educate the public about how mitigation can both save lives and avoid repetitive property damage in times of diminishing local infrastructure budgets. **Plans developed with NYS DHSES-administered funds must be posted (draft plan during the public comment period, and final adopted versions after adoption) and must include the specified contact information.**

8. **For plans developed with NYS DHSES-administered funds: final payment will occur only after 50% of the participating jurisdictions have adopted the FEMA-approved plan and provided adoption resolutions to NYS DHSES. For county-led hazard mitigation planning efforts, the county must be one of the adopting jurisdictions.**

Some of these standards may be considered Response activities not meeting the traditional definition of Mitigation actions. They also may not be eligible for grant assistance under FEMA's mitigation programs, and they will not "count" toward the strategy development or project identification that's required of participants in the mitigation planning process: communities must still identify projects that meet the traditional definition of mitigation for each natural hazard analyzed in their local plans.

However, these will be "required actions" for any mitigation plan developed with funds administered by NYS DHSES, and part of all contracts executed with our grant recipients after October 15, 2012. Questions? Contact the Hazard Mitigation Section at 518-292-2304 or NYSOEMHazMit@dhses.ny.gov.

Other Resources

The following online resources may also be helpful as you begin the mitigation planning process:

- The 2013 Local Mitigation Planning Handbook is the official guide for local governments to develop, update and implement local mitigation plans - http://www.fema.gov/media-library/assets/documents/31598?id=7209 –
- 2011 Local Mitigation Plan Review Guide - Use this review guide & tool as FEMA will use it to review plans exclusively, beginning October 1, 2012.
- NYS Sea Level Rise Task Force materials and findings: www.dec.ny.gov/energy/75794.html.
- NYS Climate Smart Communities: http://www.dec.ny.gov/energy/50845.html
- NYS Community Sustainability: http://www.dec.ny.gov/energy/76483.html
- Beyond the Basics: Best Practices in Local Mitigation Planning. University of North Carolina. http://mitigationguide.org/about-this-handbook-2/
- NYSERDA Climate Change Report ("Climaid") : www.nyserda.ny.gov/Publications/Research-and-Development/Environmental/EMEP-Publications/Response-to-Climate-Change-in-New-York.aspx
- "Disaster Resilience: A National Imperative" by the Committee on Increasing National Resilience to Hazards and Disasters, the Committee on Science, Engineering, and Public Policy, and The National Academies: www.nap.edu/catalog.php?record_id=13457.

Action Worksheet	
Name of Jurisdiction: **Name of Haz. Mit. Plan:**	
Risk / Vulnerability	
Problem being Mitigated:	
Potential Actions/Projects (not being Implemented at this time)	
Actions/Projects Considered with Summary Evaluation of Each:	
Action or Project Intended for Implementation	
Action/Project Number: **Name of Action or Project:**	
Action or Project Description:	
Summary of Evaluation[1] **Benefits (losses avoided)** **Estimated Cost** **Other Factors Considered**	
Plan for Implementation	
Responsible Organization:	
Action/Project Priority:	
Timeline for Completion:	
Potential Fund Sources:	
Local Planning Mechanisms to be Used in Implementation, if any:	
Progress Report	
Date of Status Report: **Report of Progress:** **Evaluation of Effectiveness:**	

[1] Summarize the evaluation of potential actions and the action selected for implementation. Always consider the benefits and costs. Other criterion might include: Technical Feasibility, Political Support, Legal Authority, Environmental Impacts, positive and negative Social Impacts, and whether the jurisdiction has a person willing to be the Local Champion for implementation and is this person with the full support of the jurisdiction Administratively Capable of implementing the action selected for implementation.

Action Worksheet Instructions	
Name of Jurisdiction: **Name of Haz. Mit. Plan:**	*Give the name of your municipality* *Name of the Hazard Mitigation Plan when it is a Multi-Jurisdictional Plan*
Risk / Vulnerability	
Problem being Mitigated:	*Describe the specific problem or area of concern. Each Action Worksheet should describe a unique problem. A well written problem statement is key to a successful mitigation action.*
Potential Actions/Projects (not being Implemented at this time)	
Actions/Projects Considered with Summary Evaluation of Each:	*For each problem, consider different types of mitigation actions/projects. Document this consideration by naming the potential actions/projects considered and by explaining why each is not being implemented. The documentation of alternatives encourages comprehensive thinking and facilitates the preparation of grant applications.*
Action or Project Intended for Implementation	
Action/Project Number: **Name of Action or Project:**	*Give each action a unique number and name (title) for easy reference. It is recommended that the municipality's initials be part of the action number to avoid confusion in multi-jurisdiction plans. For example, the City of Long Beach might use the number LB-1 for their first action.*
Action or Project Description:	*Describe the work to be done. It should be a unique statement of work, not a generic statement. Sources, such as FEMA's Mitigation Ideas publication, include generic actions to trigger the brainstorming of specific actions that could be taken. These generic actions must be refined into specific actions that address the specific problem at hand.*
Summary of Evaluation **Benefits (losses avoided)** **Estimated Cost** **Other Factors Considered**	*Summarize the evaluation of the action/project. Part of this evaluation must be a consideration of the benefits (losses avoided) and costs for the project. Describe any other factors and how they affected the decision. Factors such as technical, legal, environmental, social, and political considerations. The capacity of the jurisdiction to undertake this work should also be considered.*
Plan for Implementation	
Responsible Organization:	*This should be the name of a department or agency, not the name of the municipality.*
Action/Project Priority:	*Actions may be numbered in priority order or could be assigned a general priority, such as high, medium, or low.*
Timeline for Completion:	*State the target time when the action/project will be completed. Other timeline information might also be provided, such as the estimated start date. All actions must have a point in time when they will be completed in order to be considered a mitigation action as defined by FEMA. Actions which are "ongoing" (e.g. maintenance) reduce risk for the short-term and may be very worthy activities, but they do not meet the definition of mitigation action for this plan. Mitigation action for this plan must reduce risk for the long-term.*
Potential Fund Sources:	*Multiple sources of potential funding should be listed when appropriate.*
Local Planning Mechanisms to be Used in Implementation, if any:	*Other plans (e.g. land use plans) and processes (e.g. capital budgeting process) are often means through which mitigation actions can be more easily implemented. Consider the use of local planning mechanisms and identify any existing planning mechanisms that will be used to implement this action/project.*
Progress Report	
Date of Status Report: **Report of Progress:** **Evaluation of Effectiveness:**	*In the future this space may be used to report on progress. Leave this space blank until it is time to complete a status report.*

Action Worksheet Example	
Name of Jurisdiction: **Name of Haz. Mit. Plan:**	Town of London, Bristol County NY Bristol County Multi-Jurisdictional Hazard Mitigation Plan
Risk / Vulnerability	
Problem being Mitigated:	The Taunton River is subject to ice jams near River Road. On multiple occasions homes in this area have been flooded. Homeowners have incurred high rebuilding costs, over and above insurance claims. Traffic along this thoroughfare is disrupted during flood events.
Potential Actions/Projects (not being Implemented at this time)	
Actions/Projects Considered with Summary Evaluation of Each:	Taunton River Rock Removal – Remove the large rocks from the river that catch ice flows. This alternative is not being pursued because the financial costs would be very high and the effectiveness of this is in doubt. It would also jeopardize the viability of the river as a fishing destination. Acquire Homes – Offer to purchase the affected homes. Upon taking ownership, remove the homes and return the land to its natural state. This alternative is not being pursued because homeowners do not want to leave the community. Removal of these homes would also diminish the town's tax base. Educate River Road Homeowners – Distribute a brochure to River Road homeowners describing the probability of future flooding and suggesting possible mitigation steps they may take. This option is not being pursued because the homeowners are well aware of the risk and the mitigation actions they may take. They have already several smaller / affordable mitigation actions. They cannot afford to do more.
Action or Project Intended for Implementation	
Action/Project Number: **Name of Action or Project:**	L-1: River Road Home Elevations Program
Action or Project Description:	Offer to partially fund the elevation of homes that have been multiple times over the past thirty-years. When homeowners accept this offer, homes will be elevated above base flood evaluation and according to NYS building code.
Summary of Evaluation **Benefits (losses avoided)** **Estimated Cost** **Other Factors Considered**	Partially funding home elevations makes this option affordable to homeowners and avoids a lessening of the town's tax base. The mitigation action would avoid future flood damage of about $750,000. The cost of the elevation program is expected to be just under $500,000. The program would be voluntary, making it more socially and politically acceptable.
Plan for Implementation	
Responsible Organization:	Town Planning Department
Action/Project Priority:	High
Timeline for Completion:	An application for a FEMA grant will be made in year 1and the program should be completed within 3 years.
Potential Fund Sources:	FEMA Hazard Mitigation Grant Program (HMGP) funds FEMA Pre-Disaster Mitigation Program (PDM) funds
Local Planning Mechanisms to be Used in Implementation, if any:	The administration of this activity will be added to Planning Department's annual work plan.
Progress Report	
Date of Status Report: **Report of Progress:** **Evaluation of Effectiveness:**	No report at this time.

This appendix includes worksheets to facilitate plan maintenance and review by the Washington County Planning Committee.

Worksheet #1 Progress Report step 2

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?

Other comments:

Adapted from the North Carolina HMGP Progress Report Form at 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?		
Comments/Proposed Action:		
Are there organizations that have been invaluable to the planning process or to project implementation that should be represented on the planning team?		
Comments/Proposed Action:		
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?		
Comments/Proposed Action:		
Are there procedures (e.g., signing of MOAs, commenting on submitted progress reports, distributing meeting minutes, etc.) that can be done more efficiently?		
Comments/Proposed Action:		
Are there ways to gain more diverse and widespread cooperation?		
Comments/Proposed Action:		
Are there different or additional resources (financial, technical, and human) that are now available for mitigation planning?		
Comments/Proposed Action:		

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

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** ☐ **NO**

IF 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? _____

_____

_____

_____

_____

_____

_____

	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 #1 Progress Report step 2

Progress Report Period: October 1, 2003 (date) to December 31, 2003 (date)

Project Title: Raging River Views Park Flood Acquisition Project Project ID#: HVMP-2003-01

Responsible Agency: Hazardville Department of Planning

Address: 1909 Burnham Way

City/County: Hazardville, Emergency

Contact Person: Eunice Euclid Title: Grants Administrator

Phone #(s): (555) 555-8473 email address: euclid@town.hazardville.on

List Supporting Agencies and Contacts:

Hazardville Department of Housing: Noah Hudson (555) 555-8465

Hazardville Habitat for Humanity: Carter Goodman (555) 555-9432

Total Project Cost: $360,000

Anticipated Cost Overrun/Underrun: $N/A

Date of Project Approval: July 21, 2003 Start date of the project: November 15, 2003

Anticipated completion date: Summer 2005

Description of the Project (include a description of each phase, if applicable, and the time frame for completing each phase):

Acquire and demolish 14 structures located at the Raging River Views Park. Work with Habitat for Humanity and the Department of Housing to construct new housing or rehabilitate existing housing for displaced low-income residents. The Department of Housing will also provide funds for temporary housing to displaced residents.

Milestones	Complete	Projected Date of Completion
Conduct surveys of ground and first-floor elevations	✓	
Obtain Notices of Intent by owners	✓	
Conduct structure appraisals	✓	
Send letters of offer to homeowners		1/31/04
Perform title work		3/30/04
Acquire structures		6/30/04
Begin construction of new housing or reconstruction of existing housing for relocated residents		6/30/04
Send payment for relocation to renters		9/30/04
Finalize contract for demolition		1/12/05
Demolish structures		4/26/05
Landscape open parcels		6/30/05

Plan Goal(s)/Objective(s) Addressed:

Goal: Minimize losses to existing and future structures within hazard areas.

Objective: Reduce potential damages to the manufactured home park in the floodplain.

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.

Losses Avoided. After a major flood (100-year), the Department of Economic Development will assist the Planning Department in calculating the losses avoided.

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

- [x] Project on schedule
- [ ] Project completed
- [ ] Project delayed*

*explain: _____

- [ ] Project canceled

Project Cost Status

- [x] Cost unchanged
- [ ] Cost overrun*

*explain: _____

- [ ] Cost underrun*

*explain: _____

Summary of progress on project for this report:

A. What was accomplished during this reporting period?

The Department of Planning contacted the owners of the properties vulnerable to floods to determine their willingness to sell their properties. Of the 14 property owners contacted, 10 agreed to have their homes acquired. An appraiser contracted by the Department of Planning estimated the value of the 10 properties.

B. What obstacles, problems, or delays did you encounter, if any?

The owners of four properties refused to sell. There has been some limited neighborhood opposition to various suggestions for the community open space created by the acquisitions.

C. How was each problem resolved?

The Department of Planning has proposed to the residents a design charrette to develop alternatives for the open space that would be created, with the understanding that no permanent structures can be constructed on the open parcels after acquisition and demolition has been completed. Recreational activities will be limited to passive uses such as trails and bike paths.

Next Steps: What is/are the next step(s) to be accomplished over the next reporting period?

1. Send offer letters to homeowners.
2. Do title work.
3. Work with the Department of Housing and Habitat for Humanity to identify existing housing for rehabilitation and viable vacant parcels to construct new housing for the displaced residents.

Other comments:

None

Adapted from the North Carolina HMGP Progress Report Form at 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?		✓
Comments/Proposed Action: NA		
Are there organizations that have been invaluable to the planning process or to project implementation that should be represented on the planning team?	✓	
Comments/Proposed Action: Hazardville Habitat for Humanity has been invaluable in assisting the relocation of former Raging River Views Park residents. The organization should be invited to participate in THORR.		
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?	✓	
Comments/Proposed Action: It is essential that the Department of Public Works be represented at each meeting because so many mitigation actions involve them. However, representatives from the department have been unable to attend meetings consistently since the development of the plan. THORR will work with the departments director to find consistent, active representation.		
Are there procedures (e.g., signing of MOAs, commenting on submitted progress reports, distributing meeting minutes, etc.) that can be done more efficiently?	✓	
Comments/Proposed Action: Again, the Department of Public Works has been unable to provide timely progress reports of its mitigation actions. Administrative duties and paperwork have fallen through the cracks since the department has been assigned numerous new duties in Hazardville's mitigation efforts. Perhaps the department, in partnership with THORR, should approach the Town Council for funding for more department staff.		
Are there ways to gain more diverse and widespread cooperation?	✓	
Comments/Proposed Action: THORR members believe that better publicity about mitigation actions will garner more interest from the public, affected/interested organizations, and state agencies.		
Are there different or additional resources (financial, technical, and human) that are now available for mitigation planning?	✓	
Comments/Proposed Action: THORR has learned about new PDM funding. The state has asked that local jurisdictions submit applications for brick and mortar projects and risk assessments studies.		

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

Project Name and Number:

Raging River Views Park Flood Acquisition Project (HVMP-2003-01)

Project Budget:

$360,000

Project Description:

Acquisition and demolition of 14 flood-prone structures

Associated Goal and Objective(s):

Goal: Minimize losses to existing and future structures within hazard areas

Objective: Reduce potential damages to the manufactured home park in the floodplain

Indicator of Success (e.g., losses avoided):

Losses avoided by acquisition and demolition of flood-prone structures

Town of Hazardville Composite Loss Map developed previously during risk assessment (see FEMA 386-2).

Was the action implemented? ☑ YES ☐ NO

IF 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?

Of the 14 proposed properties, 10 were acquired. The benefit-cost ratio is 2.19, based on project benefits of $789,000 and costs of $360,274. Benefits are based on the net present value of the avoided damages over the project life. Furthermore, about 40 people are no longer in the path of a potential flood, making emergency rescue operations in that area less likely and evacuation easier.

	YES	NO
Were the outcomes as expected? If No, please explain:		✓
The project originally set out to acquire 14 properties. Four of the 14 owners did not want to participate in the buyout program.		
Did the results achieve the goal and objective(s)? Explain how:	✓	
Despite four properties still in harm's way, the objective has been largely met. See additional comments.		
Was the action cost-effective? Explain how or how not:	✓	
The FEMA Limited Data module was used to perform the benefit-cost analysis. Data for the analysis was collected from historical flood data and used as benchmarks in the before mitigation section of the analysis. The damages after mitigation section was left blank, due to the properties being permanently acquired, and the economic risk removed completely. The analysis resulted in a benefit-cost ratio of 2.19, with benefits totaling $789,000 for 10 properties.		
What were the losses avoided after having completed the project?		
Total avoided losses are $789,000 over the lifetime of the project (estimated at 100 years).		
If it was a structural project, how did it change the hazard profile?		
N/A		
Additional comments or other outcomes:		
The Planning Department has agreed to work with the remaining four homeowners in evaluating other flood-proofing options.		

Date: October 12, 2005

Prepared by: Hazardville Department of Economic Development
Hazardville Department of Planning

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?	✓		Recently completed maps and studies showing vulnerability of the new coastal development to erosion and tidal surge are 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?	✓		The Planning Department is preparing a coastal development plan to ensure that any future development is set back far enough to be outside the erosion zones and the coastal high hazard areas. Current and future road configurations will also be studied to ensure adequate evacuation times before hurricane events.
	Are there any new special high-risk populations?	✓		Coastal residents and business owners.
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.

This appendix provides copies of the municipal Letters of Intent to Participate, as described in Section 3 - "Planning Process".

Shelley McKernon
Town Clerk

Nancy Strong
Assessor

Karen Lohret
Bookkeeper/Confidential Secretary

Town of Argyle

41 Main Street
Argyle, NY 12809
Phone (518) 638-8681 Fax: (518) 638-6823
http://townofargyleny.com/

Bob Henke
Supervisor

Councilmen
Richard Ayers
Tim Healey
Patrick Sullivan
Duane Flower

July 6, 2016

Washington County Department of Public Safety
383 Broadway
Fort Edwards, NY 12828

Subject: Washington County All Hazard Mitigation Plan Update
Authorization and Letter of Intent to Participate – Town of Argyle

Department of Public Safety:

Per your letter dated May 20, 2016, the Town of Argyle, is committed to participating in the Washington County Hazard Mitigation Plan (HMP) update project. By way of this letter, the Town of Argyle:

1. Authorizes the Washington County Department of Public Safety and Hazard Mitigation Steering Committee ("Steering Committee"), to guide and direct this planning process, perform certain parts of the planning process, and prepare certain parts of the plan documents on our behalf.

2. Agrees to meet the minimum requirements of municipal participation (a.k.a. the Planning Partner Expectations), specifically:

- Execute and return this "Authorization and Acknowledgement" letter to the Washington County Department of Public Safety, via mail or email at publicsafety@co.washington.ny.us
- Identify municipal representatives to serve as the planning point of contacts (POC), below. These people will be responsible for representing their community and assuring that these participation expectations are met by their community.
- Support the Steering Committee selected to oversee the development of this plan.
- Provide representation at municipal Planning Committee meetings (~ 3 meetings over 6-8 months, including a Kick-Off Meeting (June 15, 2016) and a Mitigation Strategy Workshop).

- Provide data and information about your community as requested by the Steering Committee or the contract consultant, including:
    - Structure and facility inventory data
    - Identification of new development and anticipated development
    - Identification of natural hazard risk areas
    - Identification of natural hazard events and losses that have impacted your community in the last five years
    - Identification of plans, studies, reports and ordinances addressing natural hazard risk
    - Identify mitigation activity in your community in the last five years, including progress on previously identified mitigation actions.

- Support public outreach efforts in your community which may include:
    - Providing notices of the planning project on your municipal website with links to a County project website
    - Providing notice of the planning project, the availability of Plan documents, and notice of public meetings via available local media (e.g. newsletters, flyers, email blasts, social media, etc.)
    - Advertising and supporting public meetings in your area
    - Supporting outreach to National Flood Insurance Program (NFIP) Repetitive Loss and Severe Repetitive Loss property owners in your community.

- Assist with the identification of stakeholders within your community that should be informed and potentially involved with the planning process.
- Completing data and information collection survey forms in a timely manner.
- Identify specific mitigation actions to address each of the natural hazards posing significant [or high or medium] risk to your community.
- Involve your local NFIP Floodplain Administrator in the planning process.
- Review draft Plan sections when requested and provide comment and input as appropriate.
- Adopt the Plan by resolution of their governing body after FEMA conditional approval.
- Periodically provide the Steering Committee with reports of municipal staff and volunteer labor spent on the planning process.

3. Assigns the following persons to be the Points of Contact for our jurisdiction. We understand that these POCs are responsible for assuring municipal representation at municipal Planning Committee meetings, and assuring that the other minimum requirements of jurisdictional participation, as detailed in the Planning Partner Expectations above, are met.

Primary POC: **Robert Humiston**	Position/Department: Highway Superintendent
Phone Number: 518-638-8210	Email Address: Ester6454@msn.com
Alternate/Secondary POC: **Robert Henke**	Position/Department: Town Supervisor
Phone Number: 518-638-8681 ext 12	Email Address:Argylesupervisor@hotmail.com

4. Our designated local Floodplain Administrator (FPA) under the NFIP is:

Name of NFIP FPA:Robert Henke	Position/Department: Town Supervisor
Phone Number:518-638-8681 ext 12	Email Address:argylesupervisor@hotmail.com

5. Recognizes that failure to meet the minimum participation expectations and deadlines, as determined by the Steering Committee will result in our municipality being excluded from the planning process.

Sincerely,

R. A. Henke

Robert Henke
Town Supervisor
Town of Argyle

AUTHORIZATION AND ACKNOWLEDGMENT TO PARTICIPATE

WASHINGTON COUNTY HAZARD MITIGATION PLAN (HMP)

Date: 6/30/16

Washington County Department of Public Safety
383 Broadway
Fort Edward, NY 12828

Subject: Washington County All Hazard Mitigation Plan Update
Authorization and Letter of Intent to Participate - Town of Cambridge
MUNICIPALITY NAME

Department of Public Safety;

Per your letter dated May 20, 2016, the Town of Cambridge, is committed to participating in the Washington County Hazard Mitigation Plan (HMP) update project. By way of this letter, the Town of Cambridge:

1. Authorizes the Washington County Department of Public Safety and Hazard Mitigation Steering Committee ("Steering Committee"), to guide and direct this planning process, perform certain parts of the planning process, and prepare certain parts of the plan documents on our behalf.

2. Agrees to meet the minimum requirements of municipal participation (a.k.a. the Planning Partner Expectations), specifically:

- Execute and return this "Authorization and Acknowledgement" letter to the Washington County Department of Public Safety, via mail or email at publicsafety@co.washington.ny.us .
- Identify municipal representatives to serve as the planning point of contacts (POC), below. These people will be responsible for representing their community and assuring that these participation expectations are met by their community.
- Support the Steering Committee selected to oversee the development of this plan.
- Provide representation at municipal Planning Committee meetings (~ 3 meetings over 6-8 months, including a Kick-Off Meeting (June 15, 2016) and a Mitigation Strategy Workshop).
- Provide data and information about your community as requested by the Steering Committee or the contract consultant, including:
    - Structure and facility inventory data
    - Identification of new development and anticipated development
    - Identification of natural hazard risk areas
    - Identification of natural hazard events and losses that have impacted your community in the last five years
    - Identification of plans, studies, reports and ordinances addressing natural hazard risk
    - Identify mitigation activity in your community in the last five years, including progress on previously identified mitigation actions.

- Support public outreach efforts in your community which may include:
    - Providing notices of the planning project on your municipal website with links to a County project website
    - Providing notice of the planning project, the availability of Plan documents, and notice of public meetings via available local media (e.g. newsletters, flyers, email blasts, social media, etc.)
    - Advertising and supporting public meetings in your area
    - Supporting outreach to National Flood Insurance Program (NFIP) Repetitive Loss and Severe Repetitive Loss property owners in your community.

- Assist with the identification of stakeholders within your community that should be informed and potentially involved with the planning process.
- Completing data and information collection survey forms in a timely manner.
- Identify specific mitigation actions to address each of the natural hazards posing significant [or high or medium] risk to your community.
- Involve your local NFIP Floodplain Administrator in the planning process.
- Review draft Plan sections when requested and provide comment and input as appropriate.
- Adopt the Plan by resolution of their governing body after FEMA conditional approval.
- Periodically provide the Steering Committee with reports of municipal staff and volunteer labor spent on the planning process.

3. Assigns the following persons to be the Points of Contact for our jurisdiction. We understand that these POCs are responsible for assuring municipal representation at municipal Planning Committee meetings, and assuring that the other minimum requirements of jurisdictional participation, as detailed in the Planning Partner Expectations above, are met.

Primary POC: Jim Buckley Jr	Position/Department: Highway Superintendent
Phone Number: (518) 378-8738	Email Address: —
Alternate/Secondary POC: Cassie Fedler	Position/Department: Town Supervisor
Phone Number: (518) 796-1877	Email Address: Cfedler@co.washington.ny.us

4. Our designated local Floodplain Administrator (FPA) under the NFIP is:

Name of NFIP FPA:	Position/Department:
Phone Number:	Email Address:

5. Recognizes that failure to meet the minimum participation expectations and deadlines, as determined by the Steering Committee will result in our municipality being excluded from the planning process.

Sincerely,

Jim Buckley Jr

SIGNATURE - CHIEF MUNICIPAL OFFICIAL

AUTHORIZATION AND ACKNOWLEDGMENT TO PARTICIPATE

WASHINGTON COUNTY HAZARD MITIGATION PLAN (HMP)

Date: June 1 2016

Washington County Department of Public Safety
383 Broadway
Fort Edward, NY 12828

Subject: Washington County All Hazard Mitigation Plan Update
Authorization and Letter of Intent to Participate - TOWN OF DRESDEN
MUNICIPALITY NAME

Department of Public Safety;

Per your letter dated May 20, 2016, the TOWN OF DRESDEN, is committed to participating in the Washington County Hazard Mitigation Plan (HMP) update project. By way of this letter, the TOWN OF DRESDEN:

1. Authorizes the Washington County Department of Public Safety and Hazard Mitigation Steering Committee ("Steering Committee"), to guide and direct this planning process, perform certain parts of the planning process, and prepare certain parts of the plan documents on our behalf.

2. Agrees to meet the minimum requirements of municipal participation (a.k.a. the Planning Partner Expectations), specifically:

- Execute and return this "Authorization and Acknowledgement" letter to the Washington County Department of Public Safety, via mail or email at publicsafety@co.washington.ny.us .
- Identify municipal representatives to serve as the planning point of contacts (POC), below. These people will be responsible for representing their community and assuring that these participation expectations are met by their community.
- Support the Steering Committee selected to oversee the development of this plan.
- Provide representation at municipal Planning Committee meetings (~ 3 meetings over 6-8 months, including a Kick-Off Meeting (June 15, 2016) and a Mitigation Strategy Workshop).
- Provide data and information about your community as requested by the Steering Committee or the contract consultant, including:
    - Structure and facility inventory data
    - Identification of new development and anticipated development
    - Identification of natural hazard risk areas
    - Identification of natural hazard events and losses that have impacted your community in the last five years
    - Identification of plans, studies, reports and ordinances addressing natural hazard risk
    - Identify mitigation activity in your community in the last five years, including progress on previously identified mitigation actions.

- Support public outreach efforts in your community which may include:
    - Providing notices of the planning project on your municipal website with links to a County project website
    - Providing notice of the planning project, the availability of Plan documents, and notice of public meetings via available local media (e.g. newsletters, flyers, email blasts, social media, etc.)
    - Advertising and supporting public meetings in your area
    - Supporting outreach to National Flood Insurance Program (NFIP) Repetitive Loss and Severe Repetitive Loss property owners in your community.

- Assist with the identification of stakeholders within your community that should be informed and potentially involved with the planning process.
- Completing data and information collection survey forms in a timely manner.
- Identify specific mitigation actions to address each of the natural hazards posing significant [or high or medium] risk to your community.
- Involve your local NFIP Floodplain Administrator in the planning process.
- Review draft Plan sections when requested and provide comment and input as appropriate.
- Adopt the Plan by resolution of their governing body after FEMA conditional approval.
- Periodically provide the Steering Committee with reports of municipal staff and volunteer labor spent on the planning process.

3. Assigns the following persons to be the Points of Contact for our jurisdiction. We understand that these POCs are responsible for assuring municipal representation at municipal Planning Committee meetings, and assuring that the other minimum requirements of jurisdictional participation, as detailed in the Planning Partner Expectations above, are met.

Primary POC: RICHARD Hobus	Position/Department: Hwy Superintendent
Phone Number: 518 499 2040	Email Address: hobus@verizon.net
Alternate/Secondary POC: George Gang	Position/Department: Town Supervisor
Phone Number: 518 499 1100	Email Address: TOWNOFPRESTON@HOTMAIL.COM

4. Our designated local Floodplain Administrator (FPA) under the NFIP is:

Name of NFIP FPA:	Position/Department:
Phone Number:	Email Address:

5. Recognizes that failure to meet the minimum participation expectations and deadlines, as determined by the Steering Committee will result in our municipality being excluded from the planning process.

Sincerely,

SIGNATURE - CHIEF MUNICIPAL OFFICIAL

AUTHORIZATION AND ACKNOWLEDGMENT TO PARTICIPATE

WASHINGTON COUNTY HAZARD MITIGATION PLAN (HMP)

Date: 10/10/16

Washington County Department of Public Safety
383 Broadway
Fort Edward, NY 12828

Subject: Washington County All Hazard Mitigation Plan Update
Authorization and Letter of Intent to Participate - Town of Easton
MUNICIPALITY NAME

Department of Public Safety;

Per your letter dated May 20, 2016, the Town of Easton, is committed to participating in the Washington County Hazard Mitigation Plan (HMP) update project. By way of this letter, the Town of Easton:

1. Authorizes the Washington County Department of Public Safety and Hazard Mitigation Steering Committee ("Steering Committee"), to guide and direct this planning process, perform certain parts of the planning process, and prepare certain parts of the plan documents on our behalf.

2. Agrees to meet the minimum requirements of municipal participation (a.k.a. the Planning Partner Expectations), specifically:

- Execute and return this "Authorization and Acknowledgement" letter to the Washington County Department of Public Safety, via mail or email at publicsafety@co.washington.ny.us .
- Identify municipal representatives to serve as the planning point of contacts (POC), below. These people will be responsible for representing their community and assuring that these participation expectations are met by their community.
- Support the Steering Committee selected to oversee the development of this plan.
- Provide representation at municipal Planning Committee meetings (~ 3 meetings over 6-8 months, including a Kick-Off Meeting (June 15, 2016) and a Mitigation Strategy Workshop).
- Provide data and information about your community as requested by the Steering Committee or the contract consultant, including:
    - Structure and facility inventory data
    - Identification of new development and anticipated development
    - Identification of natural hazard risk areas
    - Identification of natural hazard events and losses that have impacted your community in the last five years
    - Identification of plans, studies, reports and ordinances addressing natural hazard risk
    - Identify mitigation activity in your community in the last five years, including progress on previously identified mitigation actions.

- Support public outreach efforts in your community which may include:
    - Providing notices of the planning project on your municipal website with links to a County project website
    - Providing notice of the planning project, the availability of Plan documents, and notice of public meetings via available local media (e.g. newsletters, flyers, email blasts, social media, etc.)
    - Advertising and supporting public meetings in your area
    - Supporting outreach to National Flood Insurance Program (NFIP) Repetitive Loss and Severe Repetitive Loss property owners in your community.

- Assist with the identification of stakeholders within your community that should be informed and potentially involved with the planning process.
- Completing data and information collection survey forms in a timely manner.
- Identify specific mitigation actions to address each of the natural hazards posing significant [or high or medium] risk to your community.
- Involve your local NFIP Floodplain Administrator in the planning process.
- Review draft Plan sections when requested and provide comment and input as appropriate.
- Adopt the Plan by resolution of their governing body after FEMA conditional approval.
- Periodically provide the Steering Committee with reports of municipal staff and volunteer labor spent on the planning process.

3. Assigns the following persons to be the Points of Contact for our jurisdiction. We understand that these POCs are responsible for assuring municipal representation at municipal Planning Committee meetings, and assuring that the other minimum requirements of jurisdictional participation, as detailed in the Planning Partner Expectations above, are met.

Primary POC: Daniel Shaw	Position/Department: Town Supervisor
Phone Number: 695-4677 - Cell - 744-2951	Email Address: eastonsuper1@hotmail.com
Alternate/Secondary POC: Randy Moy	Position/Department: Councilman
Phone Number: 692-9455 - Cell 424-9455	Email Address:

4. Our designated local Floodplain Administrator (FPA) under the NFIP is:

Name of NFIP FPA:	Position/Department:
Phone Number:	Email Address:

5. Recognizes that failure to meet the minimum participation expectations and deadlines, as determined by the Steering Committee will result in our municipality being excluded from the planning process.

Sincerely,

SIGNATURE - CHIEF MUNICIPAL OFFICIAL

TOWN OF FORT ANN
80 George St., PO Box 314
Fort Ann, NY 12827-0314
Phone: (518)639-8929
Fax: (518)639-4209

Town Supervisor
Richard Moore
(518) 639-8929

Town Clerk
Barbara J. Winchell
(518) 639-8929
(Fax) (518) 639-4209

Town Board Members
Dennis Fletcher
Gretchen Stark
Floyd Varney
Deborah Witherell

Superintendent of Highways
Paul Winchell
Phone/Fax 639-8950

June 16, 2016

Washington County Department of Public Safety
383 Broadway
Fort Edward, NY 12828

Subject: Washington County All Hazard Mitigation Plan Update
Authorization and Letter of Intent to Participate – Town of Fort Ann

Department of Public Safety:

Per your letter dated May 23, 2016, the Town of Fort Ann, is committed to participating in the Washington County Hazard Mitigation Plan (HMP) update project. By way of this letter, the Town of Fort Ann:

1. Authorizes the Washington County Department of Public Safety and Hazard Mitigation Steering Committee ("Steering Committee"), to guide and direct this planning process, perform certain parts of the planning process and prepare certain parts of the plan documents on our behalf.

2. Agrees to meet the minimum requirements of municipal participation (a.k.a. the Planning Partner Expectations), specifically:

- Execute and return this "Authorization and Acknowledgement" letter to the Washington County Department of Public Safety, via mail or email at publicsafety@co.washington.ny.us .

- Identify municipal representatives to serve as the planning point of contacts (POC), below. These people will be responsible for representing their community and assuring that these participation expectations are met by their community.

- Support the Steering Committee selected to oversee the development of this plan.

- Provide representation at municipal Planning Committee meetings (~3 meetings over 6 – 8 months, including a Kick-Off Meeting (June 15, 2016) and a Mitigation Strategy Workshop).

- Provide data and information about your community as requested by the Steering Committee or the contract consultant, including:
    - Structure and facility inventory data
    - Identification of new development and anticipated development
    - Identification of natural hazard risk areas
    - Identification of natural hazard events and losses that have impacted your community in the last five years
    - Identification of plans, studies, reports and ordinances addressing natural hazard risk
    - Identify mitigation activity in your community in the last five years, including progress on previously identified mitigation actions.

- Support public outreach efforts in your community which may include:
    - Providing notices of the planning project on your municipal website with links to a County project website
    - Providing notice of the planning project, the availability of Plan documents, and notice of public meetings via available local media (e.g. newsletters, flyers, email blasts, social media, etc.)
    - Advertising and supporting public meetings in your area
    - Supporting outreach to National Flood Insurance Program (NFIP) Repetitive Loss and Severe Loss property owners in your community.

- Assist with the identification of stakeholders within your community that should be informed and potentially involved with the planning process.

- Completing data and information collection survey forms in a timely manner.

- Identify specific mitigation actions to address each of the natural hazards posing significant (or high or medium) risk to your community.

- Involve your local NFIP Floodplain Administrator in the planning process.

- Review draft Plan sections when requested and provide comment and input as appropriate.

- Adopt the Plan by resolution of their governing body after FEMA conditional approval.

- Periodically provide the Steering Committee with reports of municipal staff and volunteer labor spent on the planning process.

3. Assigns the following persons to be the Points of Contact for our jurisdiction. We understand that these POCS are responsible for assuming municipal representation at municipal Planning Committee meetings, and assuring that the other minimum requirements of jurisdictional participation, as detailed in the Planning Partner Expectations above, are met.

Primary POC: Richard Moore	Position/Department: Town Supervisor
Phone Number: 518-639-8929	Email Address: supervisorfortann@gmail.com

Alternate/Secondary POC: Paul Winchell	Position/Department Highway Superintendent
Phone Number: 518-639-8950	Email Address: pwfa2@yahoo.com

4.Our designated local Floodplain Administrator (FPA) under the NFIP is:

Name of NFIP FPA: Mark Miller	Position/Department Code Enforcement Officer
Phone Number: 518-639-8929	Email Address: sqpegii@aol.com

5. Recognizes that failure to meet the minimum participation expectations and deadlines, as determined by the Steering Committee will result in our municipality being excluded from the planning process.

Sincerely,

Richard F. Moore
Town Supervisor

AUTHORIZATION AND ACKNOWLEDGMENT TO PARTICIPATE

WASHINGTON COUNTY HAZARD MITIGATION PLAN (HMP)

Date: 6/13/16

Washington County Department of Public Safety
383 Broadway
Fort Edward, NY 12828

Subject: Washington County All Hazard Mitigation Plan Update
Authorization and Letter of Intent to Participate - Town of Fort Edward
MUNICIPALITY NAME

Department of Public Safety;

Per your letter dated May 20, 2016, the Town of Fort Edward, is committed to participating in the Washington County Hazard Mitigation Plan (HMP) update project. By way of this letter, the Town of Fort Edward:

1. Authorizes the Washington County Department of Public Safety and Hazard Mitigation Steering Committee ("Steering Committee"), to guide and direct this planning process, perform certain parts of the planning process, and prepare certain parts of the plan documents on our behalf.

2. Agrees to meet the minimum requirements of municipal participation (a.k.a. the Planning Partner Expectations), specifically:

- Execute and return this "Authorization and Acknowledgement" letter to the Washington County Department of Public Safety, via mail or email at publicsafety@co.washington.ny.us .
- Identify municipal representatives to serve as the planning point of contacts (POC), below. These people will be responsible for representing their community and assuring that these participation expectations are met by their community.
- Support the Steering Committee selected to oversee the development of this plan.
- Provide representation at municipal Planning Committee meetings (~ 3 meetings over 6-8 months, including a Kick-Off Meeting (June 15, 2016) and a Mitigation Strategy Workshop).
- Provide data and information about your community as requested by the Steering Committee or the contract consultant, including:
    - Structure and facility inventory data
    - Identification of new development and anticipated development
    - Identification of natural hazard risk areas
    - Identification of natural hazard events and losses that have impacted your community in the last five years
    - Identification of plans, studies, reports and ordinances addressing natural hazard risk
    - Identify mitigation activity in your community in the last five years, including progress on previously identified mitigation actions.

- Support public outreach efforts in your community which may include:
  - Providing notices of the planning project on your municipal website with links to a County project website
  - Providing notice of the planning project, the availability of Plan documents, and notice of public meetings via available local media (e.g. newsletters, flyers, email blasts, social media, etc.)
  - Advertising and supporting public meetings in your area
  - Supporting outreach to National Flood Insurance Program (NFIP) Repetitive Loss and Severe Repetitive Loss property owners in your community.

- Assist with the identification of stakeholders within your community that should be informed and potentially involved with the planning process.
- Completing data and information collection survey forms in a timely manner.
- Identify specific mitigation actions to address each of the natural hazards posing significant [or high or medium] risk to your community.
- Involve your local NFIP Floodplain Administrator in the planning process.
- Review draft Plan sections when requested and provide comment and input as appropriate.
- Adopt the Plan by resolution of their governing body after FEMA conditional approval.
- Periodically provide the Steering Committee with reports of municipal staff and volunteer labor spent on the planning process.

3. Assigns the following persons to be the Points of Contact for our jurisdiction. We understand that these POCs are responsible for assuring municipal representation at municipal Planning Committee meetings, and assuring that the other minimum requirements of jurisdictional participation, as detailed in the Planning Partner Expectations above, are met.

Primary POC: Mitchell Suprenant	Position/Department: Town Supervisor
Phone Number: 518-744-7595	Email Address:
Alternate/Secondary POC: Brian Brockway	Position/Department: Superintendant of Highways
Phone Number: 518-747-5501	Email Address: FEFD 2701 @ Yahoo.com

4. Our designated local Floodplain Administrator (FPA) under the NFIP is:

Name of NFIP FPA:	Position/Department:
Phone Number:	Email Address:

5. Recognizes that failure to meet the minimum participation expectations and deadlines, as determined by the Steering Committee will result in our municipality being excluded from the planning process.

Sincerely,

SIGNATURE - CHIEF MUNICIPAL OFFICIAL

TOWN BOARD
MATTHEW HICKS, *Supervisor*
(518) 642-1500 ext. 1
granvillesupervisor@roadrunner.com
KENNETH QUICK, *Councilman*
MARY EMERY, *Councilwoman*
THOMAS COSEY, *Councilman*
MATTHEW RATHBUN, *Councilman*
TOWN CLERK
Jenny Linda Martelle
(518) 642-1500 ext. 4

TOWN OF Granville, NY

WASHINGTON COUNTY

42 MAIN STREET – P.O. BOX 177
GRANVILLE, NEW YORK 12832
(518) 642-1500

SOLE ASSESSOR
DANIEL D. BOONE
(518) 642-1500 EXT. 6
HIGHWAY SUPERINTENDENT
ERIC TOWNE
(518) 642-2560
TOWN COURT
ROGER L. FORANDO, *Justice*
(518) 642-1500 ext. 3

Date: 6/1/2016

Washington County Department of Public Safety
383 Broadway
Fort Edward, NY 12828

Subject: Washington County All Hazard Mitigation Plan Update Authorization and Letter of Intent to Participate - Town of Granville
MUNICIPALITY NAME

Department of Public Safety;

Per your letter dated May 20, 2016, the Town of Granville, is committed to participating in the Washington County Hazard Mitigation Plan (HMP) update project. By way of this letter, the Town of Granville:

1. Authorizes the Washington County Department of Public Safety and Hazard Mitigation Steering Committee ("Steering Committee"), to guide and direct this planning process, perform certain parts of the planning process, and prepare certain parts of the plan documents on our behalf.

2. Agrees to meet the minimum requirements of municipal participation (a.k.a. the Planning Partner Expectations), specifically:

- Execute and return this "Authorization and Acknowledgement" letter to the Washington County Department of Public Safety, via mail or email at publicsafety@co.washington.ny.us .
- Identify municipal representatives to serve as the planning point of contacts (POC), below. These people will be responsible for representing their community and assuring that these participation expectations are met by their community.
- Support the Steering Committee selected to oversee the development of this plan.
- Provide representation at municipal Planning Committee meetings (~ 3 meetings over 6-8 months, including a Kick-Off Meeting (June 15, 2016) and a Mitigation Strategy Workshop).
- Provide data and information about your community as requested by the Steering Committee or the contract consultant, including:
  - Structure and facility inventory data
  - Identification of new development and anticipated development
  - Identification of natural hazard risk areas
  - Identification of natural hazard events and losses that have impacted your community in the last five years
  - Identification of plans, studies, reports and ordinances addressing natural hazard risk
  - Identify mitigation activity in your community in the last five years, including progress on previously identified mitigation actions.

RECEIVED
JUN 10 2016
WASHINGTON COUNTY
PUBLIC SAFETY

TOWN BOARD
MATTHEW HICKS, *Supervisor*
(518) 642-1500 ext. 1
granvillesupervisor@roadrunner.com
KENNETH QUICK, *Councilman*
MARY EMERY, *Councilwoman*
THOMAS COSEY, *Councilman*
MATTHEW RATHBUN, *Councilman*
TOWN CLERK
Jenny Linda Martelle
(518) 642-1500 ext. 4

TOWN OF Granville, NY

WASHINGTON COUNTY

42 MAIN STREET – P.O. BOX 177
GRANVILLE, NEW YORK 12832
(518) 642-1500

SOLE ASSESSOR
DANIEL D. BOONE
(518) 642-1500 EXT. 6
HIGHWAY SUPERINTENDENT
ERIC TOWNE
(518) 642-2560
TOWN COURT
ROGER L. FORANDO, *Justice*
(518) 642-1500 ext. 3

- Support public outreach efforts in your community which may include:
  - Providing notices of the planning project on your municipal website with links to a County project website
  - Providing notice of the planning project, the availability of Plan documents, and notice of public meetings via available local media (e.g. newsletters, flyers, email blasts, social media, etc.)
  - Advertising and supporting public meetings in your area
  - Supporting outreach to National Flood Insurance Program (NFIP) Repetitive Loss and Severe Repetitive Loss property owners in your community.
- Assist with the identification of stakeholders within your community that should be informed and potentially involved with the planning process.
- Completing data and information collection survey forms in a timely manner.
- Identify specific mitigation actions to address each of the natural hazards posing significant [or high or medium] risk to your community.
- Involve your local NFIP Floodplain Administrator in the planning process.
- Review draft Plan sections when requested and provide comment and input as appropriate.
- Adopt the Plan by resolution of their governing body after FEMA conditional approval.
- Periodically provide the Steering Committee with reports of municipal staff and volunteer labor spent on the planning process.

3. Assigns the following persons to be the Points of Contact for our jurisdiction. We understand that these POCs are responsible for assuring municipal representation at municipal Planning Committee meetings, and assuring that the other minimum requirements of jurisdictional participation, as detailed in the Planning Partner Expectations above, are met.

Primary POC: ERIC TOWNE	Position/Department: HIGHWAY SUPT.
Phone Number: 518-642-2560	Email Address: grltownhwy@albany.twcbc.com
Alternate/Secondary POC: MARC KRETZER	Position/Department: WATER SUPT.
Phone Number: 518-642-2560	Email Address: SAME AS Above

4. Our designated local Floodplain Administrator (FPA) under the NFIP is:

Name of NFIP FPA: ERIC TOWNE	Position/Department: HIGHWAY SUPT.
Phone Number: 518-642-2560	Email Address: SAME AS Above

5. Recognizes that failure to meet the minimum participation expectations and deadlines, as determined by the Steering Committee will result in our municipality being excluded from the planning process.

Sincerely,

Eric Towne
SIGNATURE - CHIEF MUNICIPAL OFFICIAL

RECEIVED
JUN 10 2016
WASHINGTON COUNTY
PUBLIC SAFETY

AUTHORIZATION AND ACKNOWLEDGMENT TO PARTICIPATE

WASHINGTON COUNTY HAZARD MITIGATION PLAN (HMP)

Date: July 19, 2016

Washington County Department of Public Safety
383 Broadway
Fort Edward, NY 12828

Subject: Washington County All Hazard Mitigation Plan Update
Authorization and Letter of Intent to Participate - TOWN OF GREENWICH
MUNICIPALITY NAME

Department of Public Safety;

Per your letter dated May 20, 2016, the TOWN OF GREENWICH, is committed to participating in the Washington County Hazard Mitigation Plan (HMP) update project. By way of this letter, the TOWN OF GREENWICH:

1. Authorizes the Washington County Department of Public Safety and Hazard Mitigation Steering Committee ("Steering Committee"), to guide and direct this planning process, perform certain parts of the planning process, and prepare certain parts of the plan documents on our behalf.

2. Agrees to meet the minimum requirements of municipal participation (a.k.a. the Planning Partner Expectations), specifically:

- Execute and return this "Authorization and Acknowledgement" letter to the Washington County Department of Public Safety, via mail or email at publicsafety@co.washington.ny.us .
- Identify municipal representatives to serve as the planning point of contacts (POC), below. These people will be responsible for representing their community and assuring that these participation expectations are met by their community.
- Support the Steering Committee selected to oversee the development of this plan.
- Provide representation at municipal Planning Committee meetings (~ 3 meetings over 6-8 months, including a Kick-Off Meeting (June 15, 2016) and a Mitigation Strategy Workshop).
- Provide data and information about your community as requested by the Steering Committee or the contract consultant, including:
    - Structure and facility inventory data
    - Identification of new development and anticipated development
    - Identification of natural hazard risk areas
    - Identification of natural hazard events and losses that have impacted your community in the last five years
    - Identification of plans, studies, reports and ordinances addressing natural hazard risk
    - Identify mitigation activity in your community in the last five years, including progress on previously identified mitigation actions.

- Support public outreach efforts in your community which may include:
    - Providing notices of the planning project on your municipal website with links to a County project website
    - Providing notice of the planning project, the availability of Plan documents, and notice of public meetings via available local media (e.g. newsletters, flyers, email blasts, social media, etc.)
    - Advertising and supporting public meetings in your area
    - Supporting outreach to National Flood Insurance Program (NFIP) Repetitive Loss and Severe Repetitive Loss property owners in your community.

- Assist with the identification of stakeholders within your community that should be informed and potentially involved with the planning process.
- Completing data and information collection survey forms in a timely manner.
- Identify specific mitigation actions to address each of the natural hazards posing significant [or high or medium] risk to your community.
- Involve your local NFIP Floodplain Administrator in the planning process.
- Review draft Plan sections when requested and provide comment and input as appropriate.
- Adopt the Plan by resolution of their governing body after FEMA conditional approval.
- Periodically provide the Steering Committee with reports of municipal staff and volunteer labor spent on the planning process.

3. Assigns the following persons to be the Points of Contact for our jurisdiction. We understand that these POCs are responsible for assuring municipal representation at municipal Planning Committee meetings, and assuring that the other minimum requirements of jurisdictional participation, as detailed in the Planning Partner Expectations above, are met.

Primary POC: Kellie Blake	Position/Department: Bookkeeper
Phone Number: 518-692-7611ext 103	Email Address: bookkeeper@nycap.rr.com
Alternate/Secondary POC: Sara Idleman	Position/Department: Town Supervisor
Phone Number: 518-692-7611 ext 102	Email Address: idleman@nycap.rr.com

4. Our designated local Floodplain Administrator (FPA) under the NFIP is:

Name of NFIP FPA: Dan O'Connor	Position/Department: Code Enforcement
Phone Number: 518-810-2506	Email Address: Dan.OConnor@crbard.com

5. Recognizes that failure to meet the minimum participation expectations and deadlines, as determined by the Steering Committee will result in our municipality being excluded from the planning process.

Sincerely,

Sara Idleman

SIGNATURE - CHIEF MUNICIPAL OFFICIAL

AUTHORIZATION AND ACKNOWLEDGMENT TO PARTICIPATE

WASHINGTON COUNTY HAZARD MITIGATION PLAN (HMP)

Date: _____

Washington County Department of Public Safety
383 Broadway
Fort Edward, NY 12828

Subject: Washington County All Hazard Mitigation Plan Update
Authorization and Letter of Intent to Participate - TOWN OF HAMPTON
MUNICIPALITY NAME

Department of Public Safety;

Per your letter dated May 20, 2016, the TOWN OF HAMPTON, is committed to participating in the Washington County Hazard Mitigation Plan (HMP) update project. By way of this letter, the TOWN OF HAMPTON:

1. Authorizes the Washington County Department of Public Safety and Hazard Mitigation Steering Committee ("Steering Committee"), to guide and direct this planning process, perform certain parts of the planning process, and prepare certain parts of the plan documents on our behalf.

2. Agrees to meet the minimum requirements of municipal participation (a.k.a. the Planning Partner Expectations), specifically:

- Execute and return this "Authorization and Acknowledgement" letter to the Washington County Department of Public Safety, via mail or email at publicsafety@co.washington.ny.us .
- Identify municipal representatives to serve as the planning point of contacts (POC), below. These people will be responsible for representing their community and assuring that these participation expectations are met by their community.
- Support the Steering Committee selected to oversee the development of this plan.
- Provide representation at municipal Planning Committee meetings (~ 3 meetings over 6-8 months, including a Kick-Off Meeting (June 15, 2016) and a Mitigation Strategy Workshop).
- Provide data and information about your community as requested by the Steering Committee or the contract consultant, including:
  - Structure and facility inventory data
  - Identification of new development and anticipated development
  - Identification of natural hazard risk areas
  - Identification of natural hazard events and losses that have impacted your community in the last five years
  - Identification of plans, studies, reports and ordinances addressing natural hazard risk
  - Identify mitigation activity in your community in the last five years, including progress on previously identified mitigation actions.

- Support public outreach efforts in your community which may include:
  - Providing notices of the planning project on your municipal website with links to a County project website
  - Providing notice of the planning project, the availability of Plan documents, and notice of public meetings via available local media (e.g. newsletters, flyers, email blasts, social media, etc.)
  - Advertising and supporting public meetings in your area
  - Supporting outreach to National Flood Insurance Program (NFIP) Repetitive Loss and Severe Repetitive Loss property owners in your community.

- Assist with the identification of stakeholders within your community that should be informed and potentially involved with the planning process.
- Completing data and information collection survey forms in a timely manner.
- Identify specific mitigation actions to address each of the natural hazards posing significant [or high or medium] risk to your community.
- Involve your local NFIP Floodplain Administrator in the planning process.
- Review draft Plan sections when requested and provide comment and input as appropriate.
- Adopt the Plan by resolution of their governing body after FEMA conditional approval.
- Periodically provide the Steering Committee with reports of municipal staff and volunteer labor spent on the planning process.

3. Assigns the following persons to be the Points of Contact for our jurisdiction. We understand that these POCs are responsible for assuring municipal representation at municipal Planning Committee meetings, and assuring that the other minimum requirements of jurisdictional participation, as detailed in the Planning Partner Expectations above, are met.

Primary POC: HERB SADE	Position/Department: HIGHWAY SUPERINTENDENT
Phone Number: 518-338-7214	Email Address: HRSADEJR@verizon.NET
Alternate/Secondary POC: DAVE O'BRIEN	Position/Department: SUPERVISOR
Phone Number: 518-866-1022	Email Address: DAVEOBRIEN@HAMPTONNY.ORG

4. Our designated local Floodplain Administrator (FPA) under the NFIP is:

Name of NFIP FPA: DAVE O'BRIEN	Position/Department:
Phone Number: 518-866-1022	Email Address:

5. Recognizes that failure to meet the minimum participation expectations and deadlines, as determined by the Steering Committee will result in our municipality being excluded from the planning process.

Sincerely,

SIGNATURE - CHIEF MUNICIPAL OFFICIAL

AUTHORIZATION AND ACKNOWLEDGMENT TO PARTICIPATE

WASHINGTON COUNTY HAZARD MITIGATION PLAN (HMP)

Date: 6/14/16

Washington County Department of Public Safety
383 Broadway
Fort Edward, NY 12828

Subject: Washington County All Hazard Mitigation Plan Update Authorization and Letter of Intent to Participate - TOWN OF HARTFORD
MUNICIPALITY NAME

Department of Public Safety;

Per your letter dated May 20, 2016, the TOWN OF HARTFORD, is committed to participating in the Washington County Hazard Mitigation Plan (HMP) update project. By way of this letter, the TOWN OF HARTFORD:

1. Authorizes the Washington County Department of Public Safety and Hazard Mitigation Steering Committee ("Steering Committee"), to guide and direct this planning process, perform certain parts of the planning process, and prepare certain parts of the plan documents on our behalf.

2. Agrees to meet the minimum requirements of municipal participation (a.k.a. the Planning Partner Expectations), specifically:

- Execute and return this "Authorization and Acknowledgement" letter to the Washington County Department of Public Safety, via mail or email at publicsafety@co.washington.ny.us .
- Identify municipal representatives to serve as the planning point of contacts (POC), below. These people will be responsible for representing their community and assuring that these participation expectations are met by their community.
- Support the Steering Committee selected to oversee the development of this plan.
- Provide representation at municipal Planning Committee meetings (~ 3 meetings over 6-8 months, including a Kick-Off Meeting (June 15, 2016) and a Mitigation Strategy Workshop).
- Provide data and information about your community as requested by the Steering Committee or the contract consultant, including:
    - Structure and facility inventory data
    - Identification of new development and anticipated development
    - Identification of natural hazard risk areas
    - Identification of natural hazard events and losses that have impacted your community in the last five years
    - Identification of plans, studies, reports and ordinances addressing natural hazard risk
    - Identify mitigation activity in your community in the last five years, including progress on previously identified mitigation actions.

- Support public outreach efforts in your community which may include:
  - Providing notices of the planning project on your municipal website with links to a County project website
  - Providing notice of the planning project, the availability of Plan documents, and notice of public meetings via available local media (e.g. newsletters, flyers, email blasts, social media, etc.)
  - Advertising and supporting public meetings in your area
  - Supporting outreach to National Flood Insurance Program (NFIP) Repetitive Loss and Severe Repetitive Loss property owners in your community.

- Assist with the identification of stakeholders within your community that should be informed and potentially involved with the planning process.
- Completing data and information collection survey forms in a timely manner.
- Identify specific mitigation actions to address each of the natural hazards posing significant [or high or medium] risk to your community.
- Involve your local NFIP Floodplain Administrator in the planning process.
- Review draft Plan sections when requested and provide comment and input as appropriate.
- Adopt the Plan by resolution of their governing body after FEMA conditional approval.
- Periodically provide the Steering Committee with reports of municipal staff and volunteer labor spent on the planning process.

3. Assigns the following persons to be the Points of Contact for our jurisdiction. We understand that these POCs are responsible for assuring municipal representation at municipal Planning Committee meetings, and assuring that the other minimum requirements of jurisdictional participation, as detailed in the Planning Partner Expectations above, are met.

Primary POC: DANA HAFF	Position/Department: SUPERVISOR
Phone Number: 632-9178	Email Address: SUPERVISOR@HARTFORDNY.COM
Alternate/Secondary POC: GREG BROWN	Position/Department: HIGHWAY SUPERINTENDENT
Phone Number: 632-5255	Email Address: HIGHWAY@HARTFORDNY.COM

4. Our designated local Floodplain Administrator (FPA) under the NFIP is:

Name of NFIP FPA: MARK MILLER	Position/Department: FLOODPLAIN ADMIN
Phone Number: 632-9121	Email Address: SQPEGII@AOL.COM

5. Recognizes that failure to meet the minimum participation expectations and deadlines, as determined by the Steering Committee will result in our municipality being excluded from the planning process.

Sincerely,

Dana Haff

SIGNATURE - CHIEF MUNICIPAL OFFICIAL

AUTHORIZATION AND ACKNOWLEDGMENT TO PARTICIPATE

WASHINGTON COUNTY HAZARD MITIGATION PLAN (HMP)

Date: 6-14-16

Washington County Department of Public Safety
383 Broadway
Fort Edward, NY 12828

Subject: Washington County All Hazard Mitigation Plan Update, Authorization and Letter of Intent to Participate - Town of Hebron
MUNICIPALITY NAME

Department of Public Safety;

Per your letter dated May 20, 2016, the Town of Hebron, is committed to participating in the Washington County Hazard Mitigation Plan (HMP) update project. By way of this letter, the Town of Hebron:

1. Authorizes the Washington County Department of Public Safety and Hazard Mitigation Steering Committee ("Steering Committee"), to guide and direct this planning process, perform certain parts of the planning process, and prepare certain parts of the plan documents on our behalf.

2. Agrees to meet the minimum requirements of municipal participation (a.k.a. the Planning Partner Expectations), specifically:

WashingTon CTy HMP Plan.com

- Execute and return this "Authorization and Acknowledgement" letter to the Washington County Department of Public Safety, via mail or email at publicsafety@co.washington.ny.us .
- Identify municipal representatives to serve as the planning point of contacts (POC), below. These people will be responsible for representing their community and assuring that these participation expectations are met by their community.
- Support the Steering Committee selected to oversee the development of this plan.
- Provide representation at municipal Planning Committee meetings (~ 3 meetings over 6-8 months, including a Kick-Off Meeting (June 15, 2016) and a Mitigation Strategy Workshop).
- Provide data and information about your community as requested by the Steering Committee or the contract consultant, including:
    - Structure and facility inventory data
    - Identification of new development and anticipated development
    - Identification of natural hazard risk areas
    - Identification of natural hazard events and losses that have impacted your community in the last five years
    - Identification of plans, studies, reports and ordinances addressing natural hazard risk
    - Identify mitigation activity in your community in the last five years, including progress on previously identified mitigation actions.

- Support public outreach efforts in your community which may include:
  - Providing notices of the planning project on your municipal website with links to a County project website
  - Providing notice of the planning project, the availability of Plan documents, and notice of public meetings via available local media (e.g. newsletters, flyers, email blasts, social media, etc.)
  - Advertising and supporting public meetings in your area
  - Supporting outreach to National Flood Insurance Program (NFIP) Repetitive Loss and Severe Repetitive Loss property owners in your community.

- Assist with the identification of stakeholders within your community that should be informed and potentially involved with the planning process.
- Completing data and information collection survey forms in a timely manner.
- Identify specific mitigation actions to address each of the natural hazards posing significant [or high or medium] risk to your community.
- Involve your local NFIP Floodplain Administrator in the planning process.
- Review draft Plan sections when requested and provide comment and input as appropriate.
- Adopt the Plan by resolution of their governing body after FEMA conditional approval.
- Periodically provide the Steering Committee with reports of municipal staff and volunteer labor spent on the planning process.

3. Assigns the following persons to be the Points of Contact for our jurisdiction. We understand that these POCs are responsible for assuring municipal representation at municipal Planning Committee meetings, and assuring that the other minimum requirements of jurisdictional participation, as detailed in the Planning Partner Expectations above, are met.

Primary POC: Floyd PrATT	Position/Department: Highway supt.
Phone Number: 518-854-3078	Email Address: Hebron Highway@yahoo.com
Alternate/Secondary POC: Brian R. Campbell	Position/Department: Town Supervisor
Phone Number: 518-642-9505	Email Address: mkbr@together.net

4. Our designated local Floodplain Administrator (FPA) under the NFIP is:

Name of NFIP FPA:	Position/Department:
Phone Number:	Email Address:

5. Recognizes that failure to meet the minimum participation expectations and deadlines, as determined by the Steering Committee will result in our municipality being excluded from the planning process.

Sincerely,

Brian R. Campbell Hebron Town Supervisor

SIGNATURE - CHIEF MUNICIPAL OFFICIAL

TOWN OF JACKSON
Washington County, NY

www.townofjackson - ny.com

Town Supervisor
Jay B. Skellie
328 Skellie Road
Greenwich, NY 12834
518-854-7883
jskellie@co.washington.ny.us

Council Members
Michael Nolan Deputy Sup.
Travis Rea
Carol Rich
Edward Rouse

Town Clerk-Tax Collector
Tammy Skellie-Gilbert
648 Skellie Road
Salem, NY 12865
518-854-3254 phone/fax
townofjackson@gmail.com

Supt. of Highways
Sean Carney
518-677-3678

Assessors
Jean McLenithan, Chair
Mark N. Kenyon
Thomas Keys

Town Court
Carl M. Ackley, Justice
Lorie Christian Atwell, Clerk
2355 State Route 22
Cambridge, NY 12816
518-677-8896 phone/fax

Budget Officer
Donna Nolan

Historian
Sharon Dunn

Planning Board Members
Noel Hanf, Chair
Doug Gordon
Irene Headwell
Mark Mahoney
Jamie Nolan
Cheryl Record
John Tully
Tammy Skellie-Gilbert, Clerk

Thursday, June 2, 2016

Washington County Department of Public Safety
383 Broadway
Fort Edward, NY 12828

Subject: Washington County All Hazard Mitigation Plan Update Authorization and Letter of Intent to Participate – **Town of Jackson**

Department of Public Safety,

Per your letter dated May 20, 2016, the **Town of Jackson** is committed to participating in the Washington County Hazard Mitigation Plan (HMP) update project. By way of this letter, the **Town of Jackson**:

1. Authorizes the Washington County Department of Public Safety and Hazard Mitigation Steering Committee ("Steering Committee"), to guide and direct this planning process, perform certain parts of the planning process, and prepare certain parts of the plan documents on our behalf.

2. Agrees to meet the minimum requirements of municipal participation (a.k.a. the Planning Partner Expectations), specifically:

    a. Execute and return this "Authorization and Acknowledgement" letter to the Washington County Department of Public Safety, via mail or email at publicsafety@co.washington.ny.us.

    b. Identify municipal representatives to serve as the planning point of contacts (POC), below. These people will be responsible for representing their community and assuring that these participation expectations are met by their community.

    c. Support the Steering Committee selected to oversee the development of this plan.

d. Provide representation at municipal Planning Committee meetings (~ 3 meetings over 6-8 months, including a Kick-Off Meeting (June 15, 2016) and a Mitigation Strategy Workshop).

e. Provide data and information about your community as requested by the Steering Committee or the contract consultant, including:

   i. Structure and facility inventory data
   ii. Identification of new development and anticipated development
   iii. Identification of natural hazard risk areas
   iv. Identification of natural hazard events and losses that have impacted your community in the last five years
   v. Identification of plans, studies, reports and ordinances addressing natural hazard risk
   vi. Identify mitigation activity in your community in the last five years, including progress on previously identified mitigation actions

f. Support public outreach efforts in your community which may include:
   i. Providing notices of the planning project on your municipal website with links to a County project website
   ii. Providing notice of the planning project, the availability of Plan documents, and notice of public meetings via available local media (e.g. newsletters, flyers, email blasts, social media, etc.)
   iii. Advertising and supporting public meetings in your area
   iv. Supporting outreach to National Flood Insurance Program (NFIP) Repetitive Loss and Severe Repetitive Loss property owners in your community.

g. Assist with the identification of stakeholders within your community that should be informed and potentially involved with the planning process.

h. Completing data and information collection survey forms in a timely manner.

i. Identify specific mitigation actions to address each of the natural hazards posing significant [or high or medium] risk to your community.

j. Involve your local NFIP Floodplain Administrator in the planning process.

k. Review draft Plan sections when requested and provide comment and input as appropriate.

l. Adopt the Plan by resolution of their governing body after FEMA conditional approval.

m. Periodically provide the Steering Committee with reports of municipal staff and volunteer labor spent on the planning process.

3. Assigns the following persons to be the Points of Contact for our jurisdiction. We understand that these POCs are responsible for assuring municipal representation at municipal Planning Committee meetings, and assuring that the other minimum requirements of jurisdictional participation, as detailed in the Planning Partner Expectations above, are met.

Primary POC: **Sean Carney**	Position/Depart.: Superintendent of Highways
Phone Number: 518-796-2860 / 518-677-3678	Email Address: townofjackson@gmail.com

Alternate/Secondary POC: **Jay B. Skellie**	Position/Depart.: Town Supervisor
Phone Number: 518-854-7883	Email Address: jskellie@co.washington.ny.us

4. Our designated local Floodplain Administrator (FPA) under the NFIP is:

Name of NFIP FPA: **Jay B. Skellie**	Position/Depart.: Town Supervisor
Phone Number: 518-854-7883	Email Address: jskellie@co.washington.ny.us

5. Recognizes that failure to meet the minimum participation expectations and deadlines, as determined by the Steering Committee will result in our municipality being excluded from the planning process.

Sincerely,

Jay B. Skellie, Supervisor
Town of Jackson

AUTHORIZATION AND ACKNOWLEDGMENT TO PARTICIPATE

WASHINGTON COUNTY HAZARD MITIGATION PLAN (HMP)

Date: 7/12/2015

Washington County Department of Public Safety
383 Broadway
Fort Edward, NY 12828

Subject: Washington County All Hazard Mitigation Plan Update
Authorization and Letter of Intent to Participate - Town of Kingsbury
MUNICIPALITY NAME

Department of Public Safety;

Per your letter dated May 20, 2016, the Town of Kingsbury, is committed to participating in the Washington County Hazard Mitigation Plan (HMP) update project. By way of this letter, the Town of Kingsbury:

1. Authorizes the Washington County Department of Public Safety and Hazard Mitigation Steering Committee ("Steering Committee"), to guide and direct this planning process, perform certain parts of the planning process, and prepare certain parts of the plan documents on our behalf.

2. Agrees to meet the minimum requirements of municipal participation (a.k.a. the Planning Partner Expectations), specifically:

- Execute and return this "Authorization and Acknowledgement" letter to the Washington County Department of Public Safety, via mail or email at publicsafety@co.washington.ny.us .
- Identify municipal representatives to serve as the planning point of contacts (POC), below. These people will be responsible for representing their community and assuring that these participation expectations are met by their community.
- Support the Steering Committee selected to oversee the development of this plan.
- Provide representation at municipal Planning Committee meetings (~ 3 meetings over 6-8 months, including a Kick-Off Meeting (June 15, 2016) and a Mitigation Strategy Workshop).
- Provide data and information about your community as requested by the Steering Committee or the contract consultant, including:
  - Structure and facility inventory data
  - Identification of new development and anticipated development
  - Identification of natural hazard risk areas
  - Identification of natural hazard events and losses that have impacted your community in the last five years
  - Identification of plans, studies, reports and ordinances addressing natural hazard risk
  - Identify mitigation activity in your community in the last five years, including progress on previously identified mitigation actions.

- Support public outreach efforts in your community which may include:
  - Providing notices of the planning project on your municipal website with links to a County project website
  - Providing notice of the planning project, the availability of Plan documents, and notice of public meetings via available local media (e.g. newsletters, flyers, email blasts, social media, etc.)
  - Advertising and supporting public meetings in your area
  - Supporting outreach to National Flood Insurance Program (NFIP) Repetitive Loss and Severe Repetitive Loss property owners in your community.

- Assist with the identification of stakeholders within your community that should be informed and potentially involved with the planning process.
- Completing data and information collection survey forms in a timely manner.
- Identify specific mitigation actions to address each of the natural hazards posing significant [or high or medium] risk to your community.
- Involve your local NFIP Floodplain Administrator in the planning process.
- Review draft Plan sections when requested and provide comment and input as appropriate.
- Adopt the Plan by resolution of their governing body after FEMA conditional approval.
- Periodically provide the Steering Committee with reports of municipal staff and volunteer labor spent on the planning process.

3. Assigns the following persons to be the Points of Contact for our jurisdiction. We understand that these POCs are responsible for assuring municipal representation at municipal Planning Committee meetings, and assuring that the other minimum requirements of jurisdictional participation, as detailed in the Planning Partner Expectations above, are met.

Primary POC: Dana Hogan	Position/Department: Supervisor
Phone Number: 518-747-2188 x 3007	Email Address: Kingsbury Supervisor@Gmail.com
Alternate/Secondary POC:	Position/Department:
Phone Number:	Email Address:

4. Our designated local Floodplain Administrator (FPA) under the NFIP is:

Name of NFIP FPA: Ross Cortese	Position/Department: Code Enforcement Officer
Phone Number: 518-361-4329	Email Address: HFCode@Albany.TWCBC.com

5. Recognizes that failure to meet the minimum participation expectations and deadlines, as determined by the Steering Committee will result in our municipality being excluded from the planning process.

Sincerely,

SIGNATURE - CHIEF MUNICIPAL OFFICIAL

AUTHORIZATION AND ACKNOWLEDGMENT TO PARTICIPATE

WASHINGTON COUNTY HAZARD MITIGATION PLAN (HMP)

Date: 6/1/16

Washington County Department of Public Safety
383 Broadway
Fort Edward, NY 12828

Subject: Washington County All Hazard Mitigation Plan Update
Authorization and Letter of Intent to Participate - Town of Salem
MUNICIPALITY NAME

Department of Public Safety;

Per your letter dated May 20, 2016, the Town of Salem, is committed to participating in the Washington County Hazard Mitigation Plan (HMP) update project. By way of this letter, the _____:

1. Authorizes the Washington County Department of Public Safety and Hazard Mitigation Steering Committee ("Steering Committee"), to guide and direct this planning process, perform certain parts of the planning process, and prepare certain parts of the plan documents on our behalf.

2. Agrees to meet the minimum requirements of municipal participation (a.k.a. the Planning Partner Expectations), specifically:

- Execute and return this "Authorization and Acknowledgement" letter to the Washington County Department of Public Safety, via mail or email at publicsafety@co.washington.ny.us .
- Identify municipal representatives to serve as the planning point of contacts (POC), below. These people will be responsible for representing their community and assuring that these participation expectations are met by their community.
- Support the Steering Committee selected to oversee the development of this plan.
- Provide representation at municipal Planning Committee meetings (~ 3 meetings over 6-8 months, including a Kick-Off Meeting (June 15, 2016) and a Mitigation Strategy Workshop).
- Provide data and information about your community as requested by the Steering Committee or the contract consultant, including:
    - Structure and facility inventory data
    - Identification of new development and anticipated development
    - Identification of natural hazard risk areas
    - Identification of natural hazard events and losses that have impacted your community in the last five years
    - Identification of plans, studies, reports and ordinances addressing natural hazard risk
    - Identify mitigation activity in your community in the last five years, including progress on previously identified mitigation actions.

- Support public outreach efforts in your community which may include:
  - Providing notices of the planning project on your municipal website with links to a County project website
  - Providing notice of the planning project, the availability of Plan documents, and notice of public meetings via available local media (e.g. newsletters, flyers, email blasts, social media, etc.)
  - Advertising and supporting public meetings in your area
  - Supporting outreach to National Flood Insurance Program (NFIP) Repetitive Loss and Severe Repetitive Loss property owners in your community.

- Assist with the identification of stakeholders within your community that should be informed and potentially involved with the planning process.
- Completing data and information collection survey forms in a timely manner.
- Identify specific mitigation actions to address each of the natural hazards posing significant [or high or medium] risk to your community.
- Involve your local NFIP Floodplain Administrator in the planning process.
- Review draft Plan sections when requested and provide comment and input as appropriate.
- Adopt the Plan by resolution of their governing body after FEMA conditional approval.
- Periodically provide the Steering Committee with reports of municipal staff and volunteer labor spent on the planning process.

3. Assigns the following persons to be the Points of Contact for our jurisdiction. We understand that these POCs are responsible for assuring municipal representation at municipal Planning Committee meetings, and assuring that the other minimum requirements of jurisdictional participation, as detailed in the Planning Partner Expectations above, are met.

Primary POC: Seth M. Pitts	Position/Department: Supervisor
Phone Number: 518-791-8485	Email Address: Smp.pitts45@msn.com
Alternate/Secondary POC: Gerald Bosler	Position/Department: Hwy Super
Phone Number: 518-791-9406	Email Address: Salemnyhwy@hotmail.com

4. Our designated local Floodplain Administrator (FPA) under the NFIP is:

Name of NFIP FPA: Alton Knapp	Position/Department: Flood mgr
Phone Number: 518 692-2741	Email Address: ae Knapp associates.com

5. Recognizes that failure to meet the minimum participation expectations and deadlines, as determined by the Steering Committee will result in our municipality being excluded from the planning process.

Sincerely,

SIGNATURE - CHIEF MUNICIPAL OFFICIAL

AUTHORIZATION AND ACKNOWLEDGMENT TO PARTICIPATE

WASHINGTON COUNTY HAZARD MITIGATION PLAN (HMP)

Date: 7-14-16

Washington County Department of Public Safety
383 Broadway
Fort Edward, NY 12828

Subject: Washington County All Hazard Mitigation Plan Update
Authorization and Letter of Intent to Participate - Town of White Creek
MUNICIPALITY NAME

Department of Public Safety;

Per your letter dated May 20, 2016, the Town of White Creek, is committed to participating in the Washington County Hazard Mitigation Plan (HMP) update project. By way of this letter, the Town of White Creek

1. Authorizes the Washington County Department of Public Safety and Hazard Mitigation Steering Committee ("Steering Committee"), to guide and direct this planning process, perform certain parts of the planning process, and prepare certain parts of the plan documents on our behalf.

2. Agrees to meet the minimum requirements of municipal participation (a.k.a. the Planning Partner Expectations), specifically:

- Execute and return this "Authorization and Acknowledgement" letter to the Washington County Department of Public Safety, via mail or email at publicsafety@co.washington.ny.us .
- Identify municipal representatives to serve as the planning point of contacts (POC), below. These people will be responsible for representing their community and assuring that these participation expectations are met by their community.
- Support the Steering Committee selected to oversee the development of this plan.
- Provide representation at municipal Planning Committee meetings (~ 3 meetings over 6-8 months, including a Kick-Off Meeting (June 15, 2016) and a Mitigation Strategy Workshop).
- Provide data and information about your community as requested by the Steering Committee or the contract consultant, including:
    - Structure and facility inventory data
    - Identification of new development and anticipated development
    - Identification of natural hazard risk areas
    - Identification of natural hazard events and losses that have impacted your community in the last five years
    - Identification of plans, studies, reports and ordinances addressing natural hazard risk
    - Identify mitigation activity in your community in the last five years, including progress on previously identified mitigation actions.

- Support public outreach efforts in your community which may include:
    - Providing notices of the planning project on your municipal website with links to a County project website
    - Providing notice of the planning project, the availability of Plan documents, and notice of public meetings via available local media (e.g. newsletters, flyers, email blasts, social media, etc.)
    - Advertising and supporting public meetings in your area
    - Supporting outreach to National Flood Insurance Program (NFIP) Repetitive Loss and Severe Repetitive Loss property owners in your community.

- Assist with the identification of stakeholders within your community that should be informed and potentially involved with the planning process.
- Completing data and information collection survey forms in a timely manner.
- Identify specific mitigation actions to address each of the natural hazards posing significant [or high or medium] risk to your community.
- Involve your local NFIP Floodplain Administrator in the planning process.
- Review draft Plan sections when requested and provide comment and input as appropriate.
- Adopt the Plan by resolution of their governing body after FEMA conditional approval.
- Periodically provide the Steering Committee with reports of municipal staff and volunteer labor spent on the planning process.

3. Assigns the following persons to be the Points of Contact for our jurisdiction. We understand that these POCs are responsible for assuring municipal representation at municipal Planning Committee meetings, and assuring that the other minimum requirements of jurisdictional participation, as detailed in the Planning Partner Expectations above, are met.

Primary POC: Robert Shay	Position/Department: Town Supervisor
Phone Number: 518 677-8545	Email Address: TownofWhiteCreek@Gmail.com
Alternate/Secondary POC: Chris Rieben	Position/Department: Town Highway Superintendent
Phone Number: 518 677-3223	Email Address: —

4. Our designated local Floodplain Administrator (FPA) under the NFIP is:

Name of NFIP FPA: The County	Position/Department:
Phone Number:	Email Address:

5. Recognizes that failure to meet the minimum participation expectations and deadlines, as determined by the Steering Committee will result in our municipality being excluded from the planning process.

Sincerely,

Robert Shay

SIGNATURE - CHIEF MUNICIPAL OFFICIAL

AUTHORIZATION AND ACKNOWLEDGMENT TO PARTICIPATE

WASHINGTON COUNTY HAZARD MITIGATION PLAN (HMP)

Date: 7/21/16

Washington County Department of Public Safety
383 Broadway
Fort Edward, NY 12828

Subject: Washington County All Hazard Mitigation Plan Update
Authorization and Letter of Intent to Participate - VILLAGE OF ARGYLE
MUNICIPALITY NAME

Department of Public Safety;

Per your letter dated May 20, 2016, the VILLAGE OF ARGYLE, is committed to participating in the Washington County Hazard Mitigation Plan (HMP) update project. By way of this letter, the VILLAGE OF ARGYLE:

1. Authorizes the Washington County Department of Public Safety and Hazard Mitigation Steering Committee ("Steering Committee"), to guide and direct this planning process, perform certain parts of the planning process, and prepare certain parts of the plan documents on our behalf.

2. Agrees to meet the minimum requirements of municipal participation (a.k.a. the Planning Partner Expectations), specifically:

- Execute and return this "Authorization and Acknowledgement" letter to the Washington County Department of Public Safety, via mail or email at publicsafety@co.washington.ny.us .
- Identify municipal representatives to serve as the planning point of contacts (POC), below. These people will be responsible for representing their community and assuring that these participation expectations are met by their community.
- Support the Steering Committee selected to oversee the development of this plan.
- Provide representation at municipal Planning Committee meetings (~ 3 meetings over 6-8 months, including a Kick-Off Meeting (June 15, 2016) and a Mitigation Strategy Workshop).
- Provide data and information about your community as requested by the Steering Committee or the contract consultant, including:
    - Structure and facility inventory data
    - Identification of new development and anticipated development
    - Identification of natural hazard risk areas
    - Identification of natural hazard events and losses that have impacted your community in the last five years
    - Identification of plans, studies, reports and ordinances addressing natural hazard risk
    - Identify mitigation activity in your community in the last five years, including progress on previously identified mitigation actions.

- Support public outreach efforts in your community which may include:
    - Providing notices of the planning project on your municipal website with links to a County project website
    - Providing notice of the planning project, the availability of Plan documents, and notice of public meetings via available local media (e.g. newsletters, flyers, email blasts, social media, etc.)
    - Advertising and supporting public meetings in your area
    - Supporting outreach to National Flood Insurance Program (NFIP) Repetitive Loss and Severe Repetitive Loss property owners in your community.

- Assist with the identification of stakeholders within your community that should be informed and potentially involved with the planning process.
- Completing data and information collection survey forms in a timely manner.
- Identify specific mitigation actions to address each of the natural hazards posing significant [or high or medium] risk to your community.
- Involve your local NFIP Floodplain Administrator in the planning process.
- Review draft Plan sections when requested and provide comment and input as appropriate.
- Adopt the Plan by resolution of their governing body after FEMA conditional approval.
- Periodically provide the Steering Committee with reports of municipal staff and volunteer labor spent on the planning process.

3. Assigns the following persons to be the Points of Contact for our jurisdiction. We understand that these POCs are responsible for assuring municipal representation at municipal Planning Committee meetings, and assuring that the other minimum requirements of jurisdictional participation, as detailed in the Planning Partner Expectations above, are met.

Primary POC: WESLEY. CLARK	Position/Department: MAYOR
Phone Number: 518 638 8717	Email Address: walgclark@juno.com
Alternate/Secondary POC: JOYANN STIMPSON	Position/Department: CLERK - TREASURER
Phone Number: 518 955-2766	Email Address: stimpsonjoyann@gmail.com

4. Our designated local Floodplain Administrator (FPA) under the NFIP is:

Name of NFIP FPA: SAME AS TOWN OF ARGYLE	Position/Department:
Phone Number:	Email Address:

5. Recognizes that failure to meet the minimum participation expectations and deadlines, as determined by the Steering Committee will result in our municipality being excluded from the planning process.

Sincerely,

Wesley A Clark

SIGNATURE - CHIEF MUNICIPAL OFFICIAL

AUTHORIZATION AND ACKNOWLEDGMENT TO PARTICIPATE

WASHINGTON COUNTY HAZARD MITIGATION PLAN (HMP)

Date: July 6, 2016

Washington County Department of Public Safety
383 Broadway
Fort Edward, NY 12828

Subject: Washington County All Hazard Mitigation Plan Update
Authorization and Letter of Intent to Participate - Village of Cambridge
MUNICIPALITY NAME

Department of Public Safety;

Per your letter dated May 20, 2016, the Village of Cambridge, is committed to participating in the Washington County Hazard Mitigation Plan (HMP) update project. By way of this letter, the Village of Cambridge:

1. Authorizes the Washington County Department of Public Safety and Hazard Mitigation Steering Committee ("Steering Committee"), to guide and direct this planning process, perform certain parts of the planning process, and prepare certain parts of the plan documents on our behalf.

2. Agrees to meet the minimum requirements of municipal participation (a.k.a. the Planning Partner Expectations), specifically:

- Execute and return this "Authorization and Acknowledgement" letter to the Washington County Department of Public Safety, via mail or email at publicsafety@co.washington.ny.us .
- Identify municipal representatives to serve as the planning point of contacts (POC), below. These people will be responsible for representing their community and assuring that these participation expectations are met by their community.
- Support the Steering Committee selected to oversee the development of this plan.
- Provide representation at municipal Planning Committee meetings (~ 3 meetings over 6-8 months, including a Kick-Off Meeting (June 15, 2016) and a Mitigation Strategy Workshop).
- Provide data and information about your community as requested by the Steering Committee or the contract consultant, including:
    - Structure and facility inventory data
    - Identification of new development and anticipated development
    - Identification of natural hazard risk areas
    - Identification of natural hazard events and losses that have impacted your community in the last five years
    - Identification of plans, studies, reports and ordinances addressing natural hazard risk
    - Identify mitigation activity in your community in the last five years, including progress on previously identified mitigation actions.

- Support public outreach efforts in your community which may include:
    - Providing notices of the planning project on your municipal website with links to a County project website
    - Providing notice of the planning project, the availability of Plan documents, and notice of public meetings via available local media (e.g. newsletters, flyers, email blasts, social media, etc.)
    - Advertising and supporting public meetings in your area
    - Supporting outreach to National Flood Insurance Program (NFIP) Repetitive Loss and Severe Repetitive Loss property owners in your community.

- Assist with the identification of stakeholders within your community that should be informed and potentially involved with the planning process.
- Completing data and information collection survey forms in a timely manner.
- Identify specific mitigation actions to address each of the natural hazards posing significant [or high or medium] risk to your community.
- Involve your local NFIP Floodplain Administrator in the planning process.
- Review draft Plan sections when requested and provide comment and input as appropriate.
- Adopt the Plan by resolution of their governing body after FEMA conditional approval.
- Periodically provide the Steering Committee with reports of municipal staff and volunteer labor spent on the planning process.

3. Assigns the following persons to be the Points of Contact for our jurisdiction. We understand that these POCs are responsible for assuring municipal representation at municipal Planning Committee meetings, and assuring that the other minimum requirements of jurisdictional participation, as detailed in the Planning Partner Expectations above, are met.

Primary POC: LANCE ALLEN WANG	Position/Department: VILLAGE CLERK
Phone Number: (518) 677-2622	Email Address: CLERK @ CAMBRIDGENY.GOV
Alternate/Secondary POC: CARMAN A. BOGLE	Position/Department: MAYOR
Phone Number: (802) 688-3454	Email Address: MAYORBOGLE @ CAMBRIDGENY.GOV

4. Our designated local Floodplain Administrator (FPA) under the NFIP is:

Name of NFIP FPA: LANCE ALLEN WANG	Position/Department: VILLAGE CLERK
Phone Number: (518) 677-2622	Email Address: CLERK @ CAMBRIDGENY.GOV

5. Recognizes that failure to meet the minimum participation expectations and deadlines, as determined by the Steering Committee will result in our municipality being excluded from the planning process.

Sincerely,

Carman Bogle

SIGNATURE - CHIEF MUNICIPAL OFFICIAL

AUTHORIZATION AND ACKNOWLEDGMENT TO PARTICIPATE

WASHINGTON COUNTY HAZARD MITIGATION PLAN (HMP)

Date: 07-13-16

Washington County Department of Public Safety
383 Broadway
Fort Edward, NY 12828

Subject: Washington County All Hazard Mitigation Plan Update
Authorization and Letter of Intent to Participate - Village of Fort Ann
MUNICIPALITY NAME

Department of Public Safety;

Per your letter dated May 20, 2016, the Village of Fort Ann, is committed to participating in the Washington County Hazard Mitigation Plan (HMP) update project. By way of this letter, the Village of Fort Ann:

1. Authorizes the Washington County Department of Public Safety and Hazard Mitigation Steering Committee ("Steering Committee"), to guide and direct this planning process, perform certain parts of the planning process, and prepare certain parts of the plan documents on our behalf.

2. Agrees to meet the minimum requirements of municipal participation (a.k.a. the Planning Partner Expectations), specifically:

- Execute and return this "Authorization and Acknowledgement" letter to the Washington County Department of Public Safety, via mail or email at publicsafety@co.washington.ny.us .
- Identify municipal representatives to serve as the planning point of contacts (POC), below. These people will be responsible for representing their community and assuring that these participation expectations are met by their community.
- Support the Steering Committee selected to oversee the development of this plan.
- Provide representation at municipal Planning Committee meetings (~ 3 meetings over 6-8 months, including a Kick-Off Meeting (June 15, 2016) and a Mitigation Strategy Workshop).
- Provide data and information about your community as requested by the Steering Committee or the contract consultant, including:
    - Structure and facility inventory data
    - Identification of new development and anticipated development
    - Identification of natural hazard risk areas
    - Identification of natural hazard events and losses that have impacted your community in the last five years
    - Identification of plans, studies, reports and ordinances addressing natural hazard risk
    - Identify mitigation activity in your community in the last five years, including progress on previously identified mitigation actions.

- Support public outreach efforts in your community which may include:
    - Providing notices of the planning project on your municipal website with links to a County project website
    - Providing notice of the planning project, the availability of Plan documents, and notice of public meetings via available local media (e.g. newsletters, flyers, email blasts, social media, etc.)
    - Advertising and supporting public meetings in your area
    - Supporting outreach to National Flood Insurance Program (NFIP) Repetitive Loss and Severe Repetitive Loss property owners in your community.

- Assist with the identification of stakeholders within your community that should be informed and potentially involved with the planning process.
- Completing data and information collection survey forms in a timely manner.
- Identify specific mitigation actions to address each of the natural hazards posing significant [or high or medium] risk to your community.
- Involve your local NFIP Floodplain Administrator in the planning process.
- Review draft Plan sections when requested and provide comment and input as appropriate.
- Adopt the Plan by resolution of their governing body after FEMA conditional approval.
- Periodically provide the Steering Committee with reports of municipal staff and volunteer labor spent on the planning process.

3. Assigns the following persons to be the Points of Contact for our jurisdiction. We understand that these POCs are responsible for assuring municipal representation at municipal Planning Committee meetings, and assuring that the other minimum requirements of jurisdictional participation, as detailed in the Planning Partner Expectations above, are met.

Primary POC:	Position/Department:
Phone Number:	Email Address:
Alternate/Secondary POC:	Position/Department:
Phone Number:	Email Address:

4. Our designated local Floodplain Administrator (FPA) under the NFIP is:

Name of NFIP FPA:	Position/Department:
Phone Number:	Email Address:

5. Recognizes that failure to meet the minimum participation expectations and deadlines, as determined by the Steering Committee will result in our municipality being excluded from the planning process.

Sincerely,

SIGNATURE - CHIEF MUNICIPAL OFFICIAL

AUTHORIZATION AND ACKNOWLEDGMENT TO PARTICIPATE

WASHINGTON COUNTY HAZARD MITIGATION PLAN (HMP)

Date: 07/12/2016

Washington County Department of Public Safety
383 Broadway
Fort Edward, NY 12828

Subject: Washington County All Hazard Mitigation Plan Update
Authorization and Letter of Intent to Participate - Village of Fort Edward
MUNICIPALITY NAME

Department of Public Safety;

Per your letter dated May 20, 2016, the Village of Fort Edward, is committed to participating in the Washington County Hazard Mitigation Plan (HMP) update project. By way of this letter, the Village of Fort Edward:

1. Authorizes the Washington County Department of Public Safety and Hazard Mitigation Steering Committee ("Steering Committee"), to guide and direct this planning process, perform certain parts of the planning process, and prepare certain parts of the plan documents on our behalf.

2. Agrees to meet the minimum requirements of municipal participation (a.k.a. the Planning Partner Expectations), specifically:

- Execute and return this "Authorization and Acknowledgement" letter to the Washington County Department of Public Safety, via mail or email at publicsafety@co.washington.ny.us .
- Identify municipal representatives to serve as the planning point of contacts (POC), below. These people will be responsible for representing their community and assuring that these participation expectations are met by their community.
- Support the Steering Committee selected to oversee the development of this plan.
- Provide representation at municipal Planning Committee meetings (~ 3 meetings over 6-8 months, including a Kick-Off Meeting (June 15, 2016) and a Mitigation Strategy Workshop).
- Provide data and information about your community as requested by the Steering Committee or the contract consultant, including:
    - Structure and facility inventory data
    - Identification of new development and anticipated development
    - Identification of natural hazard risk areas
    - Identification of natural hazard events and losses that have impacted your community in the last five years
    - Identification of plans, studies, reports and ordinances addressing natural hazard risk
    - Identify mitigation activity in your community in the last five years, including progress on previously identified mitigation actions.

- Support public outreach efforts in your community which may include:
    - Providing notices of the planning project on your municipal website with links to a County project website
    - Providing notice of the planning project, the availability of Plan documents, and notice of public meetings via available local media (e.g. newsletters, flyers, email blasts, social media, etc.)
    - Advertising and supporting public meetings in your area
    - Supporting outreach to National Flood Insurance Program (NFIP) Repetitive Loss and Severe Repetitive Loss property owners in your community.

- Assist with the identification of stakeholders within your community that should be informed and potentially involved with the planning process.
- Completing data and information collection survey forms in a timely manner.
- Identify specific mitigation actions to address each of the natural hazards posing significant [or high or medium] risk to your community.
- Involve your local NFIP Floodplain Administrator in the planning process.
- Review draft Plan sections when requested and provide comment and input as appropriate.
- Adopt the Plan by resolution of their governing body after FEMA conditional approval.
- Periodically provide the Steering Committee with reports of municipal staff and volunteer labor spent on the planning process.

3. Assigns the following persons to be the Points of Contact for our jurisdiction. We understand that these POCs are responsible for assuring municipal representation at municipal Planning Committee meetings, and assuring that the other minimum requirements of jurisdictional participation, as detailed in the Planning Partner Expectations above, are met.

Primary POC: Bryan Etu	Position/Department: Highway Superintendent
Phone Number: (518) 932-1522	Email Address: STREET@VILLAGEOFFORTEDWARD.COM
Alternate/Secondary POC: Matthew Traver	Position/Department: Mayor
Phone Number: (518) 744-3276	Email Address: mayor@villageoffortedward.com

4. Our designated local Floodplain Administrator (FPA) under the NFIP is:

Name of NFIP FPA:	Position/Department:
Phone Number:	Email Address:

5. Recognizes that failure to meet the minimum participation expectations and deadlines, as determined by the Steering Committee will result in our municipality being excluded from the planning process.

Sincerely,

Matthew Traver, Mayor

SIGNATURE - CHIEF MUNICIPAL OFFICIAL

WASHINGTON COUNTY
DEPARTMENT OF PUBLIC SAFETY
383 BROADWAY – BUILDING B, FORT EDWARD, NY 12828
PHONE (518)747-7520 – **FAX** (518)746-2157 – **TDD** (518)746-2146
WWW.WASHINGTONCOUNTYNY.GOV / PUBLICSAFETY@CO.WASHINGTON.NY.US
/WashingtonCoNYPublicSafety @WashCoNYDPS911

May 23,2016

Town Supervisors,
Village Mayors,
Highway & Public Works Superintendents,
Other local key partners;

Fellow partners;

Your municipality is invited and strongly encouraged to participate in the development of the **Washington County Hazard Mitigation Plan (HMP)** Update. Per Federal regulation, all local governments must have a FEMA approved Hazard Mitigation Plan (HMP) in order to be eligible to apply for and receive Federal mitigation grant funding for public and private mitigation projects, and further, these plans must be formally updated on a five-year cycle. The County has been awarded a FEMA grant to update the current county-wide HMP.

The Washington County Department of Public Safety is leading this plan update effort whereby the municipalities within the County may formally participate in this process and thus continue to be eligible for federal pre-disaster mitigation funding opportunities and other benefits under the program.

The requirements and expectations for municipal participation in this plan update project are outlined in the attached Letter of Intent to Participate (LOIP). In order to formally document your municipality's intent to participate, this LOIP needs to be drafted on your municipal letterhead, signed by a governing official, and returned to the Washington County Department of Public Safety, 383 Broadway, Fort Edward, NY 12828; or via email at publicsafety@co.washington.ny.us .

The County is sponsoring a municipal project "Kick Off" meeting on **June 15th from 10 am – 11:30 am** at the Municipal Center (383 Broadway, Fort Edward) in Training Room 2 (basement level) that will discuss the process, benefits, expectations and timeline, and begin the plan update process for the municipalities. **All municipalities who wish to be included in this plan update process MUST provide representation at this "Kick Off" meeting, whether or not they have completed or submitted an LOI.** *(We only need one LOI per municipality.)*

As you may be aware, the Disaster Mitigation Act (DMA) passed by Congress in 2000 mandates that local governments have an approved hazard mitigation plan to be eligible for federal mitigation grant funding programs after November 1, 2004. DMA 2000 encourages and rewards local and state pre-disaster planning, promotes sustainability, and seeks to integrate state and local planning with an overall goal of strengthening statewide hazard mitigation

Formal participation by a municipality in this planning process shall include the following:

- Formally notifying the County of their jurisdiction's interest to participate.
- Assigning a planning point-of-contact for their jurisdiction, who shall:
    - Provide representation at regular planning group meetings and workshops.
    - Be responsible for providing data and information as requested.
    - Review and comment on data and information compiled by the contract consultant relevant to their jurisdiction.
    - Be responsible for completing plan documents specific to their jurisdiction, using provided templates with guidance and assistance by the contract consultant.
    - Assist with the identification of stakeholders within their community that should be informed and potentially involved with the planning process.
    - Facilitate public outreach efforts with citizens and local stakeholders within their community.
    - Assist with the identification of strengths, weaknesses, opportunities and obstacles to implementing natural hazard mitigation within their community.

- Assist with the identification of past, ongoing and appropriate future mitigation strategies and activities.
- Review and comment on plan documents, specifically the draft initial and final plans prior to submission to NYS DHSES and FEMA.

- Formally adopting the updated plan once approved by FEMA.

Please note that the planning point-of-contact is not expected to do all of the work required of the jurisdiction. Rather, they are tasked with the responsibility to ensure work gets completed by the appropriate people within their jurisdiction and within specified periods of time.

We look forward to receiving your completed LOIP, and meeting with your municipal representatives on June 15th to commence this important project to protect public and private property and the residents and businesses in the County.

Please contact our office with any questions you might have regarding our plan update process. We can be reached at (518)747-7520 or via email at publicsafety@co.washington.ny.us .

Regards,

Glen P. Gosnell
Director

Timothy R. Hardy
Deputy Director

Jonathan R. Pease
Emergency Management Coordinator

VILLAGE OF GRANVILLE

P.O. BOX 208 - 51 QUAKER STREET
GRANVILLE, NEW YORK 12832

Tele/Fax (518) 642-2640
www.granvillevillage.com

Founded in 1870 -- Incorporated in 1885
Center of the Roofing Slate Industry
Home of Telescope Casual Furniture
and Saint Gobain

OFFICIALS

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Mayor

GORDON SMITH
Deputy Mayor

FRANK CARUSO
Trustee

DEAN HYATT
Trustee

PAUL LABAS
Trustee

RICHARD H. ROBERTS
Clerk & Treasurer
Registrar

DANIEL WILLIAMS
Supt. of Public Works

ROGER FORANDO
Village Justice

ERNEST BASSETT, JR.
Chief of Police

CHRISTINA BISHOP
Planning Board Chairwoman

DANIEL WESCOTT
Zoning Board of Appeals
Chairman

June 13, 2016

Washington County Dept. of Public Safety
383 Broadway
Fort Edward, NY 12828

Re: Washington County Hazard Mitigation Plan Update
Authorization and Letter of Intent to Participate—Village of Granville

Dept. of Public Safety:

Per your letter of May 23, 2016, the Village of Granville is committed to participating in the Washington County Hazard Mitigation Plan (HMP) update project. By way of this letter, the Village of Granville:

1. Authorizes the Washington county Dept. of Public Safety and Hazard Mitigation Steering Committee ("Steering Committee"), to guide and direct the planning process, perform certain parts of the planning process, and prepare certain parts of the plan documents on our behalf.
2. Agrees to meet the minimum requirements of municipal participation (aka the Planning Partner Expectations) specifically:

   *Execute and return this "Authorization and Acknowledgement" letter to the Washington County Dept. of Public Safety, via mail or email at publicsafety@co.washington.ny.us.

   *Identify municipal representatives to serve as the planning point of contacts (POC), below. These people will be responsible for representing their community and assuring that these participation expectations are met by their community.

   *Support the Steering Committee selected to oversee the development of this plan.

   *Provide representation at municipal Planning Meetings (~3 meetings over 6-8 months, including Kick-Off Meeting (June 15, 2016) and a Mitigation Strategy Workshop).

*Provide data and information about your community as requested by the Steering Committee or the contract consultant, including:

>Structure and facility inventory data
>Identification of new development and anticipated development
>Identification of natural hazard risk areas
>Identification of natural hazard events and losses that have impacted the community in the last five years
>Identification of plans, studies, reports and ordinances addressing natural hazard risk
>Identify mitigation activity and in the community and in the last five years, including progress on previously identified mitigation actions.

*Support public outreach efforts in your community which may include:

>Providing notices of the planning project on the Village's municipal website with links to a County Planning Board website
>Providing notice of the planning project, the availability of Plan documents, and the notice of public meetings via available local media (e.g. newsletters, flyers, email blasts, social media, etc.)
>Advertising and supporting public meetings in the area
>Supporting outreach to National Flood Insurance Program (NFIP) Repetitive Loss and Severe Repetitive Loss property owners in your community.

*Assist with the identification of stakeholders within the community that should be informed and potentially involved with the planning process.

*Competing data and information collection survey forms in a timely manner.

*Identify specific mitigation actions to address each of the natural hazards posing significant, high, or medium risk to the community.

*Involve your local NFIP Floodplain Administrator in the planning process.

*Review draft Plan sections when requested and provide comment and input as appropriate.

*Adopt the Plan by Resolution of the Village Board after FEMA conditional approval.

*Periodically provide the Steering Committee with reports of municipal staff and volunteer labor spent on the planning process.

3. Assigns the following persons to be the Points of Contact for our justification. We understand that these POCs are responsible for assuring municipal representation at municipal Planning committee meetings, and assuring that the other minimum requirements of jurisdictional participation, as detailed in the Planning Partner Expectations above are met:

Primary POC: Dan Williams, DPW Superintendent
(518) 361-9549 -- chiefopdan@roadrunner.com

Alternate/Secondary Contacts:

George Johnson, Ass't Superintendent
(518) 361-9503 -- granville@roadrunner.com

Scott Mackey, WWTP Operator in Training
(518) 742-9200 -- smackeyvog@yahoo.com

4. Our designated Floodplain Administrator under the NFIP is to be assigned.

5. Recognizes that failure to meet the minimum participation expectation and deadlines, as determined by the Steering Committee will result in our municipality being excluded from the planning process.

Sincerely,

Brian LaRose
Mayor

AUTHORIZATION AND ACKNOWLEDGMENT TO PARTICIPATE

WASHINGTON COUNTY HAZARD MITIGATION PLAN (HMP)

Date: July 11, 2016

Washington County Department of Public Safety
383 Broadway
Fort Edward, NY 12828

Subject: Washington County All Hazard Mitigation Plan Update
Authorization and Letter of Intent to Participate - Village of Hudson Falls
MUNICIPALITY NAME

Department of Public Safety;

Per your letter dated May 20, 2016, the Village of Hudson Falls, is committed to participating in the Washington County Hazard Mitigation Plan (HMP) update project. By way of this letter, the Village of Hudson Falls:

1. Authorizes the Washington County Department of Public Safety and Hazard Mitigation Steering Committee ("Steering Committee"), to guide and direct this planning process, perform certain parts of the planning process, and prepare certain parts of the plan documents on our behalf.

2. Agrees to meet the minimum requirements of municipal participation (a.k.a. the Planning Partner Expectations), specifically:

- Execute and return this "Authorization and Acknowledgement" letter to the Washington County Department of Public Safety, via mail or email at publicsafety@co.washington.ny.us .
- Identify municipal representatives to serve as the planning point of contacts (POC), below. These people will be responsible for representing their community and assuring that these participation expectations are met by their community.
- Support the Steering Committee selected to oversee the development of this plan.
- Provide representation at municipal Planning Committee meetings (~ 3 meetings over 6-8 months, including a Kick-Off Meeting (June 15, 2016) and a Mitigation Strategy Workshop).
- Provide data and information about your community as requested by the Steering Committee or the contract consultant, including:
  - Structure and facility inventory data
  - Identification of new development and anticipated development
  - Identification of natural hazard risk areas
  - Identification of natural hazard events and losses that have impacted your community in the last five years
  - Identification of plans, studies, reports and ordinances addressing natural hazard risk
  - Identify mitigation activity in your community in the last five years, including progress on previously identified mitigation actions.

- Support public outreach efforts in your community which may include:
    - Providing notices of the planning project on your municipal website with links to a County project website
    - Providing notice of the planning project, the availability of Plan documents, and notice of public meetings via available local media (e.g. newsletters, flyers, email blasts, social media, etc.)
    - Advertising and supporting public meetings in your area
    - Supporting outreach to National Flood Insurance Program (NFIP) Repetitive Loss and Severe Repetitive Loss property owners in your community.

- Assist with the identification of stakeholders within your community that should be informed and potentially involved with the planning process.
- Completing data and information collection survey forms in a timely manner.
- Identify specific mitigation actions to address each of the natural hazards posing significant [or high or medium] risk to your community.
- Involve your local NFIP Floodplain Administrator in the planning process.
- Review draft Plan sections when requested and provide comment and input as appropriate.
- Adopt the Plan by resolution of their governing body after FEMA conditional approval.
- Periodically provide the Steering Committee with reports of municipal staff and volunteer labor spent on the planning process.

3. Assigns the following persons to be the Points of Contact for our jurisdiction. We understand that these POCs are responsible for assuring municipal representation at municipal Planning Committee meetings, and assuring that the other minimum requirements of jurisdictional participation, as detailed in the Planning Partner Expectations above, are met.

Primary POC: Michael Fiorillo	Position/Department: Superintendent
Phone Number: (518)744-4502	Email Address: mfiorillo704@gmail.com
Alternate/Secondary POC: Randy Diamond	Position/Department: Chief of Police
Phone Number: 518-361-1068	Email Address: hfpdchief@roadrunner.com

4. Our designated local Floodplain Administrator (FPA) under the NFIP is:

Name of NFIP FPA:	Position/Department:
Phone Number:	Email Address:

5. Recognizes that failure to meet the minimum participation expectations and deadlines, as determined by the Steering Committee will result in our municipality being excluded from the planning process.

Sincerely,

John E. Barton

SIGNATURE - CHIEF MUNICIPAL OFFICIAL

AUTHORIZATION AND ACKNOWLEDGMENT TO PARTICIPATE

WASHINGTON COUNTY HAZARD MITIGATION PLAN (HMP)

Date: 5/27/2016

Washington County Department of Public Safety
383 Broadway
Fort Edward, NY 12828

Subject: Washington County All Hazard Mitigation Plan Update
Authorization and Letter of Intent to Participate - Village of Whitehall
MUNICIPALITY NAME

Department of Public Safety; Mayor, Kenneth Bartholomew, DPW Foreman Steven Brock & Chief WWTP/WTP Operator George Rockenstire

Per your letter dated May 20, 2016, the _____, is committed to participating in the Washington County Hazard Mitigation Plan (HMP) update project. By way of this letter, the Village of Whitehall:

1. Authorizes the Washington County Department of Public Safety and Hazard Mitigation Steering Committee ("Steering Committee"), to guide and direct this planning process, perform certain parts of the planning process, and prepare certain parts of the plan documents on our behalf.

2. Agrees to meet the minimum requirements of municipal participation (a.k.a. the Planning Partner Expectations), specifically:

- Execute and return this "Authorization and Acknowledgement" letter to the Washington County Department of Public Safety, via mail or email at publicsafety@co.washington.ny.us .
- Identify municipal representatives to serve as the planning point of contacts (POC), below. These people will be responsible for representing their community and assuring that these participation expectations are met by their community.
- Support the Steering Committee selected to oversee the development of this plan.
- Provide representation at municipal Planning Committee meetings (~ 3 meetings over 6-8 months, including a Kick-Off Meeting (June 15, 2016) and a Mitigation Strategy Workshop).
- Provide data and information about your community as requested by the Steering Committee or the contract consultant, including:
  - Structure and facility inventory data
  - Identification of new development and anticipated development
  - Identification of natural hazard risk areas
  - Identification of natural hazard events and losses that have impacted your community in the last five years
  - Identification of plans, studies, reports and ordinances addressing natural hazard risk
  - Identify mitigation activity in your community in the last five years, including progress on previously identified mitigation actions.

- Support public outreach efforts in your community which may include:
  - Providing notices of the planning project on your municipal website with links to a County project website
  - Providing notice of the planning project, the availability of Plan documents, and notice of public meetings via available local media (e.g. newsletters, flyers, email blasts, social media, etc.)
  - Advertising and supporting public meetings in your area
  - Supporting outreach to National Flood Insurance Program (NFIP) Repetitive Loss and Severe Repetitive Loss property owners in your community.

- Assist with the identification of stakeholders within your community that should be informed and potentially involved with the planning process.
- Completing data and information collection survey forms in a timely manner.
- Identify specific mitigation actions to address each of the natural hazards posing significant [or high or medium] risk to your community.
- Involve your local NFIP Floodplain Administrator in the planning process.
- Review draft Plan sections when requested and provide comment and input as appropriate.
- Adopt the Plan by resolution of their governing body after FEMA conditional approval.
- Periodically provide the Steering Committee with reports of municipal staff and volunteer labor spent on the planning process.

3. Assigns the following persons to be the Points of Contact for our jurisdiction. We understand that these POCs are responsible for assuring municipal representation at municipal Planning Committee meetings, and assuring that the other minimum requirements of jurisdictional participation, as detailed in the Planning Partner Expectations above, are met.

Primary POC: Kenneth Bartholomew	Position/Department: Mayor
Phone Number: (518) 499-0871/499-9239	Email Address: kbartho1@nycap.rr.com
Alternate/Secondary POC: Steven Brock	Position/Department: DPW Working Foreman
Phone Number: (518) 499-1575/320-5024	Email Address: brock4804@hotmail.com

4. Our designated local Floodplain Administrator (FPA) under the NFIP is:

Name of NFIP FPA: Peter Telisky	Position/Department: Compliance
Phone Number: (518)499-0871	Email Address: pteli001@hotmail.com

5. Recognizes that failure to meet the minimum participation expectations and deadlines, as determined by the Steering Committee will result in our municipality being excluded from the planning process.

Sincerely,

Kenneth Bartholomew, Mayor

SIGNATURE - CHIEF MUNICIPAL OFFICIAL

AUTHORIZATION AND ACKNOWLEDGMENT TO PARTICIPATE

WASHINGTON COUNTY HAZARD MITIGATION PLAN (HMP)

Date: 06/20/2016

Washington County Department of Public Safety
383 Broadway
Fort Edward, NY 12828

Subject: Washington County All Hazard Mitigation Plan Update
Authorization and Letter of Intent to Participate - Village of Whitehall
MUNICIPALITY NAME

Department of Public Safety;

Per your letter dated May 20, 2016, the Village of Whitehall, is committed to participating in the Washington County Hazard Mitigation Plan (HMP) update project. By way of this letter, the Village of Whitehall:

1. Authorizes the Washington County Department of Public Safety and Hazard Mitigation Steering Committee ("Steering Committee"), to guide and direct this planning process, perform certain parts of the planning process, and prepare certain parts of the plan documents on our behalf.

2. Agrees to meet the minimum requirements of municipal participation (a.k.a. the Planning Partner Expectations), specifically:

- Execute and return this "Authorization and Acknowledgement" letter to the Washington County Department of Public Safety, via mail or email at publicsafety@co.washington.ny.us .
- Identify municipal representatives to serve as the planning point of contacts (POC), below. These people will be responsible for representing their community and assuring that these participation expectations are met by their community.
- Support the Steering Committee selected to oversee the development of this plan.
- Provide representation at municipal Planning Committee meetings (~ 3 meetings over 6-8 months, including a Kick-Off Meeting (June 15, 2016) and a Mitigation Strategy Workshop).
- Provide data and information about your community as requested by the Steering Committee or the contract consultant, including:
    - Structure and facility inventory data
    - Identification of new development and anticipated development
    - Identification of natural hazard risk areas
    - Identification of natural hazard events and losses that have impacted your community in the last five years
    - Identification of plans, studies, reports and ordinances addressing natural hazard risk
    - Identify mitigation activity in your community in the last five years, including progress on previously identified mitigation actions.

- Support public outreach efforts in your community which may include:
  - Providing notices of the planning project on your municipal website with links to a County project website
  - Providing notice of the planning project, the availability of Plan documents, and notice of public meetings via available local media (e.g. newsletters, flyers, email blasts, social media, etc.)
  - Advertising and supporting public meetings in your area
  - Supporting outreach to National Flood Insurance Program (NFIP) Repetitive Loss and Severe Repetitive Loss property owners in your community.

- Assist with the identification of stakeholders within your community that should be informed and potentially involved with the planning process.
- Completing data and information collection survey forms in a timely manner.
- Identify specific mitigation actions to address each of the natural hazards posing significant [or high or medium] risk to your community.
- Involve your local NFIP Floodplain Administrator in the planning process.
- Review draft Plan sections when requested and provide comment and input as appropriate.
- Adopt the Plan by resolution of their governing body after FEMA conditional approval.
- Periodically provide the Steering Committee with reports of municipal staff and volunteer labor spent on the planning process.

3. Assigns the following persons to be the Points of Contact for our jurisdiction. We understand that these POCs are responsible for assuring municipal representation at municipal Planning Committee meetings, and assuring that the other minimum requirements of jurisdictional participation, as detailed in the Planning Partner Expectations above, are met.

Primary POC: Kenneth Bartholomew	Position/Department: Mayor
Phone Number: Office: (518) 499 0871	Email Address: kbartho1@nycap.rr.com
Alternate/Secondary POC: Steven Bock/George Rockenstire	Position/Department: DPW Foreman/WTP/WWTP Chief Operator
Phone Number: (518) 320 5024/(518) 320 4796	Email Address: brock4804@hotmail.com/BearforU1960@gmail.com

4. Our designated local Floodplain Administrator (FPA) under the NFIP is:

Name of NFIP FPA: Peter Telisky	Position/Department: Compliance/Enforcement Officer
Phone Number: Office:(518) 499 0871	Email Address: pteli001@hotmail.com

5. Recognizes that failure to meet the minimum participation expectations and deadlines, as determined by the Steering Committee will result in our municipality being excluded from the planning process.

Sincerely,

Kenneth Bartholomew

SIGNATURE - CHIEF MUNICIPAL OFFICIAL

Mayor, Village of Whitehall, NY 12887

APPENDIX H. CRITICAL FACILITIES

This appendix includes the critical facilities evaluated as part of the Washington County Hazard Mitigation Plan update.

Table H-1: All Washington County Critical Facilities

Name	Address	City	Type
Argyle Aviation	5292 NY-40	Argyle Town	Air
Argyle Central School	5023 State Rt 40	Argyle Town	School
Argyle Fire Dept	5072 Rt 40	Argyle Town	Fire
Argyle Highway Dept	5062 Route 40	Argyle Town	Highway
Henke/Tower	28 Coach Rd	Argyle Town	Communication Tower
J A Barkley Hose Company	3166 County Route 30	Argyle Town	Fire
Pollock	325 Coot Hill Rd	Argyle Town	Communication Tower
Tyco Healthcare Group	5439 Route 40	Argyle Town	Medical
Warren Washington ARC	21 Route 43	Argyle Town	Medical
Washington County Group Home	4575 Route 40	Argyle Town	Senior
Argyle Court	41 Main Street	Argyle Village	Court
Argyle Rescue Squad	15 Sheridan St	Argyle Village	EMS
Glens Falls National Bank	93 Main Street	Argyle Village	Bank
Town/Village of Argyle	41 Main St. Argyle	Argyle Village	Municipal Hall
US Postal Service - Argyle	38 Main Street	Argyle Village	Post Office
Cambridge Highway Dept	844 Route 59	Cambridge Town	Highway
Cambridge Town Court	846 Route 59	Cambridge Town	Court
Thomas/Hudson Valley Wireless	817 County Route 59	Cambridge Town	Communication Tower
Town of Cambridge	846 County Rte. 59 Cambridge	Cambridge Town	Municipal Hall
Cambridge	56 N Park St	Cambridge Village	Rail
Cambridge DPW	6 Memorial Drive	Cambridge Village	DPW
Cambridge ES	24 South Park St	Cambridge Village	School
Cambridge Family Health	35 Gilbert Street	Cambridge Village	Medical
Cambridge Guest Home	11 South Union Street	Cambridge Village	Senior
Cambridge Hotel	4 West Main Street	Cambridge Village	Hotel
Cambridge Library	21 Main Street	Cambridge Village	Library
Cambridge MS	24 South Park St	Cambridge Village	School

Name	Address	City	Type
Cambridge SHS	24 South Park St	Cambridge Village	School
Cambridge Valley Rescue Squad	37 Gilbert St	Cambridge Village	EMS
Cambridge Village Court	28 Mountain View Drive	Cambridge Village	Court
Cambridge volunteer Fire Department	11 West Main St.	Cambridge Village	Fire
Cambridge Woods Senior House	2 Cambridge Woods Lane	Cambridge Village	Senior
Cambridge-Greenwich Village Police	56 North Park St	Cambridge Village	Police
Glens Falls National Bank	25 West Main Street	Cambridge Village	Bank
Main Street Pediatrics	33 Gilbert Street	Cambridge Village	Medical
McClellan Guest Home	1 Myrtle Ave	Cambridge Village	Senior
Town of White Creek	28 Mountain View Dr Cambridge	Cambridge Village	Municipal Hall
US Postal Service - Cambridge	51 East Main Street	Cambridge Village	Post Office
Village of Cambridge	11 W Main St Cambridge	Cambridge Village	Municipal Hall
White Creek Court	28 Mountain View Drive	Cambridge Village	Court
Dresden Court	6 Lake Road	Dresden Town	Court
Dresden Highway Dept	6 Lake Road	Dresden Town	Highway
Dresden Volunteer Fire Company	14092 State Route 22	Dresden Town	Fire
Huletts Landing Fire Department	2005 Lands End Rd.	Dresden Town	Fire
Huletts Marina	6069 Lakeside Road	Dresden Town	Marina
Independent Towers	179 Cat Den Rd	Dresden Town	Communication Tower
Mt. Defiance/Essex County	3 Deer Run Way	Dresden Town	Communication Tower
Town of Dresden	102 Clemons Ctr Rd Dresden	Dresden Town	Municipal Hall
US Postal Service - Clemons	14007 Route 22	Dresden Town	Post Office
US Postal Service - Huletts Landings	962 Route 6	Dresden Town	Post Office
Vanderplaat Tower/Cingular Wireless	3 Deer Run Way	Dresden Town	Communication Tower
Capital District DDSO	239 General Fellow Road	Easton Town	Medical
Center Falls	43.092074; -73460559	Easton Town	Rail
Crown Atlantic/Willard Mt/AT&T	79 The Intervale Rd	Easton Town	Communication Tower
Dinallo/Cellco. Verizon	721 County Route 113	Easton Town	Communication Tower
DPW Middle Falls Barn	2230 Route 40	Easton Town	DPW

Name	Address	City	Type
Easton Court	1071 Route 40	Easton Town	Court
Easton Highway Dept	1169 Route 40	Easton Town	Highway
Easton Volunteer Fire Department - Station 1	11804 State Route 40	Easton Town	Fire
Easton Volunteer Fire Department - Station 2	599 County Route 74A	Easton Town	Fire
Easton-Greenwich Rescue Squad	441 State Route 29	Easton Town	EMS
Middle Falls	43.095969; -73.526207	Easton Town	Rail
Town of Easton	1071 State Route 40 Easton	Easton Town	Municipal Hall
Verizon	178 Ives Hill Rd	Easton Town	Communication Tower
Washington County Fair/Nextel	358 Old Schuylerville Rd	Easton Town	Communication Tower
Washington County Fairgrounds	392 Old Schuylerville Road	Easton Town	County Building
Washington County Sheriff's Office	392 Old Schuylerville Rd	Easton Town	Police
Champlain Canal Lock 11	678 Old Route 4	Fort Ann Town	Canal Lock
Christian Theater of The Air	Lot 7 Artillery Pat	Fort Ann Town	Communication Tower
Fort Ann Central School	Catherine St	Fort Ann Town	School
Fort Ann Highway Dept	11249 County Route 149	Fort Ann Town	Highway
Fort Ann Rescue Squad	11287 State Route 149	Fort Ann Town	EMS
Golden Goal Sports Complex	495 Goodman Road	Fort Ann Town	Park & Rec
Great Meadow Correctional Facility	11739 Route 22	Fort Ann Town	Correctional
Hajeck/Nextel	1684 Pilot Knob Rd	Fort Ann Town	Communication Tower
Parrish/SBA Tower	State Route 4	Fort Ann Town	Communication Tower
Petrikas/Verizon Tower	89 Clay Hill Rd	Fort Ann Town	Communication Tower
Pierce/Cellular One	Goodman Rd	Fort Ann Town	Communication Tower
Pilot Knob Volunteer Fire Association	1750 Pilot Knob Rd.	Fort Ann Town	Fire
US Postal Service - Kattskil Bay	1488 Pilot Knob Road	Fort Ann Town	Post Office
US Postal Service - Comstock	11676 Route 22	Fort Ann Town	Post Office
Warren Washington ARC	11274 County Route 149	Fort Ann Town	Medical
Washington Correctional Facility	11 Lock 11 Lane	Fort Ann Town	Correctional
Washington County DPW Fort Ann Barn	11259 County Route 149	Fort Ann Town	DPW
West Fort Ann Fire Department	49 Joe Green Rd.	Fort Ann Town	Fire

Name	Address	City	Type
Fort Ann Court	80 George Street	Fort Ann Village	Court
Fort Ann Volunteer Fire Company	8 Charles St.	Fort Ann Village	Fire
From the Heart Hotel	16 George Street	Fort Ann Village	Hotel
Glens Falls National Bank	110 George Street	Fort Ann Village	Bank
Town of Fort Ann	80 George St Fort Ann	Fort Ann Village	Municipal Hall
US Postal Service - Fort Ann	86 George Street	Fort Ann Village	Post Office
Village of Fort Ann	67 Anne St Fort Ann	Fort Ann Village	Municipal Hall
BOCES - Dist Offices	1153 Burgoyne Ave	Fort Edward Town	School
Capital District DDSO	300 Blackhouse Rd	Fort Edward Town	Medical
Capital District DDSO	7 Sullivan Parkway	Fort Edward Town	Medical
Capital District DDSO	62 Perkins Drive	Fort Edward Town	Medical
Flewelling/Cellco/Verizon	399 County Route 46	Fort Edward Town	Communication Tower
Fort Edward Fire Department - Station 2	1206 Fort Miller Rd.	Fort Edward Town	Fire
Fort Edward Internal Medicine	326 Broadway	Fort Edward Town	Medical
Fort Edward Rescue Squad	75 Schuyler St	Fort Edward Town	EMS
Fort Hudson Nursing Home	319 Broadway	Fort Edward Town	Senior
Glens Falls National Bank	343 Broadway	Fort Edward Town	Bank
Mackenzie/FCC	96 County Route 42	Fort Edward Town	Communication Tower
Southern Adirondack Medical	327 Broadway	Fort Edward Town	Medical
Town of Fort Edward/Water Tower	67 Park Ave	Fort Edward Town	Communication Tower
Washington County	383 Broadway	Fort Edward Town	County Building
Washington County Court	383 Broadway	Fort Edward Town	Court
Washington County D.S.S.	383 Broadway	Fort Edward Town	County Building
Washington County Da's Office	383 Broadway	Fort Edward Town	County Building
Washington County Dept Of Public Safety	383 Broadway	Fort Edward Town	County Building
Washington County DPW	385 Broadway	Fort Edward Town	DPW
Washington County EOC	383 Broadway	Fort Edward Town	EOC
Washington County EOC - Alt	399 Broadway	Fort Edward Town	EOC
Washington County Jail	399 Broadway	Fort Edward Town	Correctional

Name	Address	City	Type
Washington County Law Enforcement Ctr	399 Broadway	Fort Edward Town	Police
Washington County Municipal Center	383 Broadway	Fort Edward Town	County Building
Washington County Probation	383 Broadway	Fort Edward Town	County Building
Washington County/Municipal Center	383 Broadway	Fort Edward Town	Communication Tower
BOCES - St Joseph's School	171 Broadway	Fort Edward Village	School
Capital District DDSO	7 Bascom Drive	Fort Edward Village	Medical
Champlain Canal Lock 7	17 Broadway	Fort Edward Village	Canal Lock
Champlain Canal Lock 8	1 East Street	Fort Edward Village	Canal Lock
CPC 56	43.273787; -73.575659	Fort Edward Village	Rail
Fort Edward	43.269674; -73.580255	Fort Edward Village	Rail
Fort Edward Court	118 Broadway	Fort Edward Village	Court
Fort Edward Fire Department - Station 1	114 Broadway	Fort Edward Village	Fire
Fort Edward Highway Dept	1 Culver Street	Fort Edward Village	Highway
Fort Edward Post Office	126 Broadway	Fort Edward Village	Post Office
Fort Edward School	220 Broadway	Fort Edward Village	School
Fort Edward Village Police	118 Broadway	Fort Edward Village	Police
Fort Edward Yard	43.276606; -73.57281	Fort Edward Village	Rail
Glens Falls National Bank	159 Broadway	Fort Edward Village	Bank
Town/Village of Fort Edward	118 Broadway Fort Edward	Fort Edward Village	Municipal Hall
Warren Washington ARC (Wing	79 Broadway	Fort Edward Village	Medical
DPW Middle Granville	2020 Route 23	Granville Town	DPW
Glens Falls National Bank	8646 Route 22	Granville Town	Bank
Granville Csd Mary J. Tanner Elem. School	9593 Route 22	Granville Town	School
Granville Highway Dept	1300 Route 24	Granville Town	Highway
Hickory Hill Motocross (Thomas Property)	398 New Boston Road	Granville Town	Park & Rec
Mary J. Tanner School	P.O. Box 200	Granville Town	School
Middle Granville Fire Co/Penrhyn	1394 County Route 24	Granville Town	Fire
New York State Police Granville	10428 Rt 40	Granville Town	Police
North Granville Hose Company	10209 State Route 22	Granville Town	Fire

Name	Address	City	Type
Parkers Dairy Inc/Independent Towers	43.360549; -73.277542	Granville Town	Communication Tower
Tatko/Nextel/Verizon	State Route 22	Granville Town	Communication Tower
US Postal Service - Middle Granville	5 Riverside Drive	Granville Town	Post Office
US Postal Service - North Granville	10217 Route 22	Granville Town	Post Office
Warren Washington ARC	141 Aiken Road	Granville Town	Medical
Washington County Transfer Station 4	8536 Route 22	Granville Town	Transfer Station
Granville DPW	90 Mettawee Drive	Granville Village	DPW
Granville ES	60 Quaker St	Granville Village	School
Granville Family Health	79 North Street	Granville Village	Medical
Granville Hook & Ladder Company	42 Quaker St.	Granville Village	Fire
Granville JSHS	58 Quaker St	Granville Village	School
Granville Rescue Squad	52 Potter Ave	Granville Village	EMS
Granville Town Court	42 Main Street	Granville Village	Court
Granville Village Court	51Quaker Street	Granville Village	Court
Granville Village Police	51 Quaker St	Granville Village	Police
Henry Hose Company	32 West Main St.	Granville Village	Fire
Holbrook's Adult Home	73 North Street	Granville Village	Senior
Indian River Nursing Home	17 Madison Street	Granville Village	Senior
TD Bank North	92 Quaker Street	Granville Village	Bank
TD Bank North	6 Main Street	Granville Village	Bank
Town of Granville	42 Main St Granville	Granville Village	Municipal Hall
US Postal Service - Granville	41 Main Street	Granville Village	Post Office
Village of Granville	51 Quaker Granville	Granville Village	Municipal Hall
Warren Washington ARC	17 Grandview Road	Granville Village	Medical
Washington County Head Start	16 Church Street	Granville Village	County Building
Cossayuna Volunteer Fire Department	21 Bunker Hill Rd.	Greenwich Town	Fire
Greenwich DPW	18 Abeel Ave	Greenwich Town	DPW
Greenwich Family Health	1134 Route 29	Greenwich Town	Medical
Greenwich Highway Dept	650 Route 77	Greenwich Town	Highway

Name	Address	City	Type
Middle Falls Fire Department	1034 State Route 29	Greenwich Town	Fire
New York State Dot Greenwich	17 Route 49	Greenwich Town	DOT
New York State Police Greenwich	3331 Rt 29	Greenwich Town	Police
Ondawa	43.105828; -73.531613	Greenwich Town	Rail
Reese/ Hudson Valley Wireless	43.12716; -73.525589	Greenwich Town	Communication Tower
Thomson	43.123447; -73.582082	Greenwich Town	Rail
Time Warner Cable Northeast LLC	43.095861; -73.487278	Greenwich Town	Communication Tower
US Postal Service - Cossayuna	703 Route 49	Greenwich Town	Post Office
US Postal Service - Middle Falls	1079 Route 29	Greenwich Town	Post Office
Village of Greenwich/Verizon	13 Prospect St	Greenwich Town	Communication Tower
Warren Washington ARC	18 Galesville Road	Greenwich Town	Medical
Cambridge-Greenwich Village Police	6 Academy St	Greenwich Village	Police
Glens Falls National Bank	132 Main Street	Greenwich Village	Bank
Greenwich	43.086375; -73.499429	Greenwich Village	Rail
Greenwich ES	Gray Ave	Greenwich Village	School
Greenwich Fire Department	6 Academy St.	Greenwich Village	Fire
Greenwich Free Library	148 Main Street	Greenwich Village	Library
Greenwich JSHS	Woodlawn Ave	Greenwich Village	School
Greenwich Town Court	2 Academy Street	Greenwich Village	Court
Greenwich Village Court	6 Academy Street	Greenwich Village	Court
Td Bank North	146 Main Street	Greenwich Village	Bank
Town of Greenwich	2 Academy St Greenwich	Greenwich Village	Municipal Hall
Trustco Bank (Gnh)	131 Main Street	Greenwich Village	Bank
US Postal Service - Greenwich	39 Main Street	Greenwich Village	Post Office
Village of Greenwich	6 Academy St Greenwich	Greenwich Village	Municipal Hall
Armadillo Holdings Corporation	43.512972; -73.304836	Hampton Town	Communication Tower
Capital District DDSO	2243 Route 22A	Hampton Town	Medical
CROWN COMMUNICATION LLC	43.589667; -73.297306	Hampton Town	Communication Tower
Hampton Court	2631 Route 22A	Hampton Town	Court

Name	Address	City	Type
Hampton Fire House	2520 County Route 18	Hampton Town	Fire
Hampton Highway Dept	2631 Route 22A	Hampton Town	Highway
Town of Hampton	2629 State Route 22A Hampton	Hampton Town	Municipal Hall
US Postal Service - Hampton	2520 County Route 18	Hampton Town	Post Office
Coppens/ TBA	43.21778; -73.444694	Hartford Town	Communication Tower
Goodrow/Cellco/Verizon	43.359441; -73.382571	Hartford Town	Communication Tower
Hartford Central School	4704 State Rt 149	Hartford Town	School
Hartford Court	165 Route 23	Hartford Town	Court
Hartford Highway Dept	165 Route 23	Hartford Town	Highway
Hartford Volunteer Fire Company	8118 State Route 40	Hartford Town	Fire
Town of Hartford	165 County Route 23 Hartford	Hartford Town	Municipal Hall
US Postal Service - Hartford	46 Route 23	Hartford Town	Post Office
Hebron Court	3165 Route 30	Hebron Town	Court
Hebron Fire Dept Sta. 1	3165 Rt 30	Hebron Town	Fire
Hebron Highway Dept	660 Chamberlin Mills Road	Hebron Town	Highway
Hebron Volunteer Fire Department - Station 1	3166 County Route 30	Hebron Town	Fire
Hebron Volunteer Fire Department - Station 2	6425 State Route 22	Hebron Town	Fire
National Grid/Radio Tower	1275 Big Burch Hill Rd	Hebron Town	Communication Tower
Town of Hebron	3161 County Route 30 Salem	Hebron Town	Municipal Hall
Washington County DPW Hebron Barn	3335 Route 30	Hebron Town	DPW
Washington County/Burch Hill (new)	1248 Big Burch Hill Rd	Hebron Town	Communication Tower
Washington County/Burch Hill (old)	1249 Big Burch Hill Rd	Hebron Town	Communication Tower
Washington County/McKnight Hill	433 Mcknight Hill Rd	Hebron Town	Communication Tower
Capital District Dso (Hfl)	240 Main Street	Hudson Falls Village	Medical
Earl Tower/Sprint/Nextel	43.303271; -73.587885	Hudson Falls Village	Communication Tower
Hudson Falls Court	220 Main Street	Hudson Falls Village	Court
Hudson Falls Fire Dept	220 Main St	Hudson Falls Village	Fire
Hudson Falls HS	80 E Labarge St	Hudson Falls Village	School
Hudson Falls IS	135 Maple St	Hudson Falls Village	School

Name	Address	City	Type
Hudson Falls MS	131 Notre Dame St	Hudson Falls Village	School
Hudson Falls Police	220 Main St	Hudson Falls Village	Police
Just Like Home	110 Main Street	Hudson Falls Village	Senior
Kingsbury Court	210 Main Street	Hudson Falls Village	Court
Margaret Murphy Kindergarten Ctr	2 Clark St	Hudson Falls Village	School
Paris Hose Co./Hudson Falls Fire Department	95 John St.	Hudson Falls Village	Fire
Td Bank North	14 Main Street	Hudson Falls Village	Bank
Town of Kingsbury	210 Main St Hudson Falls	Hudson Falls Village	Municipal Hall
US Postal Service - Hudson Falls	114 Main Street	Hudson Falls Village	Post Office
Village of Hudson Falls	220 Main St Hudson Falls	Hudson Falls Village	Municipal Hall
Village of Hudson Falls/Verizon	53/55/57 Ferry St	Hudson Falls Village	Communication Tower
Warren Washington ARC	16 Beech Street	Hudson Falls Village	Medical
Warren Washington ARC	20 Circular Drive	Hudson Falls Village	Medical
Warren Washington ARC	73 Pearl Street	Hudson Falls Village	Medical
Warren Washington ARC	Alma Ave	Hudson Falls Village	Medical
Warren Washington ARC	5 Chelsea Square	Hudson Falls Village	Medical
Warren Washington Assn Mental Health	16 Pearl Street	Hudson Falls Village	Medical
Warren Washington Assn Mental Health	25 Maple Street	Hudson Falls Village	Medical
Washington County Head Start	18 River Street	Hudson Falls Village	County Building
Chapin Air Park	160 Plains Rd	Jackson Town	Air
East Greenwich	43.14254; -73.405941	Jackson Town	Rail
Jackson Court	2355 Route 22	Jackson Town	Court
Jackson Highway Dept	149 Route 62	Jackson Town	Highway
Town of Jackson	2355 State Route 22 Cambridge	Jackson Town	Municipal Hall
Washington County DPW Cambridge Barn	33 Route 78	Jackson Town	DPW
Washington County Transfer Station 1	408 Content Farm Road	Jackson Town	Transfer Station
Washington County/Colfax	98 Fire Tower Rd	Jackson Town	Communication Tower
BOCES - Southern Adk Education Center	1051 Dix Ave	Kingsbury Town	School
Capital District DDSO	53 Greenbarn Road	Kingsbury Town	Medical

Name	Address	City	Type
Capital District DDSO	17 Tripoli Road	Kingsbury Town	Medical
Champlain Canal Lock 9	2450 County Route 149	Kingsbury Town	Canal Lock
CPC 58	43.298097; -73.550777	Kingsbury Town	Rail
Crowley/CBA Network Services	County Route 41	Kingsbury Town	Communication Tower
Glens Falls National Bank	3017 Route 4	Kingsbury Town	Bank
Hudson Falls Primary School	47 Vaughn Rd	Kingsbury Town	School
Kingsbury Highway Dept	1246 Dix Ave	Kingsbury Town	Highway
Kingsbury Volunteer Fire Company - Station 1	3715 Burgoyne Ave.	Kingsbury Town	Fire
Kingsbury Volunteer Fire Company - Station 2	14 Kingsbury Rd.	Kingsbury Town	Fire
Nelson/ SBA Properties, LLC	43.381694; -73.601389	Kingsbury Town	Communication Tower
New York State Dot Kingsbury	3716 Burgoyne Ave	Kingsbury Town	DOT
Peckham Materials/Cell Tower	438 Vaughn Rd	Kingsbury Town	Communication Tower
Trustco Bank (Kby)	3758 Burgoyne Ave	Kingsbury Town	Bank
Warren Washington ARC	170 Vaughn Road	Kingsbury Town	Medical
Warren Washington Assn Mental Health	3041 Route 4	Kingsbury Town	Medical
Washington County Head Start	1219 Dix Ave	Kingsbury Town	County Building
Washington County Transfer Station 2	1612 County Route 196	Kingsbury Town	Transfer Station
Jenkin/ Cellco Tower/ Verizon	43.72161; -73.462832	Putnam Town	Communication Tower
Peterson/ Bain/ Independent Towers	43.745345; -73.416386	Putnam Town	Communication Tower
Putnam Central School	126 Route 2	Putnam Town	School
Putnam Central School	126 County Rt 2	Putnam Town	School
Putnam Court	14 Putnam Center Road	Putnam Town	Court
Putnam Highway Dept	17047 Route 22	Putnam Town	Highway
Putnam Volunteer Fire Company	43 Fire House Ln.	Putnam Town	Fire
Town of Putnam	14 Putnam Center Rd Putnam Station	Putnam Town	Municipal Hall
US Postal Service - Putnam	16783 Route 22	Putnam Town	Post Office
Washington County DPW Putnam Barn	14007 Route 22	Putnam Town	DPW
Capital District DDSO	117 Perry Hill Road	Salem Town	Medical
Crown Atlantic/Cellular	916 Steele Rd	Salem Town	Communication Tower

Name	Address	City	Type
Greenwich Junction	43.148261; -73.354357	Salem Town	Rail
Salem ES	E Broadway	Salem Town	School
Salem Highway Dept	379 Rexlegh Road	Salem Town	Highway
Salem HS	E Broadway	Salem Town	School
Shushan	43.090477; -73.343029	Salem Town	Rail
Shushan Volunteer Fire Company	736 County Route 64	Salem Town	Fire
US Postal Service - Shushan	691 Route 64	Salem Town	Post Office
Washington County Sheriff	4279 Rt 22	Salem Town	Police
Glens Falls National Bank	194 Main Street	Salem Village	Bank
Glens Falls National Bank	212 Main Street	Salem Village	Bank
Salem	43.173746; -73.329421	Salem Village	Rail
Salem	43.17429; -73.328207	Salem Village	Rail
Salem Court	181 Main Street	Salem Village	Court
Salem DPW	53 Stanton Hill Road	Salem Village	DPW
Salem Family Health	213 Main Street	Salem Village	Medical
Salem Rescue Squad	152 East Broadway	Salem Village	EMS
Salem Volunteer Fire Company	160 Main St.	Salem Village	Fire
Td Bank	204 Main Street	Salem Village	Bank
Town of Salem	213 Main St Salem	Salem Village	Municipal Hall
US Postal Service - Salem	12 West Broadway	Salem Village	Post Office
Village of Salem	Proudfit Hall, 181 Main St Salem	Salem Village	Municipal Hall
Cambridge Industrial/Water Tower/Nextel	15 West Main St	White Creek Town	Communication Tower
White Creek Highway Dept	108 Route 68	White Creek Town	Highway
White Creek Volunteer Fire Department	1111 County Route 68	White Creek Town	Fire
CPC 74	43.497707; -73.420521	Whitehall Town	Rail
Crown Atlantic/Cellco Tower	85 Dick Hyatt Ln	Whitehall Town	Communication Tower
New York State Dot Whitehall	9760 Route 4	Whitehall Town	DOT
Rosen/Southwestern Bell	39 Dick Hyatt Ln	Whitehall Town	Communication Tower
Washington County Head Start	2300 Upper Turnpike Road	Whitehall Town	County Building

Name	Address	City	Type
Whitehall Highway Dept	10072 Route 4	Whitehall Town	Highway
Whitehall Yard	43.527941; -73.40938	Whitehall Town	Rail
Champlain Canal Lock 12	21 Main Street	Whitehall Village	Canal Lock
CPC 77	43.543815; -73.404953	Whitehall Village	Rail
Skenesborough Emergency Squad	37 Skenesborough Dr	Whitehall Village	EMS
Skenesborough Museum	58 Skenesborough Drive	Whitehall Village	Park & Rec
Skenesborough Volunteer Fire Department	57 Skenesborough	Whitehall Village	Fire
Sparks Cell Tower	Mountain St/E Off	Whitehall Village	Communication Tower
Town of Whitehall	142 Main St	Whitehall Village	Municipal Hall
US Postal Service - Whitehall	88 Broadway	Whitehall Village	Post Office
Village of Whitehall	1 Saunders St	Whitehall Village	Municipal Hall
Washington County DPW Whitehall Barn	12296 Route 22	Whitehall Village	DPW
Washington County Transfer Station 3	12304 Route 22	Whitehall Village	Transfer Station
Whitehall	43.554745; -73.403318	Whitehall Village	Rail
Whitehall Court	1 Saunders Street	Whitehall Village	Court
Whitehall DPW	8 Montcalm Ave	Whitehall Village	DPW
Whitehall ES	99 Buckley Rd	Whitehall Village	School
Whitehall Family Health	65 Poultney Street	Whitehall Village	Medical
Whitehall JSHS	87 Buckley Rd	Whitehall Village	School
Whitehall Marina & RV Park	11 Main Street	Whitehall Village	Park & Rec
Whitehall Village Police	8 Montcalm Ave	Whitehall Village	Police
Whitehall Volunteer Fire Company	161 Main St.	Whitehall Village	Fire

Table H-2: Washington County Critical Facilities Located in the 500-foot Stream Buffer

Name	Address	City	Type
Glens Falls National Bank	93 Main Street	Argyle (V)	Bank
Cambridge DPW	6 Memorial Drive	Cambridge (V)	DPW
Cambridge Guest Home	11 South Union Street	Cambridge (V)	Senior
Cambridge Hotel	4 West Main Street	Cambridge (V)	Hotel
Cambridge Library	21 Main Street	Cambridge (V)	Library
Cambridge Valley Rescue Squad	37 Gilbert St	Cambridge (V)	EMS
Cambridge volunteer Fire Department	11 West Main St.	Cambridge (V)	Fire
Cambridge-Greenwich Village Police	56 North Park St	Cambridge (V)	Police
Glens Falls National Bank	25 West Main Street	Cambridge (V)	Bank
Village of Cambridge	11 W Main St Cambridge	Cambridge (V)	Municipal Hall
Huletts Landing Fire Department	2005 Lands End Rd.	Dresden (T)	Fire
Huletts Marina	6069 Lakeside Road	Dresden (T)	Marina
US Postal Service - Huletts Landings	962 Route 6	Dresden (T)	Post Office
Champlain Canal Lock 11	678 Old Route 4	Fort Ann (T)	Canal Lock
Golden Goal Sports Complex	495 Goodman Road	Fort Ann (T)	Park & Rec
Pilot Knob Volunteer Fire Association	1750 Pilot Knob Rd.	Fort Ann (T)	Fire
US Postal Service - Comstock	11676 Route 22	Fort Ann (T)	Post Office
West Fort Ann Fire Department	49 Joe Green Rd.	Fort Ann (T)	Fire
Fort Ann Court	80 George Street	Fort Ann (V)	Court
Fort Ann Volunteer Fire Company	8 Charles St.	Fort Ann (V)	Fire
From the Heart Hotel	16 George Street	Fort Ann (V)	Hotel
Glens Falls National Bank	110 George Street	Fort Ann (V)	Bank
Town of Fort Ann	80 George St Fort Ann	Fort Ann (V)	Municipal Hall
US Postal Service - Fort Ann	86 George Street	Fort Ann (V)	Post Office
Village of Fort Ann	67 Anne St Fort Ann	Fort Ann (V)	Municipal Hall
Fort Edward Fire Department - Station 2	1206 Fort Miller Rd.	Fort Edward (T)	Fire
Boces - St Joseph's School	171 Broadway	Fort Edward (V)	School

Name	Address	City	Type
Champlain Canal Lock 7	17 Broadway	Fort Edward (V)	Canal Lock
Fort Edward Court	118 Broadway	Fort Edward (V)	Court
Fort Edward Fire Department - Station 1	114 Broadway	Fort Edward (V)	Fire
Fort Edward Post Office	126 Broadway	Fort Edward (V)	Post Office
Fort Edward Village Police	118 Broadway	Fort Edward (V)	Police
Glens Falls National Bank	159 Broadway	Fort Edward (V)	Bank
Town/Village of Fort Edward	118 Broadway Fort Edward	Fort Edward (V)	Municipal Hall
Warren Washington ARC (Wing	79 Broadway	Fort Edward (V)	Medical
Middle Granville Fire Co/Penrhyn	1394 County Route 24	Granville (T)	Fire
US Postal Service - Middle Granville	5 Riverside Drive	Granville (T)	Post Office
Granville DPW	90 Mettawee Drive	Granville (V)	DPW
Granville Town Court	42 Main Street	Granville (V)	Court
Indian River Nursing Home	17 Madison Street	Granville (V)	Senior
Town of Granville	42 Main St Granville	Granville (V)	Municipal Hall
US Postal Service - Granville	41 Main Street	Granville (V)	Post Office
Greenwich Family Health	1134 Route 29	Greenwich (T)	Medical
Middle Falls Fire Department	1034 State Route 29	Greenwich (T)	Fire
Ondawa	No Address	Greenwich (T)	Rail
Thomson	No Address	Greenwich (T)	Rail
US Postal Service - Cossayuna	703 Route 49	Greenwich (T)	Post Office
Greenwich	No Address	Greenwich (V)	Rail
Greenwich ES	Gray Ave	Greenwich (V)	School
Greenwich JSHS	Woodlawn Ave	Greenwich (V)	School
US Postal Service - Greenwich	39 Main Street	Greenwich (V)	Post Office
CROWN COMMUNICATION LLC	43.589667; -73.297306	Hampton (T)	Communication Tower
Hartford Central School	4704 State Rt 149	Hartford (T)	School
Hebron Court	3165 Route 30	Hebron (T)	Court
Hebron Fire Dept Sta. 1	3165 Rt 30	Hebron (T)	Fire
Hebron Highway Dept	660 Chamberlin Mills Road	Hebron (T)	Highway

Name	Address	City	Type
Hebron Volunteer Fire Department - Station 1	3166 County Route 30	Hebron (T)	Fire
Town of Hebron	3161 County Route 30 Salem	Hebron (T)	Municipal Hall
Washington County DPW Hebron Barn	3335 Route 30	Hebron (T)	DPW
Earl Tower/Sprint/Nextel	43.303271; -73.587885	Hudson Falls (V)	Communication Tower
Warren Washington ARC	73 Pearl Street	Hudson Falls (V)	Medical
Washington County Head Start	18 River Street	Hudson Falls (V)	County Building
Capital District DDSO	117 Perry Hill Road	Salem (T)	Medical
US Postal Service - Shushan	691 Route 64	Salem (T)	Post Office
Washington County Sheriff	4279 Rt 22	Salem (T)	Police
Salem DPW	53 Stanton Hill Road	Salem (V)	DPW
Salem Volunteer Fire Company	160 Main St.	Salem (V)	Fire
Cambridge Industrial/Water Tower/Nextel	15 WEST MAIN ST	White Creek (T)	Communication Tower
White Creek Highway Dept	108 Route 68	White Creek (T)	Highway
CPC 74	No Address	Whitehall (T)	Rail
Whitehall Highway Dept	10072 Route 4	Whitehall (T)	Highway
Whitehall Yard	No Address	Whitehall (T)	Rail
Champlain Canal Lock 12	21 Main Street	Whitehall (V)	Canal Lock
CPC 77	No Address	Whitehall (V)	Rail
Skenesborough Emergency Squad	37 Skenesborough Dr	Whitehall (V)	EMS
Skenesborough Museum	58 Skenesborough Drive	Whitehall (V)	Park & Rec
Skenesborough Volunteer Fire Department	57 Skenesborough	Whitehall (V)	Fire
Town of Whitehall	142 Main St	Whitehall (V)	Municipal Hall
US Postal Service - Whitehall	88 Broadway	Whitehall (V)	Post Office
Village of Whitehall	1 Saunders St	Whitehall (V)	Municipal Hall
Whitehall	No Address	Whitehall (V)	Rail
Whitehall Court	1 Saunders Street	Whitehall (V)	Court
Whitehall DPW	8 Montcalm Ave	Whitehall (V)	DPW
Whitehall ES	99 Buckley Rd	Whitehall (V)	School
Whitehall Family Health	65 Poultney Street	Whitehall (V)	Medical

Name	Address	City	Type
Whitehall JSHS	87 Buckley Rd	Whitehall (V)	School
Whitehall Marina & RV Park	11 Main Street	Whitehall (V)	Park & Rec
Whitehall Village Police	8 Montcalm Ave	Whitehall (V)	Police
Whitehall Volunteer Fire Company	161 Main St.	Whitehall (V)	Fire

Washington County All Hazards Mitigation Plan Update

Volume II

Prepared for:

Washington County Department of Public Safety
383 Broadway | Fort Edward, New York

FINAL

August 2018

Prepared by:

TETRA TECH
complex world | CLEAR SOLUTIONS™

6 Century Drive, Suite 300 | Parsippany, NJ

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Parsippany, NJ 07054

Project 103S4554

SECTION 8. PLANNING PARTNERSHIP

This section provides a description of Washington County's HMP update planning partnership, their responsibilities throughout the planning process and the jurisdictional annexes developed as a result of their plan update efforts.

8.1 BACKGROUND

Section 201.6.a(4) of Chapter 44 of the Code of Federal Regulations (44CFR) states: "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." The Federal Emergency Management Agency (FEMA) and New York State Division of Homeland Security and Emergency Services (NYS DHSES) both encourage multi-jurisdictional planning. Therefore, in the preparation of the "Washington County All-Hazards Mitigation Plan" update, a planning partnership was formed meet requirements of the federal Disaster Mitigation Act of 2000 (DMA) for as many eligible local governments in Washington County as possible.

The DMA defines a local government as follows: "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."

In addition to the County's participation, Washington County Department of Public Safety solicited the participation of all incorporated municipalities 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 Washington County HMP Update.

Table 8-1 lists those jurisdictions that elected to participate in the 2016-2018 Washington 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 Washington County

Jurisdictions	
Washington County	Town of Greenwich
Town of Argyle	Village of Greenwich
Village of Argyle	Town of Hampton
Town of Cambridge	Town of Hartford
Village of Cambridge	Town of Hebron
Town of Dresden	Village of Hudson Falls (not participating)
Town of Easton	Town of Jackson
Town of Fort Ann	Town of Kingsbury
Village of Fort Ann (not participating)	Town of Putnam
Town of Fort Edward	Town of Salem (incl. former Village)
Village of Fort Edward	Town of White Creek
Town of Granville	Town of Whitehall

Jurisdictions	
Village of Granville	Village of Whitehall

8.1.1 Planning Partner Responsibilities

The Planning Committee agreed to the following list of expectations:

- Review 2010 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) it is intended that the planning partnership remain active beyond the regulatory update to support plan maintenance. Regarding the composition of the Steering and Planning Committees, 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.

8.1.2 Jurisdictional Annexes

This update is organized to include a jurisdictional annex (chapter) for each participating jurisdiction. While the local 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 plan updates.

It is recognized that each jurisdiction's annex is 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 currency and 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 Points of Contact: Identifies the hazard mitigation planning primary and alternate(s) contacts, as identified by the jurisdiction.

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: Natural Hazard Event History Specific to the Municipality: Identifies hazard events that have 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. It is recognized that this "inventory" of events and losses is a work-in-progress, and may 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.

Section 9.X.4: Hazard Vulnerabilities and Ranking: This subsection 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 Section 5 (Risk Assessment).

- ***Hazard Risk/Vulnerability Risk Ranking***: The Washington County HMP Update 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 to them, supporting the appropriate selection and prioritization of initiatives that will reduce the highest levels of risk for each community.
- ***National Flood Insurance Program (NFIP) Summary:*** Provides NFIP summary statistics for the jurisdiction.
- ***Critical Facilities:*** Identifies potential flood losses to critical facilities in the jurisdiction, based on the flood vulnerability assessment process presented in Section 5 (Risk Assessment).
- ***Other Vulnerabilities Identified by the Municipality:*** Presents other specific hazard vulnerabilities as identified by the jurisdiction.

Section 9.X.5: Capability Assessment: This subsection 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 and regulatory, administrative and technical, and fiscal, capabilities, respectively. Further, another table identifies the municipality's level of participation in state and federal programs designed to promote and incentivize local risk reduction efforts.

National Flood Insurance Program (NFIP): This subsection documents the NFIP as implemented within the jurisdiction. This summary was based on surveys prepared by, and/or interviews conducted with, the NFIP Floodplain Administrators for each NFIP-participating community in the County.

This subsection also identifies actions to enhance implementation and enforcement of the NFIP within the community.

Integration of Hazard Mitigation into Existing Planning Mechanisms: This subsection identifies how the jurisdiction has integrated hazard risk management into their existing planning, regulatory and

operational/administrative framework ("integration capabilities"), and/or how they intend to promote this integration ("integration actions").

Further information regarding Federal, State and local capabilities may be found in the Capability Assessment portion of Section 6 (Mitigation Strategy).

Section 9.X.6: Mitigation Strategy and Prioritization: This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and prioritization.

Past Mitigation Initiative Status: Where applicable, a review of progress on the jurisdiction's prior mitigation strategy is presented, 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 may be included in this sub-section as well.

Proposed Mitigation Strategy: 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).

Section 9.X.7: Future Needs to Better Understand Risk/Vulnerability: During the development of each annex, each jurisdiction identified if there are any anticipated needs in order to better understand risk and vulnerability going forward. If a jurisdiction identified such needs, they are captured in this section.

Section 9.X.8: Hazard Area Extent and Location Map: Each annex includes a map (or series of maps) illustrating identified hazard zones, critical facilities, and areas of NFIP Repetitive Loss/Severe Repetitive Loss (RL/SRL).

Section 9.X.9: Additional Comments: Each annex contains an additional comments section to address identified issues or considerations that are not addressed in other annex sections.

9.1 WASHINGTON COUNTY

This section presents the jurisdictional annex for Washington County.

9.1.1 Hazard Mitigation Plan Point of Contact

The following individuals have been identified as the hazard mitigation plan's primary and alternate points of contact.

Primary Point of Contact	Alternate Point of Contact
Glen Gosnell; Director of Public Safety Washington County Department of Public Safety 383 Broadway, Fort Edwards 518-747-7520 ggosnell@co.washington.ny.us	Timothy Hardy, Deputy Director Washington County Department of Public Safety 383 Broadway, Fort Edwards 518-747-7520 thardy@co.washington.ny.us

9.1.2 County Profile

Please refer to Section 4 – County Profile of this Plan for details on Washington County's population, location, climate, history, growth and development.

9.1.3 Natural Hazard Event History Specific to the County

Warren County has a history of hazard events as detailed in Section 5.0 – Risk Assessment of this plan. 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.

9.1.4 Hazard Vulnerabilities and Ranking

The hazard profiles in Section 5.0 – Risk Assessment of this plan have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes the hazard vulnerabilities and their ranking in the County. For additional vulnerability information, refer to Section 5.0 – Risk Assessment.

Natural Hazard Risk/Vulnerability Risk Ranking

The table below summarizes the hazard risk/vulnerability rankings of potential natural hazards for the Washington County.

Table 9.1-1. Hazard Risk/Vulnerability Risk Ranking

Hazard type	Estimate of Potential Dollar Losses to Structures Vulnerable to the Hazard [a, c]	Probability of Occurrence	Risk Ranking Score (Probability x Impact)	Hazard Ranking [b]
Earthquake	100-Year GBS: $0 500-Year GBS: $14,923,812 2,500-Year GBS: $235,483,840	Occasional	28	Medium
Flood	Damage estimate not available.	Frequent	27	Medium
Severe Weather	100-Year MRP: $6,432,989 500-year MRP: $46,529,142 Annualized: $378,623	Frequent	48	High
Severe Winter Weather	1% GBS: $183,163,184	Frequent	51	High

Hazard type	Estimate of Potential Dollar Losses to Structures Vulnerable to the Hazard [a, c]		Probability of Occurrence	Risk Ranking Score (Probability x Impact)	Hazard Ranking [b]
	5% GBS:	$915,815,918			
Wildfire	Estimated Value in the WUI Hazard Areas:	$23,813,014,227	Frequent	48	High

Notes:

a. Building damage ratio estimates based on FEMA 386-2 (August 2001)

b. The valuation of general building stock and loss estimates was based on custom inventory for the municipality.
High = Total hazard priority risk ranking score of 31 and above
Medium = Total hazard priority risk ranking of 20-30+
Low = Total hazard risk ranking below 20

c. Loss estimates for the severe storm and severe winter storm hazards are structural values only and do not include the value of contents.

d Loss estimates for the flood and earthquake hazards represent both structure and contents.

e. The HAZUS-MH earthquake model results are reported by Census Tract.

f. Damage estimate for flood unavailable due to lack of digital floodplain data for Washington County.

National Flood Insurance Program (NFIP) Summary

The following table summarizes the NFIP statistics for the County.

Table 9.1-2. NFIP Summary

Municipality	# Policies (1)	# Claims (Losses) (1)	Total Loss Payments (2)	# Rep. Loss Prop. (1)	# Severe Rep. Loss Prop. (1)
Washington County	160	98	$1,435,133	2	0

Source: FEMA, 2016

Note (1) Policies, claims, repetitive loss and severe repetitive loss statistics provided by FEMA and are current as of April 30, 2016 and are summarized by Community Name. Please note the total number of repetitive loss properties excludes the severe repetitive loss properties. The number of claims represents claims closed by 4/30/2016.

Note (2) Total building and content losses from the claims file provided by FEMA Region 2.

Note (3) The policies inside and outside of the flood zones is based on the latitude and longitude provided by FEMA Region 2 in the policy file.

Note (4) FEMA noted that where there is more than one entry for a property, there may be more than one policy in force or more than one GIS possibility

Other Vulnerabilities Identified

Washington County has identified the following vulnerabilities within the County:

- None identified

9.1.5 Capability Assessment

This section identifies the following capabilities of the County:

- Planning and regulatory capability
- Administrative and technical capability
- Fiscal capability
- Community classification
- National Flood Insurance Program
- Integration of Mitigation Planning into Existing and Future Planning Mechanisms

Planning and Regulatory Capability

The table below summarizes the regulatory tools that are available to the County.

Table 9.1-3. Planning and Regulatory Tools

Tool / Program (code, ordinance, plan)	Authority (local, county, state, federal)	Code Citation and Comments (Code Chapter, date of adoption, name of plan, explanation of authority, etc.)
Building Code	State and Local	Washington County Department of Code Enforcement; also regulated at local and state levels
Zoning Ordinance	Local	Regulated at the local level; however, the County provides code enforcement and land use planning support to municipalities
Subdivision Ordinance	Local	Regulated at the local level; however, the County provides code enforcement and land use planning support to municipalities
Site Plan Review Requirements	Local	Regulated at the local level; however, the County provides code enforcement and land use planning support to municipalities
National Flood Insurance Program (NFIP) Flood Damage Protection Ordinance	Federal, State, Local	The County currently has no regulatory authority in this area.
Comprehensive Plan / Master Plan	County and Local	Washington County Empire Zone Development Plan (March 2008); Washington County Agricultural and Farmland Protection Plan (2016)
Capital Improvements Plan	County	Washington County Capital Improvement Plan for 2018—2022 (December 2017); Washington County Capital Equipment and Technology Plan for 2018-2022 (January 2018)
Stormwater Management Plan/Ordinance	County, Local	Washington County Stormwater Pollution Prevention Plan (June 2013); Washington County DPW is a "Regulated Small MS4" community, and maintains a county-level SWMP with annual reporting
Floodplain Management / Basin Plan	Local	Regulated at the local level; however, the County provides code enforcement and land use planning support to municipalities
Open Space or Greenway Plan	County	Open Space Acquisition Program
Emergency Management and/or Response Plan	County and Local	Washington County Comprehensive Emergency Management Plan (April 2016)
Economic Development Plan	County	Existing Conditions Report: Broadband and Telecommunications (October 2015); Washington County Economic Development magazine
Local Waterfront Revitalization Plan (for waterfront communities)	Local	Regulated at the local level; however, the County provides code enforcement and land use planning support to municipalities
Post Disaster Recovery Plan and/or Ordinance	County	Washington County Comprehensive Emergency Management Plan (April 2016)
Growth Management	Local	
Real Estate Disclosure req.	State and local	New York State (NYS) mandate, Property Condition Disclosure Act, *NY Code* – Article 14 §460-467
Habitat Conservation Plan	-	-
Other (Special Purpose Ordinances [i.e., sensitive areas, steep slope])	-	-

Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the County.

Table 9.1-4. Administrative and Technical Capabilities

Resources	Is this in place? (Yes or No)	Department/ Agency/Position
Administrative Capability		
Planning Board	Yes	County Planning
Mitigation Planning Committee	Yes	Established for this HMP update effort
Environmental Board/Commission	No	
Open Space Board/Committee	Yes	Ag/Farmland Protection Committee
Economic Development Commission/Committee	Yes	Local Development Corporation; Ag/Planning/Tourism Committee
Maintenance Programs to Reduce Risk	Yes	County DPW has ongoing programs to address both maintenance and mitigation of vulnerabilities to road, bridge, stormwater and other drainage infrastructure throughout the County, and provides support to municipalities similarly.
Mutual Aid Agreements	Yes	State controlled
Technical/Staffing Capability		
Planner(s) or Engineer(s) with knowledge of land development and land management practices	Yes	Planning; Code Enforcement; Public Works; SWCD
Engineer(s) or Professional(s) trained in construction practices related to buildings and/or infrastructure	Yes	Code Enforcement; Public Works
Planners or engineers with an understanding of natural hazards	Yes	Public Works – Engineering; Planning; SWCD
NFIP Floodplain Administrator	N/A	Per NYS Coordinator of NFIP Floodplain Mgr. not applicable on County level as requirement and jurisdiction is with Towns and Villages
Surveyor(s)	No	County may use outside contractors; Real Property
Personnel skilled or trained in GIS and/or HAZUS-MH applications	Yes	Real Property; County
Scientist familiar with natural hazards	Yes	SWCD and County
Emergency Manager	Yes	Public Safety
Grant Writer(s)	Yes	Public Safety; Planning; Economic Development
Staff with expertise or training in benefit/cost analysis	Yes	Economic Development
Professionals trained in conducting damage assessments	Yes	Public Safety

Fiscal Capability

The table below summarizes financial resources available to the 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	No
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

Financial Resources	Accessible or Eligible to Use (Yes/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	Yes
Other	Economic Development Loan Program U.S. HUD HOME Investment Partnerships U.S. HUD Emergency Solutions Grant Department of Homeland Security grants

Community Classifications

The table below summarizes classifications for community program available to the County.

Table 9.1-6. Community Classifications

Program	Do you have this? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Community Rating System (CRS)	N/A	N/A	Not applicable at the County level
Building Code Effectiveness Grading Schedule (BCEGS)	N/A	N/A	Not applicable at the County level
Public Protection (ISO Fire Protection Classes 1 to 10)	N/A	N/A	Not applicable at the County level
Storm Ready	No	Washington County is currently a Weather Ready county and is working towards becoming a StormReady county.	
Firewise	No		
Disaster/Safety Programs in/for Schools	No		
Organizations with Mitigation Focus (advocacy group, non-government)	No		
Public Education Program/Outreach (through website, social media)	Yes	Use of social media and County website to identify seasonal-specific safety issues. Additional programs identified throughout this annex and plan	
Public-Private Partnerships	No		

N/A = Not applicable. NP = Not participating. - = Unavailable. TBD = To be determined.

The classifications listed above relate to the community's ability to provide effective services to lessen its vulnerability to the hazards identified. These classifications can be viewed as a gauge of the community's capabilities in all phases of emergency management (preparedness, response, recovery and mitigation) and are used as an underwriting parameter for determining the costs of various forms of insurance. The CRS class applies to flood insurance while the BCEGS and Public Protection classifications apply to standard property insurance. CRS classifications range on a scale of 1 to 10 with class 1 being the best possible classification, and class 10 representing no classification benefit. Firewise classifications include a higher classification when the subject property is located beyond 1000 feet of a creditable fire hydrant and is within 5 road miles of a recognized Fire Station.

Criteria for classification credits are outlined in the following documents:

- The Community Rating System Coordinators Manual
- The Building Code Effectiveness Grading Schedule website at https://www.isomitigation.com/bcegs/
- The ISO Mitigation online ISO's Public Protection website at https://www.isomitigation.com/ppc/
- The National Weather Service Storm Ready website at https://www.weather.gov/stormready/
- The National Firewise Communities website at https://www.nfpa.org/Public-Education/By-topic/Wildfire/Firewise-USA

Self-Assessment of Capability

The table below provides an approximate measure of Washington County's capability to work in a hazard-mitigation capacity and/or effectively implement hazard mitigation strategies to reduce hazard vulnerabilities.

Table 9.1-7. Self-Assessment Capability for the County

Area	Degree of Hazard Mitigation Capability		
	Limited (If limited, what are your obstacles?)	Moderate	High
Planning and Regulatory Capability		X - Limited staff availability as well as proper training for mitigation specific planning and coordination.	
Administrative and Technical Capability	X - Limited staff availability as well as proper training for mitigation specific planning and coordination.		
Fiscal Capability	X - Fiscal constraints for all jurisdictional and ability to fund projects or planning		
Community Political Capability		X - Difficult to get the political jurisdictions to work towards prevention of something that has not happened and is not seen as a priority in the list of items for fiscal subsets.	
Community Resiliency Capability		X – Transportation, connectivity, distance, limited staff, unaware of FEMA funding sources.	
Capability to Integrate Mitigation into Municipal Processes and Activities.		X	

Integration of Hazard Mitigation into Existing and Future Planning Mechanisms

It is the intention of the County to incorporate hazard mitigation planning and natural hazard risk reduction as an integral component of the County's administrative, regulatory and operational framework. Such efforts which are now an ongoing part of County operations are identified in the Capability Assessment of Section 6 – Mitigation Strategy, as well as in the completed mitigation initiatives identified in the following Section 9.1.6. In addition, the County identified specific integration activities that will be incorporated into procedures and are included in their updated mitigation strategy. The following textual summary and table identify relevant planning mechanisms and programs that have been/will be incorporated into County procedures, which may include former mitigation initiatives that have become continuous/on-going programs and may be considered mitigation "capabilities":

Planning

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 Washington County Planning Department (WCPD), Washington County Department of Code Enforcement (WCDCE) and the Washington County Soil and Water Conservation District (WCSWCD) both provide local land use planning support to the municipalities (see Section 6.4.3).

Section 239 of New York State General Municipal Law (GML) requires the referral of certain local planning actions to the County Planning Board for the examination of possible inter-municipal impacts. The County Planning Department and Planning Board fulfil the requirements under Section 239-M of the law. While WCPD does not have or implement any County-level land use plans, it does provide technical planning assistance for all municipalities within the County. The County Planning Board reviews all aspects of the projects referred to them and often discusses natural hazard risks regarding floodplains as well as stormwater management. A recently hired County Planner specializes in Resiliency and Community Development, and serves as a resource to the Planning Board and municipalities. The Board makes recommendations on local projects to approve, deny, or find matter of local concern – it does not have the authority to make determinations. Municipalities consider County recommendations, but may vote against them a super-majority vote. All municipalities within the County have some form of land use regulations.

WCDCE administers and enforces the New York State Uniform Fire Prevention and Building Codes and the Washington County Sanitary Code, Local Law No. 1 of 1988 within those municipalities within the county which have elected not to enforce the Uniform Code at a local level. In this role, the Department is responsible for the following:

- Investigate reports regarding any issues of noncompliance with either the Uniform Codes or Sanitary Code and issue stop work orders and/or order to remedy violations.
- Issue certificates of occupancy and/or certificates of compliance when compliance with the Uniform Codes and/or Sanitary Code has been fulfilled.
- Perform fire prevention inspections of business and schools as required by the Uniform Codes.
- Perform onsite inspections during various stages of construction.
- Perform property maintenance inspections by request of homeowners and/or tenants.
- Review plans and issue permits for all work that must conform to the Uniform Codes and the Washington County Sanitary Code.

WCDCE staff includes code enforcement officials assigned to specific municipalities within the county where local code enforcement is unavailable. The towns of Putnam, Easton, Cambridge, and Fort Edward conduct building code enforcement with local staff. All other towns and villages in the county rely on WCDCE for building code enforcement. In addition, each town and village has authorized local municipal officers who ensure compliance with any and all local regulations in the municipality that a permit or certificate is being requested.

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 (NYS Department of State 2017).

Some Washington County communities have utilized these funds to increase public access to waterways, design and construct the waterfront parks, and develop riverfront revitalization strategies. The Town of Fort Edward, Village of Fort Edward, and the Village of Granville have been past recipients of the EPF LWRP grant awards. The Village of Whitehall is currently the only Washington County municipality with an approved LWRP.

Regulatory and Enforcement (Ordinances)

Washington County Department of Code Enforcement (WCDCE)

This department enforces the New York State Uniform Fire Prevention and Building Codes and the Washington County Sanitary Code, Local Law No. 1 of 1988. Code Enforcement personnel are available 24 hours a day to report to the scene of an emergency involving structural damage to a building by fire, flood, etc.

Operation and Administration

Washington County Department of Public Safety

The Washington County DPS has multiple different functions, including operating a 911 communications center, maintaining the countywide emergency communications system, overseeing the County's Hazardous Materials-WMD Team and responses, providing administrative support to the Bureau of EMS and Bureau of Fire, maintaining and managing the Public Emergency Notification System, and conducting all Emergency Management Coordination and Planning in the County. The Department's Director and Deputy Director are responsible for Emergency Management and Planning in accordance with State and Federal guidelines for such situations from the County level down to the individual municipalities. The Department assists County Administration as well as the leaders of the local Towns & Villages, Schools and Businesses, also including the assorted Public Safety agencies that have jurisdiction within Washington County.

Washington County Soil & Water Conservation District (WC SWCD)

The District's mission is to implement projects and programs to assist agricultural producers, rural landowners and municipalities with the management, conservation and best use of natural resources in Washington County. The SWCD was created in 1945 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 five-member citizen Board of Directors. The SWCD's highest priorities are to protect the County's soil and water resources while maintaining the viability of agriculture as a preferred land use.

Washington County Department of Public Health and Nursing

Washington County has joined forces with New York State Department of Health, creating a Public Health All-Hazards Volunteer Program. This program will train volunteers to assist Public Health efforts in response, mitigation, and recovery for disasters which may pose a threat to human health.

Washington County Department of Public Works (WCDPW)

WCDPW responsibilities include overseeing all county road, highway, and bridge design and construction, and maintenance of the county's capital facilities, vehicle fleet, and equipment. The department also performs brush cutting, ditching, and tree removals. Washington County DPW has an Engineering Section that is

involved in various activities related to the improvement of highway and bridge infrastructure throughout the County, which includes a Plan of Action for Scour Critical Bridges.

Funding

Washington County municipalities are able to fund mitigation projects though 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.

Education and Outreach

Washington County provides public education and outreach information on their website, Facebook page, and Twitter account. This includes news information, links to different county departments, and an events calendar. Additionally, the County Department of Public Safety provides education information and other public outreach mechanisms/programs in place to inform citizens on natural hazards (Facebook, Twitter, NY Alert, and MyEM App). The County Department of Public Safety also works with the Governor's Citizens Preparedness Corps sponsoring Citizen Preparedness Corps training sessions throughout Washington County during the year.

9.1.6 Mitigation Strategy and Prioritization

This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and prioritization.

Past Mitigation Initiative Status

The following table indicates progress on the County's mitigation strategy identified in the 2010 Plan. Actions that are carried forward as part of this plan update are included in the following subsection in its own table with prioritization. Previous actions that are now on-going programs and capabilities are indicated as such in the following table and may also be found under 'Capability Assessment' presented previously in this annex.

Table 9.1-8. Status of Previous Mitigation Actions

2010 Mitigation Action	Responsible Party	Status (In progress, No progress, Complete)	Describe Status	Next Step (Include in 2018 HMP or Discontinue)	Describe Next Step
Improve drainage at sites where roads have washed out due to natural hazards in the past throughout County	County	In progress	Drainage improvements have been made throughout the County; however, there is a need to continue the improvements in other areas of the County.	Include in 2018 HMP	This action pertains to several identified in Table 9.1-9 below
Purchase equipment to provide for local personnel to conduct the drainage improvement throughout County	County	In progress	Equipment has been purchased; however, there is a need to purchase additional equipment and replace existing equipment.	Include in 2018 HMP	This action pertains to several identified in Table 9.1-9 below
Engineering assessment to determine feasibility of each site improvement throughout County	County	In progress	Engineering assessments have been done throughout the County; however, there is still a need to conduct additional engineering assessments in the County.	Include in 2018 HMP	This action pertains to several identified in Table 9.1-9 below
Improve dams to prevent flooding causing roads to wash out.	County	In progress	Dam improvements have been made throughout the County; however, there is a need to continue the improvements in other areas of the County.	Include in 2018 HMP	This action pertains to several identified in Table 9.1-9 below
Improve identified sites where slope stability is subject to land subsidence and where excavation or planting could mitigate future damage.	County	In progress	The County has stabilized slopes in parts of the county; however, additional work needs to be done.	Include in 2018 HMP	This action pertains to several identified in Table 9.1-9 below

Completed Mitigation Initiatives Not Identified in the Previous Mitigation Strategy

Washington County has identified the following mitigation projects/activities that have also been completed but were not identified in the previous mitigation strategy in the 2010 Plan:

- The County and municipalities have implemented, or sought to implement through efforts to secure available funding resources, mitigation actions to protect critical facilities and infrastructure throughout the planning area, including:
    - New span bridge on CR46 in Town of Fort Edward
    - Village of Granville - Phase I of Church Street Bridge Rehabilitation, River Valley Drive Pump Station Flood Mitigation, Wellfield Berm Repairs, Sanitary Collection System Inflow and Infiltration Mitigation Project
    - Bridge deck repair/upgrade on CR113 in Town of Easton.
    - Batten Kill River Stabilization Project in Town of Jackson
    - Washington County Sewer District #11 Backup Power System
    - Pike Brook Road bridge replacement in Town of Dresden, damaged during Hurricane Irene

Proposed Hazard Mitigation Initiatives for the Plan Update

The County participated in a mitigation action workshop in September 2016 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).

Table 9.1-9 summarizes the comprehensive-range of specific mitigation initiatives the County would like to pursue in the future to reduce the effects of hazards. Some of these initiatives may be previous actions carried forward for this plan update. These 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. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table below to further demonstrate the wide-range of activities and mitigation measures selected.

As discussed in Section 6 – Mitigation Strategy, 14 evaluation/prioritization criteria are used 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 your actions as 'High', 'Medium', or 'Low.' The table below summarizes the evaluation of each mitigation initiative, listed by Action Number.

Table 9.1-10 provides a summary of the prioritization of all proposed mitigation initiatives for the Plan update.

Table 9.1-9. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category
Department of Public Safety											
WC-1	Become a StormReady county - neither the County nor any communities therein participate in StormReady.	New and Existing	Severe Storms, Severe Winter Storms	1, 2, 5	Public Safety	Medium	Low	County and Local budgets	Short Term	Medium	EAP
WC-2	County and Local Mitigation Capability Building: Arrange/facilitate and/or promote regional workshops, trainings and continuing education (prepared and offered by others) in the following areas: • Floodplain Management and the Certified Floodplain Managers (CFM) certification • Community Rating System (CRS) – Limited to promoting workshops or training opportunities offered by others as available • Benefit-Cost Analysis (BCA) • Substantial Damage Estimating (SDE) • NFIP Elevation Certificates (EC)										
	See Above	N/A	All hazards	All	County Public Safety; as supported by NYS DHSES, FEMA and ISO; with participation of all municipalities and other County department and agencies	High – Improved county and local floodplain management, mitigation and recovery capabilities	Medium	County and local Budgets (generally limited to staff time)	Short Term	Medium	EAP, EM*

WC-3	Provide support to municipalities as they work to update and enhance local floodplain management regulatory capabilities through the following activities:
	• Update and adopt the local Flood Damage Protection Ordinance (FDPO) to conform to latest regulations and guidance (see http://www.dec.ny.gov/lands/39341.html for guidance on model ordinances), including the following:
	  ○ Proper identification of "Administrator"
	  ○ Proper reference to current regulatory mapping and any other "best available data" being used
	  ○ Higher Regulatory Standards (per local interest)
	  ○ Additional Freeboard
	  ○ Cumulative Substantial Damages/Improvements
	• Assure that the designated floodplain administrator has adequate support and training to fulfill their responsibilities. It is noted that general floodplain management training is made available through the following sources –
	  ○ NYSDEC Floodplain Management Section - http://www.dec.ny.gov/lands/101275.html										

Table 9.1-9. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category
	○ New York State Floodplain and Stormwater Managers Association (NYSFSMA) at http://nyfloods.org/										
	See above.	New and Existing	Flood	All	County through Public Safety with assistance from NYS DHSES, NYSDEC and FEMA	Medium	Low	County Budget and Staff Time	Short Term	Medium	LPR
WC-4	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 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.										
	See Above	N/A	All hazards including climate change	All	All County departments and agencies	High	Low	County Budgets	Short	High	LPR
WC-5	The County shall promote both County and municipal participation in the NYSDEC Climate Smart Communities (CSC) program through the following activities: • Include information on the CSC program, benefits and participation requirements and activities on the County website. See: http://www.dec.ny.gov/energy/76483.html • Inform County and municipal representatives of Climate Smart Community Webinar offerings, and other related informational events offered through the Program. See: http://www.dec.ny.gov/energy/76910.html										
	See Above	N/A	All hazards including climate change	All	All County departments and agencies; municipalities	High	Low	County Budgets	Short	Medium	LPR
WC-6	Floodprone Critical Facilities in Washington County – 1. As digitized flood maps become available for Washington 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). 2. Once the Critical Facilities are identified, identify appropriate level of protection (500-year event or worst-case scenario) 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. a. If protective measures are in place, evaluate potential long-term mitigation actions to eliminate the need for response b. 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 category will be protected to a 500-year flood event. 3. Timeframe for this action is as follows (dependent on when digitized flood maps are completed): a. 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. b. 12 months: meet and then conduct site visits with NYS DHSES mitigation staff using the prioritized list; c. 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 d. 24 months: complete worksheets for all vulnerable critical infrastructure in Washington County										

Table 9.1-9. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category
	See Above	New and Existing	Flood	All	County Public Safety with support from NYS DHSES	High	Medium	County Budget	Short Term (see above)	High	LPR, EAP
Department of Planning and Code Enforcement											
WC-7	As new NFIP flood data and mapping is made available, ensure County website has all current and updated information on flood prone areas.										
	See above.	N/A	Flood; Severe Storm	1, 2	County Planning; working with County Public Safety	Medium	Low	Department Budget; Staff time	Short Term – as information becomes available	Medium	LPR, EAP
WC-8	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 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.										
	See above.	N/A	All Hazards	All	County Planning and Code Enforcement; working with municipalities	Medium	Low	Department Budget	Ongoing	High	LPR
County DPW											
WC-9 (previous action)	Stabilize embankment above County Route 6 in the Town of Dresden. Sandy soil continually slump, blocking drainage ditch and roadway, and divert drainage into roadway causing erosion and icing.	Existing	Severe Storm, Flood, Severe Winter Storm	1	County DPW working with the municipality	Medium	Medium	Department Budget, Municipal Budget, BRIDGE NY	Short Term	High	SIP
WC-10 (previous action)	Reconstruct Mill Pond in the Town of Dresden outlet with precise drop-inlet with 'beehive' style grate to deter beaver activity and extend outlet pipe and remove old alignment. Existing six-foot culvert is blocked by a beaver dam. Pond water currently pipes through road embankment and pools in an area contained by a former, abandoned road alignment before draining through a failing box culvert under the old alignment.										
	See above	Existing	Severe	1	County DPW	High	High	Department Budget,	Short Term	High	SIP

Table 9.1-9. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category
			Storm, Flood, Severe Winter Storm		working with the municipality			Municipal Budget, NYSDEC Environmental Facilities grants, NYSDEC Invasive Species Rapid Response and Control Grant Program			
WC-11 (previous action)	Armor roadside ditches along CR-25 in the Town of Granville with crushed stone and increase the waterway opening of existing culverts. Beaver dams in this area have caused washouts and erosion damage to roadways and drainage systems.										
	See above	Existing	Severe Storm, Flood, Severe Winter Storm	1	County DPW working with the municipality	Medium	Medium	Department Budget, Municipal Budget, NYSDEC Environmental Facilities grants, NYSDEC Invasive Species Rapid Response and Control Grant Program	Short Term	High	SIP
WC-12	Increase the waterway opening of the culvert under State Route 22 and CR-26 in the Town of Granville.	Existing	Severe Storm, Flood, Severe Winter Storm	1	County DPW working with the municipality	Medium	Medium	Department Budget, Municipal Budget, BRIDGE NY	Short Term	High	SIP
WC-13	Replace pipe-arch with concrete box culvert or small bridge at CR-47 in the Town of Argyle; armor banks and shoulders with crushed stone to mitigate damage to road if overtopped in the future.	Existing	Severe Storm, Flood, Severe Winter Storm	1	County DPW working with the municipality	Medium	Medium	Department Budget, Municipal Budget, BRIDGE NY	Short Term	High	SIP

Table 9.1-9. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category
WC-14 (previous action)	Stabilize slope at CR-46 in the Town of Fort Edward. There have been habitual slope stability issues that compromise the south bound lanes at this location each year.	Existing	Severe Storm, Flood, Severe Winter Storm	1	County DPW working with the municipality	Medium	Medium	Department Budget, Municipal Budget, NYSDEC Environmental Facilities grants	Short Term	High	SIP
WC-15 (previous action)	The Cossayuna Lake outlet dams are located under CR-49 in the Town of Greenwich and are in poor condition. Dams need to be replaced.	Existing	Severe Storm, Flood, Severe Winter Storm	1	County DPW working with the municipality	Medium	Medium	Department Budget, Municipal Budget, FEMA HMA	Short Term	High	SIP
WC-16	Increase culvert size in the area of CR-30 and Warwick Road in the Town of Hebron.	Existing	Severe Storm, Flood, Severe Winter Storm	1	County DPW working with the municipality	Medium	Medium	Department Budget, Municipal Budget, BRIDGE NY	Short Term	High	SIP
WC-17	Install new water mains under the creek bed where CR-74 crosses Fly Creek and Marshall Brook.	Existing	Severe Storm, Flood, Severe Winter Storm	1	County DPW working with the municipality	Medium	Medium	Department Budget, Municipal Budget, FEMA HMA grants (HMGP, FMA)	Short Term	Medium	SIP
WC-18 (previous action)	Conduct a hydraulic analysis of the CR-113 area in the Town of Easton (1/4 mile south of Kidney Creek) to mitigate frequency and severity of flood damage. Use findings of the analysis to determine ways to mitigate flood events and begin project within one year of analysis.										
	See above	Existing	Severe Storm, Flood, Severe Winter Storm	1	County DPW working with the municipality	Medium	Medium	Department Budget, Municipal Budget, FEMA HMA grants (HMGP, FMA)	Short Term	High	SIP

Table 9.1-9. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category
WC-19 (previous action)	Conduct an engineering study along CR-54 in the Town of Easton to determine if slope stabilization of the existing highway alignment or realigning the highway is the most economical solution. Habitual slope stability issues compromise the west bound lanes at this location annually. Once study is complete, identify best solutions for the area and begin project within one year.										
	See above	Existing	Severe Storm, Flood, Severe Winter Storm	1	County DPW working with the municipality	Medium	Medium	Department Budget, Municipal Budget, NYSDEC Environmental Facilities grants	Short Term	Medium	SIP
WC-20	Replace the culvert pipes on CR-68 in the Town of White Creek	Existing	Severe Storm, Flood, Severe Winter Storm	1	County DPW working with the municipality	Medium	Medium	Department Budget, Municipal Budget, NYSDEC Environmental Facilities grants	Short Term	Medium	SIP
WC-21	Wellfield Berm Repairs (Village of Granville) - Proposed improvement/repairs to the berm will at minimum include: 1) Repairs to the portions of the berm damaged by hurricane flood waters including the placement of fill on the river side and well field side of the berm to reestablish it to pre-hurricane conditions. 2) Installation of medium/heavy rip-rap on the river side of the berm to reinforce the berm and prevent limit future scouring during flood events.										
	See Above	Existing	Severe Storm, Flood, Severe Winter Storm	1	County DPW working with the municipality	Medium	High	Department Budget, Municipal Budget, NYSDEC Environmental Facilities grants	Short Term	High	SIP
WC-22	River Valley Drive Pump Station (Village of Granville) - The proposed project will: 1) Raise the pump station thereby eliminating Inflow and Infiltration (I&I) into the collection system and reducing flooding at the Wastewater Treatment Facility; 2) Raise the control panel thereby eliminating the possibility that the pump station will be rendered inoperable and thus prevent the "backup" of sewage into the upstream potions of the collection system; and 3) Install watertight manhole covers will reduce I&I to the pump station.										
	See above	Existing	Severe Storm, Flood, Severe Winter Storm	1	County DPW working with the municipality	Medium	High	Department Budget, Municipal Budget, NYSDEC Environmental Facilities grants	Short Term	Medium	SIP
WC-23	Sanitary Collection System Inflow and Infiltration (Village of Granville) - This project would entail the following: 1) An Inflow and Infiltration (I&I) evaluation of sanitary sewer flows in a portion of the Village collection system thought to have be the most impacted by I&I. 2) Construction related work such as sewer lining or sewer main/lateral replacement and manhole lining to mitigate significant I&I into the system.										
	See above	Existing	Severe Storm, Flood, Severe Winter Storm	1	County DPW working with the municipality	Medium	High	Department Budget, Municipal Budget, NYSDEC Environmental Facilities grants	Short Term	Medium	SIP

Table 9.1-9. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category
WC-24	Wastewater Treatment Facility Standby Generator (Village of Granville) - Installation of a standby generator at the wastewater treatment facility will enable the Village to use their existing portable generator at the remote pump station in the Village thereby eliminating potential public health and safety issues in the community.										
	See above	Existing	Severe Storm, Flood, Severe Winter Storm	1, 2, 4	County DPW working with the municipality	High	Medium	Department Budget, Municipal Budget, FEMA HMGP	Short Term	Medium	SIP
WC-25	Foster Brook Sewer Line Project (Town of Dresden) - Proposed improvement/repairs to the berm will at minimum include: 1. Repairs to the portions of the berm damaged by hurricane flood waters including the placement of fill on the river side and well field side of the berm to reestablish it to pre-hurricane conditions. 2. Installation of medium/heavy rip-rap on the river side of the berm to reinforce the berm and prevent limit future scouring during flood events.										
	See above	Existing	Severe Storm, Flood, Severe Winter Storm	1	County DPW working with the municipality	High	Medium	Department Budget, Municipal Budget, FEMA FMA or HMGP	Short Term	Medium	SIP
WC-26 (previous action)	Batten Kill River Stabilization (Town of Jackson) - The proposal is for rock formation and lining the side of the bank with stone to stabilize the bank. The rock formations cause a back current that ultimately fills the area behind the formation with sediment to further enforce the bank.										
	See above	Existing	Severe Storm, Flood, Severe Winter Storm	1	County DPW working with the municipality	High	Medium	Department Budget, Municipal Budget, FEMA FMA or HMGP	Short Term	Medium	SIP
WC-27	WCSD backup power system - provide a back-up generator for the Notre Dame Pump Station and for the Aeration System at the Wastewater Treatment Plant. The backup generators will provide power to these two locations, in the event of an emergency or prolonged power outage.										
	See above	Existing	Severe Storm, Flood, Severe Winter Storm	1, 2, 4	County DPW working with the municipality	Medium	Medium	Department Budget, Municipal Budget, FEMA HMGP or FMA	Short Term	High	SIP

Notes:
Not all acronyms and abbreviations defined below are included in the table.
**Does this mitigation initiative reduce the effects of hazards on new and/or existing buildings and/or infrastructure? Not applicable (N/A) is inserted if this does not apply.*

Acronyms and Abbreviations:
CAV *Community Assistance Visit*
CRS *Community Rating System*
DPW *Department of Public Works*
FEMA *Federal Emergency Management Agency*

Potential FEMA HMA Funding Sources:
FMA *Flood Mitigation Assistance Grant Program*
HMGP *Hazard Mitigation Grant Program*
PDM *Pre-Disaster Mitigation Grant Program*
RFC *Repetitive Flood Claims Grant Program*

Timeline:
Short *1 to 5 years*
Long Term *5 years or greater*
OG *On-going program*
Short Term *Depending on funding*

FPA	*Floodplain Administrator*
HMA	*Hazard Mitigation Assistance*
N/A	*Not applicable*
NFIP	*National Flood Insurance Program*
OEM	*Office of Emergency Management*
	(discontinued in 2015)
SRL	*Severe Repetitive Loss Grant Program (discontinued in 2015)*

Costs:

Where actual project costs have been reasonably estimated:

Low	*< $10,000*
Medium	*$10,000 to $100,000*
High	*> $100,000*

Where actual project costs cannot reasonably be established at this time:

Low	*Possible to fund under existing budget. Project is part of, or can be part of an existing on-going program.*
Medium	*Could budget for under existing work plan, but would require a reapportionment of the budget or a budget amendment, or the cost of the project would have to be spread over multiple years.*
High	*Would require an increase in revenue via an alternative source (i.e., bonds, grants, fee increases) to implement. Existing funding levels are not adequate to cover the costs of the proposed project.*

Benefits:

Where possible, an estimate of project benefits (per FEMA's benefit calculation methodology) has been evaluated against the project costs, and is presented as:

Low=	*< $10,000*
Medium	*$10,000 to $100,000*
High	*> $100,000*

Where numerical project benefits cannot reasonably be established at this time:

Low	*Long-term benefits of the project are difficult to quantify in the short term.*
Medium	*Project will have a long-term impact on the reduction of risk exposure to life and property, or project will provide an immediate reduction in the risk exposure to property.*
High	*Project will have an immediate impact on the reduction of risk exposure to life and property.*

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*

Table 9.1-10. Summary of Prioritization of Actions

Mitigation Action / Project Number	Mitigation Action / Initiative	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
WC-1	Become a StormReady County	1	1	1	1	0	1	1	0	0	1	1	1	0	0	9	High
WC-2	County and Local Mitigation Capability Building	1	1	1	1	0	0	1	0	0	1	1	1	0	0	8	Medium
WC-3	Provide support to municipalities as they work to update and enhance local floodplain management regulatory capabilities	1	1	1	1	0	0	1	0	0	0	0	1	0	0	6	Medium
WC-4	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.	1	1	1	1	1	1	1	1	0	1	1	1	0	0	11	High
WC-5	The County shall promote both County and municipal participation in the NYSDEC Climate Smart Communities (CSC) program	1	1	1	1	0	0	1	1	0	1	1	1	0	0	9	High
WC-6	Floodprone Critical Facilities in Washington County	1	1	1	1	0	0	0	0	1	1	1	1	1	0	9	High
WC-7	As new NFIP flood data and mapping is made available, ensure County website has all current and updated information on flood prone areas.	1	1	1	1	1	1	1	0	0	1	0	0	0	0	8	Medium
WC-8	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.	1	1	1	1	0	0	1	1	0	1	1	1	0	0	9	High
WC-9	Stabilize embankment above County Route 6 in the Town of Dresden.	1	1	1	1	1	0	0	1	1	1	1	0	0	0	9	High

Table 9.1-10. Summary of Prioritization of Actions

Mitigation Action / Project Number	Mitigation Action / Initiative	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
WC-10	Reconstruct Mill Pond in the Town of Dresden outlet	1	1	1	1	1	0	0	1	1	1	1	0	0	0	9	High
WC-11	Armor roadside ditches along CR-25 in the Town of Granville with crushed stone and increase the waterway opening of existing culverts.	1	1	1	1	1	0	0	1	1	1	1	0	0	0	9	High
WC-12	Increase the waterway opening of the culvert under State Route 22 and CR-26 in the Town of Granville.	1	1	1	1	1	0	0	1	1	1	1	0	0	0	9	High
WC-13	Replace pipe-arch with concrete box culvert or small bridge at CR-47 in the Town of Argyle; armor banks and shoulders with crushed stone to mitigate damage to road if overtopped in the future.	1	1	1	1	1	0	0	1	1	1	1	0	0	0	9	High
WC-14	Stabilize slope at CR-46 in the Town of Fort Edward	1	1	1	1	1	0	0	1	1	1	1	0	0	0	9	High
WC-15	The Cossayuna Lake outlet dams are located under CR-49 in the Town of Greenwich and are in poor condition. Dams need to be replaced.	1	1	1	1	1	0	0	1	1	1	1	0	0	0	9	High
WC-16	Increase culvert size in the area of CR-30 and Warwick Road in the Town of Hebron.	1	1	1	1	1	0	0	1	1	1	1	0	0	0	9	High
WC-17	Install new water mains under the creek bed where CR-74 crosses Fly Creek and Marshall Brook in the Village of Greenwich.	1	1	1	1	1	0	0	0	1	1	1	0	0	0	8	Medium
WC-18	Conduct a hydraulic analysis of the CR-113 area in the Town of Easton	1	1	1	1	1	1	0	0	1	1	1	0	0	0	9	High
WC-19	Conduct an engineering study along CR-54 in the Town of Easton	1	1	1	1	1	0	0	0	1	1	1	0	0	0	8	Medium
WC-20	Replace the culvert pipes on	1	1	1	1	1	0	0	0	1	1	1	0	0	0	8	Medium

Table 9.1-10. Summary of Prioritization of Actions

Mitigation Action / Project Number	Mitigation Action / Initiative	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
	CR-68 in the Town of White Creek																
WC-21	Wellfield Berm Repairs (Village of Granville)	1	1	1	1	1	0	0	1	1	1	1	0	0	0	9	High
WC-22	River Valley Drive Pump Station (Village of Granville)	1	1	1	1	1	0	0	0	1	1	1	0	0	0	8	Medium
WC-23	Sanitary Collection System Inflow and Infiltration (Village of Granville)	1	1	1	1	1	0	0	0	1	1	1	0	0	0	8	Medium
WC-24	Wastewater Treatment Facility Standby Generator (Village of Granville)	1	1	1	1	1	0	0	0	1	1	1	0	0	0	8	Medium
WC-25	Foster Brook Sewer Line Project (Town of Dresden)	1	1	1	1	1	0	0	0	1	1	1	0	0	0	8	Medium
WC-26	Batten Kill River Stabilization (Town of Jackson)	1	1	1	1	1	1	0	1	0	1	1	0	0	0	9	High
WC-27	WCSD backup power system	1	1	1	1	1	0	0	0	1	1	1	0	1	0	9	High

Note: Refer to Section 6 – Mitigation Strategy which contains the guidance on conducting the prioritization of mitigation actions.

9.1.7 Future Needs to Better Understand Risk/Vulnerability

None at this time.

9.1.8 Hazard Area Extent and Location

Hazard area extent and location maps have been generated for the County that illustrate the probable areas impacted within the County. These maps are based on the best available data at the time of the preparation of this plan, and are considered to be adequate for planning purposes. Maps have only been generated for those hazards that can be clearly identified using mapping techniques and technologies, and for which the County has significant exposure. These maps are illustrated in the hazard profiles within Section 5.4, Volume I of this Plan.

9.1.9 Additional Comments

None at this time.

Action Number: WC-1

Mitigation Action Name: Become a StormReady County

Assessing the Risk	
Hazard(s) addressed:	Severe Storms, Severe Winter Storms
Specific problem being mitigated:	Neither the County nor any communities therein participate in StormReady. The County and communities may not be fully prepared to handle all types of severe weather events, either due to lack of staff, funding, or knowledge.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Require communities to become StormReady – limited staff and funding in each municipality to do so.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Join the StormReady Program, and promote the program to municipalities as well. This will allow the county and its municipalities to be better prepared to save lives from the onslaught of severe weather through advanced planning, education, and awareness.
Mitigation Action Type	Education and Awareness Programs (EAP)
Goals Met	1, 2, 5
Applies to existing and or new development, or not applicable	New and Existing
Benefits (losses avoided)	Medium
Estimated Cost	Low
Priority*	Medium
Plan for Implementation	
Responsible Organization	County Public Safety working with municipalities, as needed
Local Planning Mechanism	Hazard Mitigation, Emergency Management
Potential Funding Sources	County and Local budgets
Timeline for Completion	Short
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

Action Number: WC-1
Mitigation Action Name: Become a StormReady County

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Provide guidance to protect residents from severe weather events
Property Protection	1	Provide guidance to protect public and private properties from severe weather events
Cost-Effectiveness	1	The costs to implement this project correspond with the benefits achieved
Technical	1	
Political	0	
Legal	1	The County has the authority to implement this action
Fiscal	1	County budget and staff time
Environmental	0	No known negative environmental impacts are related to this action
Social	0	No negative social impacts are related to this action
Administrative	1	The County has the personnel and administrative capabilities to implement this action
Multi-Hazard	1	Severe Storms, Severe Winter Storms
Timeline	1	Short
Agency Champion	0	
Other Community Objectives	0	
Total	9	
Priority (H/M/L)	Medium	

Action Number: WC-2

Mitigation Action Name: County and Local Mitigation Capability Building

Assessing the Risk	
Hazard(s) addressed:	All hazards
Specific problem being mitigated:	Regional workshops, trainings, and continuing education opportunities are not currently held in the county, which leads to lack of info sharing in the county and municipalities.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Hire outside consultants to conduct training – costly.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Arrange/facilitate and/or promote regional workshops, trainings and continuing education (prepared and offered by others) in the following areas: • Floodplain Management and the Certified Floodplain Managers (CFM) certification. • Community Rating System (CRS) – Limited to promoting workshops or training opportunities offered by others, as available. • Benefit-Cost Analysis (BCA). • Substantial Damage Estimating (SDE). • NFIP Elevation Certificates (EC).
Mitigation Action Type	Education and Awareness Programs (EAP)
Goals Met	All
Applies to existing and or new development, or not applicable	N/A
Benefits (losses avoided)	High – Improved county and local floodplain management, mitigation, and recovery capabilities
Estimated Cost	Medium
Priority*	Medium
Plan for Implementation	
Responsible Organization	County Public Safety; as supported by NYS DHSES, FEMA and ISO; with participation of all municipalities and other County department and agencies
Local Planning Mechanism	Hazard Mitigation
Potential Funding Sources	County and local Budgets (generally limited to staff time)
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

Action Number: WC-2
Mitigation Action Name: County and Local Mitigation Capability Building

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	The costs to implement this project correspond with the benefits achieved
Technical	1	
Political	0	
Legal	0	The County will need to work with the municipalities to implement this action
Fiscal	1	County budget and staff time
Environmental	0	No known negative environmental impacts are related to this action
Social	0	No negative social impacts are related to this action
Administrative	1	The County has the personnel and administrative capabilities to implement this action
Multi-Hazard	1	All hazards
Timeline	1	Ongoing – as programs are available
Agency Champion	0	
Other Community Objectives	0	
Total	8	
Priority (H/M/L)	Medium	

Action Number: WC-3

Mitigation Action Name: Provide support to municipalities as they work to update and enhance local floodplain management regulatory capabilities

Assessing the Risk	
Hazard(s) addressed:	Flood
Specific problem being mitigated:	Current floodplain management capabilities for municipalities may not be sufficient to provide necessary support to the community. Additionally, municipalities are unaware of the flood damage prevention ordinance and/or who is the assigned floodplain administrator.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. County take on floodplain management capabilities – not something the county will do soon.
Action/Project Intended for Implementation	

Description of Selected Action/Project	Support to be provide through the following activities:
	• Update and adopt the local Flood Damage Protection Ordinance (FDPO) to conform to latest regulations and guidance (see model ordinance guidance at http://www.dec.ny.gov/lands/39341.html), including the following:
	  ○ Proper identification of "Administrator."
	  ○ Proper reference to current regulatory mapping and any other "best available data" being used.
	  ○ Higher Regulatory Standards (per local interest).
	  ○ Additional Freeboard.
	  ○ Cumulative Substantial Damages/Improvements.
	• Assure that the designated floodplain administrator has adequate support and training to fulfill their responsibilities. General floodplain management training is made available through the following sources:
	  ○ NYSDEC Floodplain Management Section at http://www.dec.ny.gov/lands/101275.html.
	  ○ New York State Floodplain and Stormwater Managers Association (NYSFSMA) at http://nyfloods.org/.

Mitigation Action Type	Local Plans and Regulations (LPR)
Goals Met	All
Applies to existing and or new development, or not applicable	New and Existing
Benefits (losses avoided)	Medium
Estimated Cost	Low
Priority*	Medium
Plan for Implementation	
Responsible Organization	County through Public Safety with assistance from NYS DHSES, NYSDEC, and FEMA
Local Planning Mechanism	Hazard Mitigation, Floodplain Management
Potential Funding Sources	County Budget and Staff Time
Timeline for Completion	Short; Ongoing

Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

Action Number: WC-3

Mitigation Action Name: Provide support to municipalities as they work to update and enhance local floodplain management regulatory capabilities

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	The costs to implement this project correspond with the benefits achieved
Technical	1	
Political	0	
Legal	0	The County will need to work with the municipalities to implement this action
Fiscal	1	County budget and staff time
Environmental	0	No known negative environmental impacts are related to this action
Social	0	No negative social impacts are related to this action
Administrative	0	The County will need to work with the municipalities to implement this action
Multi-Hazard	0	Flood
Timeline	1	Short; Ongoing
Agency Champion	0	
Other Community Objectives	0	
Total	6	
Priority (H/M/L)	Medium	

Action Number: WC-4

Mitigation Action Name: Review and incorporate the latest information on climate change projections.

Assessing the Risk	
Hazard(s) addressed:	All hazards including climate change.
Specific problem being mitigated:	Existing planning and engineering objectives for the County may not consider the full effect of climate change. This can have negative impacts of proposed new development, upgrades to culverts and other stormwater systems, and building codes.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists.
Action/Project Intended for Implementation	
Description of Selected Action/Project	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 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.
Mitigation Action Type	Local Plans and Regulations (LPR)
Goals Met	All
Applies to existing and or new development, or not applicable	N/A
Benefits (losses avoided)	High
Estimated Cost	Low
Priority*	High
Plan for Implementation	
Responsible Organization	All County departments and agencies
Local Planning Mechanism	Hazard Mitigation, Emergency Management
Potential Funding Sources	County Budgets
Timeline for Completion	Short
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

Action Number: WC-4
Mitigation Action Name: Review and incorporate the latest information on climate change projections.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	The costs to implement this project correspond with the benefits achieved
Technical	1	
Political	1	
Legal	1	The County has the authority to implement this action
Fiscal	1	County budget and staff time
Environmental	1	
Social	0	No negative social impacts are related to this action
Administrative	1	The County has the personnel and administrative capabilities to implement this action
Multi-Hazard	1	All hazards including climate change
Timeline	1	Short; Ongoing
Agency Champion	0	
Other Community Objectives	0	
Total	11	
Priority (H/M/L)	High	

Action Number: WC-5

Mitigation Action Name: The County shall promote both County and municipal participation in the NYSDEC Climate Smart Communities (CSC) program.

Assessing the Risk	
Hazard(s) addressed:	All hazards including climate change.
Specific problem being mitigated:	Not every municipality partakes in the NYSDEC Climate Smart Communities program. By not participating, municipalities may not have the knowledge or the capabilities to reduce greenhouse gas emissions or improve climate resilience.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Support will be provided through the following activities: • Include information on the CSC program, benefits, and participation requirements and activities on the County website at http://www.dec.ny.gov/energy/76483.html. • Inform County and municipal representatives of Climate Smart Community Webinar offerings and other related informational events offered through the Program at http://www.dec.ny.gov/energy/76910.html.
Mitigation Action Type	Local Plans and Regulations (LPR)
Goals Met	All
Applies to existing and or new development, or not applicable	N/A
Benefits (losses avoided)	High
Estimated Cost	Low
Priority*	Medium
Plan for Implementation	
Responsible Organization	All County departments and agencies; municipalities
Local Planning Mechanism	Hazard Mitigation, Emergency Management
Potential Funding Sources	County Budgets
Timeline for Completion	Short; Ongoing
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

Action Number: WC-5

Mitigation Action Name: The County shall promote both County and municipal participation in the NYSDEC Climate Smart Communities (CSC) program.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	The costs to implement this project correspond with the benefits achieved
Technical	1	
Political	0	
Legal	0	The County will need to work with the municipalities and NYSDEC to implement this action
Fiscal	1	County budget and staff time
Environmental	1	
Social	0	No negative social impacts are related to this action
Administrative	1	The County has the personnel and administrative capabilities to implement this action
Multi-Hazard	1	All hazards including climate change
Timeline	1	Short; Ongoing
Agency Champion	0	
Other Community Objectives	0	
Total	9	
Priority (H/M/L)	Medium	

Action Number: WC-6

Mitigation Action Name: Floodprone Critical Facilities in Washington County.

Assessing the Risk	
Hazard(s) addressed:	Flood
Specific problem being mitigated:	Due to insufficient floodplain data, the exposure of critical facilities are unknown and facilities may be susceptible to flooding events. The available FIRM maps do not depict the 500-year floodplain, which does not support an analysis of critical facilities in the flood hazard area.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Use the estimated 500-foot buffer mapped during the update of the HMP – not accurate and may or may not show all critical facilities in the floodplain.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Action activities to include: 1. As digitized flood maps become available for Washington 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). 2. Once the County identifies Critical Facilities, 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. a. If protective measures are in place, evaluate potential long-term mitigation actions to eliminate the need for response. b. 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 category will be protected to a 500-year flood event. 3. Timeframe for this action is as follows (dependent on when digitized flood maps are completed): a. 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, and the number of residents' dependent on it. b. 12 months: meet and then conduct site visits with NYS DHSES mitigation staff using the prioritized list. c. 24 months: prepare complete on-site information for the stakeholders; establish who is responsible for coordinating the action; determine what is needed for each facility during a flooding event; identify who is contacted to obtain the needed supplies. d. 24 months: complete worksheets for all vulnerable critical infrastructure in Washington County.
Mitigation Action Type	Local Plans and Regulations (LPR), Education and Awareness Programs (EAP)
Goals Met	All
Applies to existing and or new development, or not applicable	New and Existing

Benefits (losses avoided)	High
Estimated Cost	Medium
Priority*	Medium
Plan for Implementation	
Responsible Organization	County Public Safety with support from NYS DHSES
Local Planning Mechanism	Hazard Mitigation, Floodplain Management
Potential Funding Sources	County Budget
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

Action Number: WC-6
Mitigation Action Name: Floodprone Critical Facilities in Washington County.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	The costs to implement this project correspond with the benefits achieved
Technical	1	
Political	0	
Legal	0	
Fiscal	1	Use county budget and staff time
Environmental	0	No known negative environmental impacts are related to this action
Social	1	Relocating those critical facilities in the floodplain will benefit all residents
Administrative	1	The County has the personnel and administrative capabilities to implement this action
Multi-Hazard	1	Flood
Timeline	1	Short Term
Agency Champion	1	
Other Community Objectives	0	
Total	10	
Priority (H/M/L)	High	

Action Number: WC-7

Mitigation Action Name: As new NFIP flood data and mapping is made available, ensure County website has all current and updated information on flood prone areas.

Assessing the Risk	
Hazard(s) addressed:	Flood; Severe Storm
Specific problem being mitigated:	Public knowledge of the flooding hazard is lacking due to insufficient flood data.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Provide information to the public regarding flood prone areas once County-wide flood data is made available.
Mitigation Action Type	Local Plans and Regulations (LPR), Education and Awareness Programs (EAP)
Goals Met	1, 2
Applies to existing and or new development, or not applicable	N/A
Benefits (losses avoided)	Medium
Estimated Cost	Low
Priority*	Medium
Plan for Implementation	
Responsible Organization	County Planning; working with County Public Safety
Local Planning Mechanism	Hazard Mitigation, Floodplain Management
Potential Funding Sources	Department Budget; Staff time
Timeline for Completion	Short Term - As information is made available
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

Action Number: WC-7

Mitigation Action Name: As new NFIP flood data and mapping is made available, ensure County website has all current and updated information on flood prone areas.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	The costs to implement this project correspond with the benefits achieved
Technical	1	
Political	1	
Legal	1	The County has the authority to implement this action
Fiscal	1	County budget and staff time
Environmental	0	No known negative environmental impacts are related to this action
Social	0	No negative social impacts are related to this action
Administrative	1	The County has the personnel and administrative capabilities to implement this action
Multi-Hazard	0	Flood; Severe Storm
Timeline	0	As information is made available
Agency Champion	0	
Other Community Objectives	0	
Total	8	
Priority (H/M/L)	Medium	

Action Number: WC-8

Mitigation Action Name: Encourage local municipalities to review their codes.

Assessing the Risk	
Hazard(s) addressed:	All Hazards
Specific problem being mitigated:	Existing codes do not encourage sufficient protection from hazard events. Additionally, the county does not have any land use codes and cannot require local municipalities to adopt or modify their local codes.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. County requires changes – the county does not have land use codes and cannot require adoption or modification.
Action/Project Intended for Implementation	
Description of Selected Action/Project	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 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.
Mitigation Action Type	Local Plans and Regulations (LPR)
Goals Met	All
Applies to existing and or new development, or not applicable	N/A
Benefits (losses avoided)	Medium
Estimated Cost	Low
Priority*	High
Plan for Implementation	
Responsible Organization	County Planning and Code Enforcement; working with municipalities
Local Planning Mechanism	Hazard Mitigation, Code Enforcement
Potential Funding Sources	Department Budget
Timeline for Completion	Ongoing
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

Action Number: WC-8
Mitigation Action Name: Encourage local municipalities to review their codes.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	The costs to implement this project correspond with the benefits achieved
Technical	1	
Political	0	
Legal	0	The County will need to work with the municipalities to implement this action
Fiscal	1	County budget and staff time
Environmental	1	Enhance codes to provide protection to the natural environment, where applicable
Social	0	No negative social impacts are related to this action
Administrative	1	The County has the personnel and administrative capabilities to implement this action
Multi-Hazard	1	All Hazards
Timeline	1	Ongoing
Agency Champion	0	
Other Community Objectives	0	
Total	9	
Priority (H/M/L)	High	

Action Number: WC-9

Mitigation Action Name: Stabilize embankment above County Route 6 in the Town of Dresden.

Assessing the Risk	
Hazard(s) addressed:	Severe Storm, Flood, Severe Winter Storm
Specific problem being mitigated:	Sandy soil continually slumps, blocks the drainage ditch and roadway, and diverts drainage into roadway, causing erosion, flooding, and icing (during colder months).
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Elevate roadway – costly.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Stabilize embankment above County Route 6 in the Town of Dresden. Sandy soil continually slumps, blocks the drainage ditch and roadway, and diverts drainage into the roadway, causing erosion and icing. Ensure the embankment is capable of handling existing and future stormwater conditions.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	1
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	Medium
Estimated Cost	Medium
Priority*	High
Plan for Implementation	
Responsible Organization	County DPW working with the municipality
Local Planning Mechanism	Hazard Mitigation, Capital Improvement
Potential Funding Sources	Department Budget, Municipal Budget, BRIDGE NY
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

Action Number: WC-9
Mitigation Action Name: Stabilize embankment above County Route 6 in the Town of Dresden.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	The costs to implement this project correspond with the benefits achieved
Technical	1	
Political	1	
Legal	0	The County will need to work with the municipality to implement this action
Fiscal	0	Need to seek funding to implement this action
Environmental	1	Project will comply with municipal and county environmental regulations
Social	1	Residents living in the area of the project will benefit from this action
Administrative	1	The County has the personnel and administrative capabilities to implement this action
Multi-Hazard	1	Severe Storm, Flood, Severe Winter Storm
Timeline	0	Short Term
Agency Champion	0	
Other Community Objectives	0	
Total	9	
Priority (H/M/L)	High	

Action Number: WC-10

Mitigation Action Name: Reconstruct Mill Pond in the Town of Dresden outlet.

Assessing the Risk	
Hazard(s) addressed:	Severe Storm, Flood, Severe Winter Storm
Specific problem being mitigated:	Existing six-foot culvert is blocked by a beaver dam. Pond water currently discharges through pipes through a road embankment and pools in an area contained by a former, abandoned road alignment before draining through a failing box culvert under the old alignment.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Construct the new outlet with precise drop-inlet with 'beehive' style grate to deter beaver activity and extend outlet pipe and remove old alignment.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	1
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	Medium to High
Estimated Cost	Medium to High
Priority*	High
Plan for Implementation	
Responsible Organization	County DPW working with the municipality
Local Planning Mechanism	Hazard Mitigation, Capital Improvement
Potential Funding Sources	Department Budget, Municipal Budget, grant funding where available
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

Action Number: WC-10
Mitigation Action Name: Reconstruct Mill Pond in the Town of Dresden outlet.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	The costs to implement this project correspond with the benefits achieved
Technical	1	
Political	1	
Legal	0	The County will need to work with the municipality to implement this action
Fiscal	0	Need to seek funding to implement this action
Environmental	1	Project will comply with municipal and county environmental regulations
Social	1	Residents living in the area of the project will benefit from this action
Administrative	1	The County has the personnel and administrative capabilities to implement this action
Multi-Hazard	1	Severe Storm, Flood, Severe Winter Storm
Timeline	0	Short Term
Agency Champion	0	
Other Community Objectives	0	
Total	9	
Priority (H/M/L)	High	

Action Number: WC-11

Mitigation Action Name: Armor roadside ditches along CR-25 in the Town of Granville with crushed stone and increase the waterway opening of existing culverts.

Assessing the Risk	
Hazard(s) addressed:	Severe Storm, Flood, Severe Winter Storm
Specific problem being mitigated:	Beaver dams in this area have caused washouts and erosion damage to roadways and drainage systems.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Removal of beaver dams – need to obtain permits from NYSDEC; not a permanent solution.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Roadside ditches to be stabilized using crushed stone; increase culvert size along roadway.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	1
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	Medium
Estimated Cost	Medium
Priority*	High
Plan for Implementation	
Responsible Organization	County DPW working with the municipality
Local Planning Mechanism	Hazard Mitigation, Capital Improvement, Floodplain Management
Potential Funding Sources	Department Budget, Municipal Budget, NYSDEC Environmental Facilities grants, NYSDEC Invasive Species Rapid Response and Control Grant Program
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

Action Number: WC-11

Mitigation Action Name: Armor roadside ditches along CR-25 in the Town of Granville with crushed stone and increase the waterway opening of existing culverts.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	The costs to implement this project correspond with the benefits achieved
Technical	1	
Political	1	
Legal	0	The County will need to work with the municipality to implement this action
Fiscal	0	Need to seek funding to implement this action
Environmental	1	Project will comply with municipal and county environmental regulations
Social	1	Residents living in the area of the project will benefit from this action
Administrative	1	The County has the personnel and administrative capabilities to implement this action
Multi-Hazard	1	Severe Storm, Flood, Severe Winter Storm
Timeline	0	Short Term
Agency Champion	0	
Other Community Objectives	0	
Total	9	
Priority (H/M/L)	High	

Action Number: WC-12

Mitigation Action Name: Increase the waterway opening of the culvert under State Route 22 and CR-26 in the Town of Granville.

Assessing the Risk	
Hazard(s) addressed:	Severe Storm, Flood, Severe Winter Storm
Specific problem being mitigated:	Existing culvert provides insufficient stormwater management.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Re-design roadway to minimize overtopping/flooding of roadway – costly.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Increase the stormwater capacity of the existing culvert. A larger culvert will help reduce or prevent flooding and damages. It will also reduce downstream flood peaks and provide flood protection within the drainage system.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	1
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	Medium
Estimated Cost	Medium
Priority*	High
Plan for Implementation	
Responsible Organization	County DPW working with the municipality
Local Planning Mechanism	Hazard Mitigation, Capital Improvement, Floodplain Management
Potential Funding Sources	Department Budget, Municipal Budget, BRIDGE NY
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

Action Number: WC-12

Mitigation Action Name: Increase the waterway opening of the culvert under State Route 22 and CR-26 in the Town of Granville.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	The costs to implement this project correspond with the benefits achieved
Technical	1	
Political	1	
Legal	0	The County will need to work with the State and the municipality to implement this action
Fiscal	0	Need to seek funding to implement this action
Environmental	1	Project will comply with municipal and county environmental regulations
Social	1	Residents living in the area of the project will benefit from this action
Administrative	1	The County has the personnel and administrative capabilities to implement this action
Multi-Hazard	1	Severe Storm, Flood, Severe Winter Storm
Timeline	0	Short Term
Agency Champion	0	
Other Community Objectives	0	
Total	9	
Priority (H/M/L)	High	

Action Number: WC-13

Mitigation Action Name: Replace pipe-arch with concrete box culvert or small bridge at CR-47 in the Town of Argyle.

Assessing the Risk	
Hazard(s) addressed:	Severe Storm, Flood, Severe Winter Storm
Specific problem being mitigated:	Existing conditions provide insufficient stormwater management.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Replace the existing pipe-arch and replace system to increase the stormwater capacity.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	1
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	Medium
Estimated Cost	Medium
Priority*	High
Plan for Implementation	
Responsible Organization	County DPW working with the municipality
Local Planning Mechanism	Hazard Mitigation, Capital Improvement, Floodplain Management
Potential Funding Sources	Department Budget, Municipal Budget, BRIDGE NY
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

Action Number: WC-13

Mitigation Action Name: Replace pipe-arch with concrete box culvert or small bridge at CR-47 in the Town of Argyle; armor banks and shoulders with crushed stone to mitigate damage to road if overtopped in the future.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	The costs to implement this project correspond with the benefits achieved
Technical	1	
Political	1	
Legal	0	The County will need to work with the municipality to implement this action
Fiscal	0	Need to seek funding to implement this action
Environmental	1	Project will comply with municipal and county environmental regulations
Social	1	Residents living in the area of the project will benefit from this action
Administrative	1	The County has the personnel and administrative capabilities to implement this action
Multi-Hazard	1	Severe Storm, Flood, Severe Winter Storm
Timeline	0	Short Term
Agency Champion	0	
Other Community Objectives	0	
Total	9	
Priority (H/M/L)	High	

Action Number: WC-14

Mitigation Action Name: Stabilize slope at CR-46 in the Town of Fort Edward.

Assessing the Risk	
Hazard(s) addressed:	Severe Storm, Flood, Severe Winter Storm
Specific problem being mitigated:	Habitual slope stability issues compromise the south bound lanes at this location annually.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Hydroseed slope – short-term solution but might not prevent damage.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Stabilize slope to prevent annually road closures along south bound lane.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	1
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	Medium
Estimated Cost	Medium
Priority*	High
Plan for Implementation	
Responsible Organization	County DPW working with the municipality
Local Planning Mechanism	Hazard Mitigation, Capital Improvement
Potential Funding Sources	Department Budget, Municipal Budget, NYSDEC Environmental Facilities grants
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

Action Number: WC-14
Mitigation Action Name: Stabilize slope at CR-46 in the Town of Fort Edward.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	The costs to implement this project correspond with the benefits achieved
Technical	1	
Political	1	
Legal	0	The County will need to work with the municipality to implement this action
Fiscal	0	Need to seek funding to implement this action
Environmental	1	Project will comply with municipal and county environmental regulations
Social	1	Residents living in the area of the project will benefit from this action
Administrative	1	The County has the personnel and administrative capabilities to implement this action
Multi-Hazard	1	Severe Storm, Flood, Severe Winter Storm
Timeline	0	Short Term
Agency Champion	0	
Other Community Objectives	0	
Total	9	
Priority (H/M/L)	High	

Action Number: WC-15

Mitigation Action Name: Replace the Cossayuna Lake outlet dams are located under CR-49 in the Town of Greenwich.

Assessing the Risk	
Hazard(s) addressed:	Severe Storm, Flood, Severe Winter Storm
Specific problem being mitigated:	Dams are in poor condition and susceptible to dam failure. If the dam were to fail, surrounding areas will be flooded and damaged.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Increase the amount of precipitation that infiltrates the soil – this will decrease the amount that runs off into the lake; however, it will take time to grow vegetation and the dam could still fail.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Replace existing dams under CR-49 to prevent potential dam failure.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	1
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	Medium
Estimated Cost	Medium
Priority*	High
Plan for Implementation	
Responsible Organization	County DPW working with the municipality
Local Planning Mechanism	Hazard Mitigation, Capital Improvement
Potential Funding Sources	Department Budget, Municipal Budget, FEMA HMA
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

Action Number: WC-15

Mitigation Action Name: Replace the Cossayuna Lake outlet dams are located under CR-49 in the Town of Greenwich

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	The costs to implement this project correspond with the benefits achieved
Technical	1	
Political	1	
Legal	0	The County will need to work with the NYSDEC and the municipality to implement this action
Fiscal	0	Need to seek funding to implement this action
Environmental	1	Project will comply with municipal and county environmental regulations
Social	1	Residents living in the area of the project will benefit from this action
Administrative	1	The County has the personnel and administrative capabilities to implement this action
Multi-Hazard	1	Severe Storm, Flood, Severe Winter Storm
Timeline	0	Short Term
Agency Champion	0	
Other Community Objectives	0	
Total	9	
Priority (H/M/L)	High	

Action Number: WC-16

Mitigation Action Name: Increase culvert size in the area of CR-30 and Warwick Road in the Town of Hebron.

Assessing the Risk	
Hazard(s) addressed:	Severe Storm, Flood, Severe Winter Storm
Specific problem being mitigated:	Existing culvert provides insufficient stormwater management. During periods of heavy rain, water overtops the roadway, leading to flooding and road closures. This prevents emergency personnel from accessing this part of the town and county.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Elevate roadway – costly.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Upgrade the existing culvert to increase stormwater capacity.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	1
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	Medium
Estimated Cost	Medium
Priority*	High
Plan for Implementation	
Responsible Organization	County DPW working with the municipality
Local Planning Mechanism	Hazard Mitigation, Capital Improvement, Floodplain Management
Potential Funding Sources	Department Budget, Municipal Budget, BRIDGE NY
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

Action Number: WC-16
Mitigation Action Name: Increase culvert size in the area of CR-30 and Warwick Road in the Town of Hebron.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	The costs to implement this project correspond with the benefits achieved
Technical	1	
Political	1	
Legal	0	The County will need to work with the municipality to implement this action
Fiscal	0	Need to seek funding to implement this action
Environmental	1	Project will comply with municipal and county environmental regulations
Social	1	Residents living in the area of the project will benefit from this action
Administrative	1	The County has the personnel and administrative capabilities to implement this action
Multi-Hazard	1	Severe Storm, Flood, Severe Winter Storm
Timeline	0	Short Term
Agency Champion	0	
Other Community Objectives	0	
Total	9	
Priority (H/M/L)	High	

Action Number: WC-17

Mitigation Action Name: Install new water mains under the creek bed where CR-74 crosses Fly Creek and Marshall Brook in the Village of Greenwich.

Assessing the Risk	
Hazard(s) addressed:	Severe Storm, Flood, Severe Winter Storm
Specific problem being mitigated:	The water main of the Village of Greenwich runs through the bridge wingwalls and directly on the creek bottom where CR-74 crosses Fly Creek and Marshall Brook. This compromises the integrity of the two county bridges. Failure of the pipe would compromise the only supply to the storage tank that supports the village.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Replace entire system – costly.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Install new water mains under the creek bed where CR-74 crosses Fly Creek and Marshall Brook.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	1
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	Medium
Estimated Cost	Medium
Priority*	Medium
Plan for Implementation	
Responsible Organization	County DPW working with the municipality
Local Planning Mechanism	Hazard Mitigation, Capital Improvement, Floodplain Management
Potential Funding Sources	Department Budget, Municipal Budget, FEMA HMA grants (HMGP, FMA)
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

Action Number: WC-17

Mitigation Action Name: Install new water mains under the creek bed where CR-74 crosses Fly Creek and Marshall Brook in the Village of Greenwich.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	The costs to implement this project correspond with the benefits achieved
Technical	1	
Political	1	
Legal	0	The County will need to work with the municipality to implement this action
Fiscal	0	Need to seek funding to implement this action
Environmental	0	No known negative environmental impacts are related to this action
Social	1	Residents living in the area of the project will benefit from this action
Administrative	1	The County has the personnel and administrative capabilities to implement this action
Multi-Hazard	1	Severe Storm, Flood, Severe Winter Storm
Timeline	0	Short Term
Agency Champion	0	
Other Community Objectives	0	
Total	8	
Priority (H/M/L)	Medium	

Action Number: WC-18

Mitigation Action Name: Conduct a hydraulic analysis of the CR-113 area in the Town of Easton.

Assessing the Risk	
Hazard(s) addressed:	Severe Storm, Flood, Severe Winter Storm
Specific problem being mitigated:	Due to lack of County-wide floodplain data, there is little understanding the frequency and severity of flooding in the area of CR-113 in the Town of Easton. This area has been impacted by floods and damaged in the past.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Use current FEMA maps for county – the maps do not show the 500-year floodplain and may contain outdated information.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Conduct a hydraulic analysis of the CR-113 area in the Town of Easton (1/4 mile south of Kidney Creek) to mitigate frequency and severity of flood damage. Use findings of the analysis to determine ways to mitigate flood events and begin project within one year of analysis.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	1
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	Medium
Estimated Cost	Medium
Priority*	High
Plan for Implementation	
Responsible Organization	County DPW working with the municipality
Local Planning Mechanism	Hazard Mitigation, Capital Improvement, Floodplain Management
Potential Funding Sources	Department Budget, Municipal Budget, FEMA HMA grants (HMGP, FMA)
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

Action Number: WC-18
Mitigation Action Name: Conduct a hydraulic analysis of the CR-113 area in the Town of Easton.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	The costs to implement this project correspond with the benefits achieved
Technical	1	
Political	1	
Legal	1	The County has the authority to implement this action
Fiscal	0	Need to seek funding to implement this action
Environmental	0	No known negative environmental impacts are related to this action
Social	1	Residents living in the area of the project will benefit from this action
Administrative	1	The County has the personnel and administrative capabilities to implement this action
Multi-Hazard	1	Severe Storm, Flood, Severe Winter Storm
Timeline	0	Short Term
Agency Champion	0	
Other Community Objectives	0	
Total	9	
Priority (H/M/L)	High	

Action Number: WC-19

Mitigation Action Name: Conduct an engineering study along CR-54 in the Town of Easton.

Assessing the Risk	
Hazard(s) addressed:	Severe Storm, Flood, Severe Winter Storm
Specific problem being mitigated:	Habitual slope stability issues compromise the west bound lanes at this location annually.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Routine maintenance (hydroseed, install riprap, etc.) – short-term solution and may not help with the stability.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Conduct an engineering study along CR-54 in the Town of Easton to determine if slope stabilization of the existing highway alignment or realigning the highway is the most economical solution. Once study is complete, identify best solutions for the area and begin project within one year.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	1
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	Medium
Estimated Cost	Medium
Priority*	Medium
Plan for Implementation	
Responsible Organization	County DPW working with the municipality
Local Planning Mechanism	Hazard Mitigation, Capital Improvement
Potential Funding Sources	Department Budget, Municipal Budget, NYSDEC Environmental Facilities grants
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

Action Number: WC-19
Mitigation Action Name: Conduct an engineering study along CR-54 in the Town of Easton.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	The costs to implement this project correspond with the benefits achieved
Technical	1	
Political	1	
Legal	0	The County will need to work with the municipality to implement this action
Fiscal	0	Need to seek funding to implement this action
Environmental	0	No known negative environmental impacts are related to this action
Social	1	Residents living in the area of the project will benefit from this action
Administrative	1	The County has the personnel and administrative capabilities to implement this action
Multi-Hazard	1	Severe Storm, Flood, Severe Winter Storm
Timeline	0	Short Term
Agency Champion	0	
Other Community Objectives	0	
Total	8	
Priority (H/M/L)	Medium	

Action Number: WC-20

Mitigation Action Name: Replace the culvert pipes on CR-68 in the Town of White Creek.

Assessing the Risk	
Hazard(s) addressed:	Severe Storm, Flood, Severe Winter Storm
Specific problem being mitigated:	The openings of the CR-68 twin culverts in the Town of White Creek easily trap debris which obstructs the culverts and topping the road. This leads to flooded roadways which can cause road closures and prevents emergency personnel from accessing areas of the town.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Elevate roadway – costly.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Replace the culvert pipe with concrete box culvert or small bridge; armor banks and shoulders with crushed stone to mitigate damage to road if overtopped in the future.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	1
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	Medium
Estimated Cost	Medium
Priority*	Medium
Plan for Implementation	
Responsible Organization	County DPW working with the municipality
Local Planning Mechanism	Hazard Mitigation, Capital Improvement, Floodplain Management
Potential Funding Sources	Department Budget, Municipal Budget, NYSDEC Environmental Facilities grants
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

Action Number: WC-20
Mitigation Action Name: Replace the culvert pipes on CR-68 in the Town of White Creek.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	The costs to implement this project correspond with the benefits achieved
Technical	1	
Political	1	
Legal	0	The County will need to work with the municipality to implement this action
Fiscal	0	Need to seek funding to implement this action
Environmental	0	No known negative environmental impacts are related to this action
Social	1	Residents living in the area of the project will benefit from this action
Administrative	1	The County has the personnel and administrative capabilities to implement this action
Multi-Hazard	1	Severe Storm, Flood, Severe Winter Storm
Timeline	0	Short Term
Agency Champion	0	
Other Community Objectives	0	
Total	8	
Priority (H/M/L)	Medium	

Action Number: WC-21

Mitigation Action Name: Wellfield Berm Repairs (Village of Granville).

Assessing the Risk	
Hazard(s) addressed:	Severe Storm, Flood, Severe Winter Storm
Specific problem being mitigated:	The Village of Granville's only water source is a shallow gravel aquifer located adjacent to the Mettawee River on the eastern side of the Village. Prior to Hurricane Irene, water was pumped out of this aquifer via a well manifold system, treated, and distributed to the community. According to Village Operations Personnel, this water supply infrastructure was installed in the aquifer in the 1950's. Part of this project also included construction of a 15' high, 450' long earthen berm to protect the well field from eroding during flood events such as was seen during Hurricane Irene. There are no records as to the origin or purpose of the berm, but based on obvious field observations, the berm was installed to act as a barrier between the Mettawee River and the well field to prevent scouring, erosion and damage to the well field and water system infrastructure. In early 2011 the Village of Granville installed new wellheads (costing $500,000+) in the existing aquifer to replace those well heads that were installed in the 1950's. During Hurricane Irene the berm sustained damage in the form of scouring and undermining. Photos of this damage can be provided upon request. The Village requested assistance from FEMA for the repair of this berm post hurricane Irene but were unable to acquire funding to repair the berm. It is the opinion of the Village of Granville that the well field berm is a critical part of the Village of Granville's water system infrastructure and is in need of repair as a result of Hurricane Irene. Without these repairs, the berm will continue erode to during future flood events which will compromise the Villages water supply aquifer and newly installed water supply infrastructure. Repairs to the berm will consist of the placement of fill on the riverside and well field side of the berm to reestablish it to pre0hurricane conditions. Repairs also will consist of the installation of medium/heavy rip rap on the berm to further reinforce it against future flood events.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Replace berm – costly.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Proposed improvement/repairs to the berm will at minimum include: 1) Repairs to the portions of the berm damaged by hurricane flood waters, including the placement of fill on the river side and well field side of the berm to reestablish it to pre-hurricane conditions. 2) Installation of medium/heavy rip-rap on the river side of the berm to reinforce the berm and prevent limit future scouring during flood events.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	1
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	Medium
Estimated Cost	High
Priority*	High
Plan for Implementation	
Responsible Organization	County DPW working with the municipality
Local Planning Mechanism	Hazard Mitigation, Capital Improvement, Floodplain Management
Potential Funding Sources	Department Budget, Municipal Budget, NYSDEC Environmental Facilities grants
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

Action Number: WC-21

Mitigation Action Name: Wellfield Berm Repairs (Village of Granville).

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	The costs to implement this project correspond with the benefits achieved
Technical	1	
Political	1	
Legal	0	The County will need to work with the municipality to implement this action
Fiscal	0	Need to seek funding to implement this action
Environmental	1	Project will comply with municipal and county environmental regulations
Social	1	Residents living in the area of the project will benefit from this action
Administrative	1	The County has the personnel and administrative capabilities to implement this action
Multi-Hazard	1	Severe Storm, Flood, Severe Winter Storm
Timeline	0	Short Term
Agency Champion	0	
Other Community Objectives	0	
Total	9	
Priority (H/M/L)	High	

Action Number: WC-22

Mitigation Action Name: River Valley Drive Pump Station (Village of Granville).

Assessing the Risk	
Hazard(s) addressed:	Severe Storm, Flood, Severe Winter Storm
Specific problem being mitigated:	The River Valley Drive pump station is located along River Valley Drive in the Village of Granville. The pump station conveys the wastewater flows from a significant portion of the Village to the Village Wastewater Treatment Facility. During Hurricane Irene the wet well component of the pump station was submerged by flood waters and the control panel for the pump station was only about 6 inches above the water. Because the control panel was not damaged during the flood event, the pump station continued to operate. Although there was no damage, the pump station was submerged and as a result took on significant amounts of Inflow and Infiltration (I&I). This high flow was then conveyed to the Village wastewater treatment plant by the pump station, which contributed to the overflowing of the plant as a result of general collection system I&I. During the flood event the treatment facility received approximately 3 times its rated peak capacity, thus many of the processes at the plant were overwhelmed or overflowed. To compound matters at the wastewater treatment plant, several hours after the high levels of I&I flooded the plant, the nearby Mettawee River flooded the lower portion of the plant causing several hundred thousand dollars in damage to the facility that was repaired through Village insurance funds and FEMA funding. The Village wants to raise the overall height of the pump station by approximately 5 feet to put it above the recorded flood level. Concurrently, the Village would like to raise the control panel for the pump station higher to avoid a potential flooding in the future. In addition to this action, the Village would like to place approximately 12 new watertight manhole frames and covers along the collection sewer leading up to the pump station. These manhole covers were submerged during hurricane Irene and thus contributed to the I&I issue at the wastewater treatment facility.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Rebuild entire sewer system – costly and timely.
Action/Project Intended for Implementation	
Description of Selected Action/Project	The proposed project will: 1) Raise the pump station, thereby eliminating I&I into the collection system and reducing flooding at the Wastewater Treatment Facility. 2) Raise the control panel thereby eliminating the possibility that the pump station will be rendered inoperable and thus prevent the "backup" of sewage into the upstream potions of the collection system. 3) Install watertight manhole covers to reduce I&I to the pump station.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	1
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	Medium
Estimated Cost	High
Priority*	Medium
Plan for Implementation	
Responsible Organization	County DPW working with the municipality
Local Planning Mechanism	Hazard Mitigation, Capital Improvement, Floodplain Management
Potential Funding Sources	Department Budget, Municipal Budget, NYSDEC Environmental Facilities grants
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

Action Number: WC-22

Mitigation Action Name: River Valley Drive Pump Station (Village of Granville).

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	The costs to implement this project correspond with the benefits achieved
Technical	1	
Political	1	
Legal	0	The County will need to work with the municipality to implement this action
Fiscal	0	Need to seek funding to implement this action
Environmental	0	No known negative environmental impacts are related to this action
Social	1	Residents who are serviced by this pump station will benefit
Administrative	1	The County has the personnel and administrative capabilities to implement this action
Multi-Hazard	1	Severe Storm, Flood, Severe Winter Storm
Timeline	0	Short Term
Agency Champion	0	
Other Community Objectives	0	
Total	8	
Priority (H/M/L)	Medium	

Action Number: WC-23

Mitigation Action Name: Sanitary Collection System Inflow and Infiltration (Village of Granville).

Assessing the Risk	
Hazard(s) addressed:	Severe Storm, Flood, Severe Winter Storm
Specific problem being mitigated:	During Hurricane Irene, high flows from the Village sanitary sewer collection system overwhelmed the Village of Granville Wastewater Treatment Facility. These flows, most likely the result of groundwater and surface water inflow and infiltration into the collection system, overloaded and flooded the facility resulting in damage to various treatment processes and components. Flooding of the facility was later compounded by flood waters from the Mettawee River which flooded the low-lying buildings and process components with approximately 3 feet of water. The Wastewater Treatment Facility suffered more than $600,000 of damage as a result of Hurricane Irene. The High 30-Day Mean Design Flow for the Wastewater Treatment facility is 1.3 MGD, with the process components having a Peak Hourly Design Capacity of 2.1 MGD. According to the Treatment Plant Facility Plan, the existing partial flume flow meter at the head of the plant has a rated capacity of approximately 2.5 MGD. Although the rated capacity of the facilities influent flow meter is 2.5 MGD, influent flows during the Hurricane were measured in excess of 4.0 MGD. Additionally, based on observations and measurements by the Village Operations Personnel, the flow through the head of the plant may have been upwards of 6.0 MGD during the peak of the storm event. This resulted in the overflowing of the facilities Imhoff tanks with the flood water (and untreated raw sewage) eventually making its way into buildings or directly into the Mettawee River. It should be noted that upon review of the sanitary collection system after the Irene, there were no significant observable breaches to the sanitary collection system that would have cause the overwhelming flows at the plant. A desktop evaluation of the Village Inflow and Infiltration (I&I) issues was conducted by Lamont Engineers. This study can be provided upon request if further information is needed to further describe the Villages existing system. It should be noted that one of the outcomes of this study indicated that on average there is 28% more wastewater flow treated at the wastewater plan than water being produced at the Village Water treatment facility. Significant events, such as Hurricane Irene, would only have compounded this figure.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Rebuild entire sewer system – costly and timely.
Action/Project Intended for Implementation	
Description of Selected Action/Project	This project would entail the following: 1) An I&I evaluation of sanitary sewer flows in a portion of the Village collection system thought to have be the most impacted by I&I. 2) Construction related work, such as sewer lining or sewer main/lateral replacement and manhole lining, to mitigate significant I&I into the system. Although the Village has undertaken several I&I projects over the history of its sanitary collection system, this lining work was conducted 20+ years ago and a significant amount of the collection piping may need to be lined. A comprehensive study of the collection system is necessary to determine the most severe areas of I&I within the collection system and to pinpoint the areas where work can be conducted to reduce the wet weather I&I in the system to a manageable level concurrent with project costs. Pending the outcome of this study, I&I mitigation measures may include the following: 1) Lining and/or replacements of collection sewers. 2) Lining and/or replacement of residential sewer laterals. 3) Lining and/or replacement of sanitary sewer manholes. 4) Installation of water-tight manhole frames and covers in flood prone areas.

	Based on funding provided by FEMA post Irene, mitigation of the some of the facilities at the Wastewater Treatment Facility should prevent flooding of certain facilities by the Mettawee River. The FEMA funding did not address the I&I issues with the sanitary collection system that flooded the plant, which could happen again during a significant storm event.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	1
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	Medium
Estimated Cost	High
Priority*	Medium
Plan for Implementation	
Responsible Organization	County DPW working with the municipality
Local Planning Mechanism	Hazard Mitigation, Capital Improvement, Floodplain Management
Potential Funding Sources	Department Budget, Municipal Budget, NYSDEC Environmental Facilities grants
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

Action Number: WC-23

Mitigation Action Name: Sanitary Collection System Inflow and Infiltration (Village of Granville).

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	The costs to implement this project correspond with the benefits achieved
Technical	1	
Political	1	
Legal	0	The County will need to work with the municipality to implement this action
Fiscal	0	Need to seek funding to implement this action
Environmental	0	No known negative environmental impacts are related to this action
Social	1	Residents who are serviced by this system will benefit
Administrative	1	The County has the personnel and administrative capabilities to implement this action
Multi-Hazard	1	Severe Storm, Flood, Severe Winter Storm
Timeline	0	Short Term
Agency Champion	0	
Other Community Objectives	0	
Total	8	
Priority (H/M/L)	Medium	

Action Number: WC-24

Mitigation Action Name: Wastewater Treatment Facility Standby Generator (Village of Granville).

Assessing the Risk	
Hazard(s) addressed:	Severe Storm, Flood, Severe Winter Storm
Specific problem being mitigated:	The Village of Granville Wastewater Treatment Facility is a 2.1 MGD wastewater treatment facility in eastern Washington County. The treatment facility does not currently have a standby/backup power source. In the event of a power failure Village Operations, personnel currently use a portable generator to power the critical systems at the facility. This generator is also used to power a sanitary collection system pump station in the Village. In the event power is severed to the Village (treatment facility and pump station), Operations staff must either borrow an additional generator from a neighboring community, or rent one to power both the treatment facility and pump station. During Hurricane Irene there were not any generators to rent locally, but luckily for the Village, a neighboring community who had not been impacted by the Hurricane was able to lend them one so that the pump station and treatment facility could both continue to operate. Had the Village not been able to borrow this generator, the treatment facility or pump station would have been left inoperable thus creating a public health and safety issue for the community.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Purchase larger portable generator – not suitable for long-term power outages.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Installation of a standby generator at the wastewater treatment facility will enable the Village to use their existing portable generator at the remote pump station in the Village thereby eliminating potential public health and safety issues in the community. A standby generator at the wastewater treatment facility will not only protect the Village during future hurricane/flood events, but also will provide a reliable, automatic backup power source for the wastewater facility during significant storm events.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	1, 2, 4
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	High
Estimated Cost	Medium
Priority*	Medium
Plan for Implementation	
Responsible Organization	County DPW working with the municipality
Local Planning Mechanism	Hazard Mitigation, Capital Improvement, Floodplain Management
Potential Funding Sources	Department Budget, Municipal Budget, FEMA HMGP
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

Action Number: WC-24

Mitigation Action Name: Wastewater Treatment Facility Standby Generator (Village of Granville).

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	The costs to implement this project correspond with the benefits achieved
Technical	1	
Political	1	
Legal	0	The County may need authorization from the facility operator to implement this action
Fiscal	0	Need to seek funding to implement this action
Environmental	0	No known negative environmental impacts are related to this action
Social	1	Residents who are serviced by this system will benefit
Administrative	1	The County has the personnel and administrative capabilities to implement this action
Multi-Hazard	1	Severe Storm, Flood, Severe Winter Storm
Timeline	0	
Agency Champion	0	
Other Community Objectives	0	
Total	8	
Priority (H/M/L)	Medium	

Action Number: WC-26

Mitigation Action Name: Foster Brook Sewer Line Project (Town of Dresden).

Assessing the Risk	
Hazard(s) addressed:	Severe Storm, Flood, Severe Winter Storm
Specific problem being mitigated:	Two sewer lines run over Foster Brook. During Tropical Storm Irene material washed down the brook and was caught behind the I-beam that holds the sewer line above the stream, causing the stream to back up and jump its banks and flooding nearby homes and yards. The stream flow was only inches from impacting the sewer line itself, potentially spillage sewage into the stream and Lake George which is a AA Special water body and drinking water source. A sewer spill would have health impacts on the drinking water supply for the hamlet of Huletts Landing and possibly other municipalities on other parts of the lake.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Rebuild berm – costly and can be long-term project.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Proposed improvement/repairs to the berm will at minimum include: 1) Repairs to the portions of the berm damaged by hurricane flood waters including the placement of fill on the river side and well field side of the berm to reestablish it to pre-hurricane conditions. 2) Installation of medium/heavy rip-rap on the river side of the berm to reinforce the berm and prevent limit future scouring during flood events.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	1
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	High
Estimated Cost	Medium
Priority*	Medium
Plan for Implementation	
Responsible Organization	County DPW working with the municipality
Local Planning Mechanism	Hazard Mitigation, Capital Improvement, Floodplain Management
Potential Funding Sources	Department Budget, Municipal Budget, FEMA FMA or HMGP
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

Action Number: WC-25
Mitigation Action Name: Foster Brook Sewer Line Project (Town of Dresden).

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	The costs to implement this project correspond with the benefits achieved
Technical	1	
Political	1	
Legal	0	The County will need to work with the municipality to implement this action
Fiscal	0	Need to seek funding to implement this action
Environmental	0	No known negative environmental impacts are related to this action
Social	1	Residents who are serviced by this system will benefit
Administrative	1	The County has the personnel and administrative capabilities to implement this action
Multi-Hazard	1	Severe Storm, Flood, Severe Winter Storm
Timeline	0	
Agency Champion	0	
Other Community Objectives	0	
Total	8	
Priority (H/M/L)	Medium	

Action Number: WC-26

Mitigation Action Name: Batten Kill River Stabilization (Town of Jackson).

Assessing the Risk	
Hazard(s) addressed:	Severe Storm, Flood, Severe Winter Storm
Specific problem being mitigated:	Two sewer lines that run over Foster Brook. During Tropical Storm Irene material washed down the brook and was caught behind the I-beam that holds the sewer line above the stream. This caused the stream to back up and jump its banks flooding nearby homes and yards in the area. The stream flow was only inches from impacting the sewer line itself potentially spillage sewage into the stream and Lake George which is a AA Special water body and drinking water source. A sewer spill would have health impacts on the drinking water supply for the hamlet of Huletts Landing and possibly municipalities on other parts of the lake.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Hydroseed area – short-term fix that may not prevent erosion and scouring.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Proposed improvement/repairs to the berm will at minimum include: 1)Repairs to the portions of the berm damaged by hurricane flood waters, including placement of fill on the river side and well field side of the berm to reestablish it to pre-hurricane conditions. 2) Installation of medium/heavy rip-rap on the river side of the berm to reinforce the berm and prevent limit future scouring during flood events.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	1
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	High
Estimated Cost	Medium
Priority*	High
Plan for Implementation	
Responsible Organization	County DPW working with the municipality
Local Planning Mechanism	Hazard Mitigation, Capital Improvement, Floodplain Management
Potential Funding Sources	Department Budget, Municipal Budget, FEMA FMA or HMGP
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

Action Number: WC-26
Mitigation Action Name: Batten Kill River Stabilization (Town of Jackson).

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	The costs to implement this project correspond with the benefits achieved
Technical	1	
Political	1	
Legal	1	The County has the authority to implement this action
Fiscal	0	Need to seek funding to implement this action
Environmental	1	Project will comply with municipal and county environmental regulations
Social	0	No negative social impacts are related to this action
Administrative	1	The County has the personnel and administrative capabilities to implement this action
Multi-Hazard	1	Severe Storm, Flood, Severe Winter Storm
Timeline	0	Short Term
Agency Champion	0	
Other Community Objectives	0	
Total	9	
Priority (H/M/L)	High	

Action Number: WC-27

Mitigation Action Name: WCSD backup power system.

Assessing the Risk	
Hazard(s) addressed:	Severe Storm, Flood, Severe Winter Storm
Specific problem being mitigated:	The State of New York has recently experienced natural disasters, such as Superstorm Sandy and Hurricane Irene, with increasing severity. The Washington County Sewer District #2, located in Washington County on the Hudson River, is no exception. Proper disposal of sewage is essential for maintenance of health and sanitation, as a power outage renders the portions of the WCSD#2's collection system pumps unable to transport sewage from homes to the treatment facility. A prolonged power outage is harmful to residents especially in the midst of a natural disaster, representing a health hazard to residents through the discharge of untreated or inadequately treated wastewater. As sewage is known to carry a number of disease causing microbes, exposure to sewage is a health hazard, and particularly dangerous to people whose immune defenses may be lower than normal. Per "Recommended Standards for Water Works 2012 Edition (10 State Standards)", it is required for all pump stations to be equipped with a backup generator for emergency situations. The loss of power prevents the Notre Dame Pump Station from conveying untreated wastewater to the treatment plant and causing a continuous overflow of untreated sewage through the Combined Sewer Overflow at this location to Bond Creek. In addition to not having a generator at the pump station, the aeration system at the treatment plant is not connected to the Standby or Backup Power System, and the ability to connect it is limited as the existing generator is not large enough to provide power to the aeration system. This prevents the treatment plants ability to fully treat wastewater and meet effluent permit limits potentially discharging nutrient laden wastewater to the Hudson River, reducing water quality and thereby affecting other communities along the Hudson River.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Purchase portable generator – not suitable for long-term power outages.
Action/Project Intended for Implementation	
Description of Selected Action/Project	The proposed project is to provide a back-up generator for the Notre Dame Pump Station and for the Aeration System at the Wastewater Treatment Plant. The backup generators will provide power to these two locations in the event of an emergency or prolonged power outage. The pumps station and the treatment plant will then be operating in accordance with the 10 State Standards, and most importantly, in the event of an outage, residents will not be endangered by unsanitary living conditions caused by backed-up, overflowing, or inadequately treated sewage. Providing these locations with standby or backup power will reduce the number of events and volume untreated wastewaters discharged thereby ensuring citizens' safety and help offset financial burdens associated with loss of power when one of these events is paired with a prolonged power outage. Providing the sewer district with generators is an important step towards natural disaster mitigation.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	1, 2, 4
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	Medium

Estimated Cost	Medium
Priority*	High
Plan for Implementation	
Responsible Organization	County DPW working with the municipality
Local Planning Mechanism	Hazard Mitigation, Capital Improvement
Potential Funding Sources	Department Budget, Municipal Budget, grant funding where available
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

Action Number: WC-27
Mitigation Action Name: WCSD backup power system.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	The costs to implement this project correspond with the benefits achieved
Technical	1	
Political	1	
Legal	0	The County may need authorization from the facility operator to implement this action
Fiscal	0	Need to seek funding to implement this action
Environmental	0	No known negative environmental impacts are related to this action
Social	1	Residents who are serviced by this system will benefit
Administrative	1	The County has the personnel and administrative capabilities to implement this action
Multi-Hazard	1	Severe Storm, Flood, Severe Winter Storm
Timeline	0	Short Term
Agency Champion	1	
Other Community Objectives	0	
Total	9	
Priority (H/M/L)	High	

9.2 TOWN OF ARGYLE

This section presents the jurisdictional annex for the Town of Argyle.

9.2.1 Hazard Mitigation Plan Point of Contact

The following individuals have been identified as the hazard mitigation plan's primary and alternate points of contact.

Primary Point of Contact	Alternate Point of Contact
Robert Henke, Town Supervisor 41 Main Street, PO Box 38, Argyle, New York 12809 (518) 638-8681 ext. 12 argylesupervisor@hotmail.com	Bob Humiston, Highway Superintendent 41 Main Street, PO Box 38, Argyle, New York 12809 (518) 638-8210 esther6454@msn.com

9.2.2 Municipal Profile

The Town of Argyle is located in the central portion of Washington County. It is bordered to the north by the Towns of Kingsbury and Hartford; to the south by Town of Greenwich; to the east by the Town of Hebron; and to the south by the Town of Fort Edward. According to the 2010 Census, the Town's population was 3,782. The Town has a total area of 57.8 square miles, of which 56.7 square miles of it is land and 1.1 square miles of it is water.

There are several communities located within the Town of Argyle, which includes the following: Durkeetown, Goose Island, Lick Springs, North Argyle and South Argyle. Additionally, there are lakes and streams located in the Town: Cossayuna Lake, Dead Creek, Moses Kill, Mud Pond, Summit Lake, and the headwaters of Wood Creek.

Growth/Development Trends

The following table summarizes recent residential/commercial development since 2010 to present and any known or anticipated major residential/commercial development and major infrastructure development that has been identified in the next five years within the municipality.

Table 9.2-1. Growth and Development

Property or Development Name	Type (e.g. Res., Comm.)	# of Units / Structures	Location (address and/or Parcel ID)	Known Hazard Zone(s)*	Description/Status of Development
Recent Development from 2010 to present					
Dollar General	Commercial	1 5,000 square foot retail store	171.3-1-40	none	In construction
Known or Anticipated Development in the Next Five (5) Years					
None identified					

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

9.2.3 Natural Hazard Event History Specific to the Municipality

Washington County has a history of natural and non-natural hazard events as detailed in Volume I, Section 5.0 – Risk Assessment of this plan. 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. For the purpose of this plan update, events that have occurred in the County from 2008 to present were summarized to indicate the

range and impact of hazard events in the community. Information regarding specific damages is included, if available, based on reference material or local sources. This information is presented in the table below. For details of these and additional events, refer to Volume I, Section 5.0 – Risk Assessment of this plan.

Table 9.2-2. Hazard Event History

Dates of Event	Event Type (FEMA Disaster Declaration if applicable)	Washington County Designated?	Summary of Damages/Losses
December 11-31, 2008	Severe Winter Storm DR-1827	Yes	A barn roof collapsed in the Town. Other losses/costs to the Town included cleanup, highway department overtime and debris removal. $192,000 losses to Town covered by FEMA
August 26-September 5, 2011	Hurricane/T.S. Irene DR-4020	Yes	There were widespread power outages in the Town, South Valley Road, Archard Lane, and Sullivan Lane were all closed. Culverts and roads were damaged which led to culvert replacement and road construction at South Valley Road, Archard Lane, and Sullivan Lane. Other losses/costs to the Town included highway crew overtime (clearing roads, removing debris, and road repairs). $67,000 losses to Town covered by FEMA

Notes:
EM *Emergency Declaration (FEMA)*
FEMA *Federal Emergency Management Agency*
DR *Major Disaster Declaration (FEMA)*

9.2.4 Hazard Vulnerabilities and Ranking

The hazard profiles in Section 5.0 – Risk Assessment of this plan have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes the hazard vulnerabilities and their ranking in the Town of Argyle. For additional vulnerability information relevant to this jurisdiction, refer to Section 5.0 – Risk Assessment. Refer to Figure 9.2-1 later in this annex for hazard vulnerable areas located in the Town of Argyle.

Natural Hazard Risk/Vulnerability Risk Ranking

As discussed in Section 5.3 (Hazard Ranking), each participating town or village may have differing degrees of risk exposure and vulnerability compared to Washington County as a whole. Therefore, each municipality 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 Argyle. Table 9.2-12 provides proposed mitigation initiatives for the high ranked hazards.

Table 9.2-3. Hazard Risk/Vulnerability Risk Ranking

Hazard type	Estimate of Potential Dollar Losses to Structures Vulnerable to the Hazard [a, c]	Probability of Occurrence	Risk Ranking Score (Probability x Impact)	Hazard Ranking [b]
Earthquake	100-Year GBS: $3,806,001 500-Year GBS: $48,024,634 2,500-Year GBS: $331,519,714	Occasional	32	High
Flood	Damage estimate not available.	Frequent	30	Medium
Severe Weather	100-Year MRP: $35,567 500-year MRP: $277,684 Annualized: $2,167	Frequent	48	High
Severe Winter Weather	1% GBS: $5,765,312	Frequent	51	High

Hazard type	Estimate of Potential Dollar Losses to Structures Vulnerable to the Hazard [a, c]		Probability of Occurrence	Risk Ranking Score (Probability x Impact)	Hazard Ranking [b]
	5% GBS:	$28,826,559			
Wildfire	Estimated Value in the WUI Hazard Areas:	$523,595,246	Frequent	48	High

Notes:

a. Building damage ratio estimates based on FEMA 386-2 (August 2001)

b. The valuation of general building stock and loss estimates was based on custom inventory for the municipality.
High = Total hazard priority risk ranking score of 31 and above
Medium = Total hazard priority risk ranking of 20-30+
Low = Total hazard risk ranking below 20

c. Loss estimates for the severe storm and severe winter storm hazards are structural values only and do not include the value of contents.

d Loss estimates for the flood and earthquake hazards represent both structure and contents.

e. The HAZUS-MH earthquake model results are reported by Census Tract.

f. Damage estimate for flood unavailable due to lack of digital floodplain data for Washington County.

National Flood Insurance Program (NFIP) Summary

The following table summarizes the NFIP statistics for the Town of Argyle.

Table 9.2-4. NFIP Summary

Municipality	# Policies (1)	# Claims (Losses) (1)	Total Loss Payments (2)	# Rep. Loss Prop. (1)	# Severe Rep. Loss Prop. (1)
Argyle (T)	4	1	$7,454	0	0

Source: FEMA, 2016
Note (1) Policies, claims, repetitive loss and severe repetitive loss statistics provided by FEMA and are current as of April 30, 2016 and are summarized by Community Name. Please note the total number of repetitive loss properties excludes the severe repetitive loss properties. The number of claims represents claims closed by 4/30/2016.
Note (2) Total building and content losses from the claims file provided by FEMA Region 2.
Note (3) The policies inside and outside of the flood zones are unavailable due to lack of digital floodplain for Washington County.
Note (4) FEMA noted that where there is more than one entry for a property, there may be more than one policy in force or more than one GIS possibility.

Critical Facilities

At the time of this HMP Update, digitized flood maps for Washington County are unavailable. In order to provide some level of beneficial analysis, a desktop analysis was performed to identify critical facilities located within the floodplain (refer to Section 5.1 [Methodology and Tools] for details). The following table identifies critical facilities located within the municipality and their exposure, if any, to the possible floodplain. This information is a resource for the municipality to determine if flood mitigation actions are appropriate based on historical events and proximity of the facility to a water body. At the time of this 2018 HMP Update, the municipality did not identify any actions associated with these facilities.

The Town of Argyle understands the limitation of the map data and once the updated maps are available, the municipality will work with Washington County to determine which critical facilities are located within the 1% and 0.2% annual chance flood zones. Once identified, the municipality will work with the property owners and develop mitigation actions for each of the critical facilities, ensuring they will be protected to the 500-year (or worst-case scenario) level.

Table 9.2-5. Potential Flood Losses to Critical Facilities

Name	Type	Potential Flood Exposure
None identified		

Source: Washington County; NYS GIS Clearinghouse

Other Vulnerabilities Identified

The following are identified vulnerable areas within the Town:

- North Street Road near County Route 48 – this is a dirt road with an undersized that culvert that floods
- Street Road experiences shoulder erosion
- McNeil Road near Scott Road – the stream overwashes this area of roadway
- Archard Lane – needs tubes, road needs to be moved
- Mahaffey Road, between road #43 and #44 at 90 degree turn
- Hinds Road #42
- Sullivan Lane, between County Road 40 and Greenwich town line – five-foot tube January 2006
- Mud Lake Road – when a beaver dam breaks, this road washes out
- Hinds Road is vulnerable to slope erosion which is impacting the roadway and culverts.
- Sullivan Lane, Archard Lane, and Coach Road are all prone to flooding during periods of heavy rain due to undersized culverts.

9.2.5 Capability Assessment

This section identifies the following capabilities of the local jurisdiction:

- Planning and regulatory capability
- Administrative and technical capability
- Fiscal capability
- Community classification
- National Flood Insurance Program
- Integration of mitigation planning into existing and future planning mechanisms

Planning and Regulatory Capability

The table below summarizes the regulatory tools that are available to the Town of Argyle.

Table 9.2-6. Planning and Regulatory Tools

Tool / Program (code, ordinance, plan)	Do you have this? (Yes/No) If Yes, date of adoption or update	Authority (local, county, state, federal)	Dept. /Agency Responsible	Code Citation and Comments (Code Chapter, name of plan, explanation of authority, etc.)
Planning Capability				
Master Plan	Yes, 1991	Town	Town Board	Currently seeking grant funding to update 1991 plan
Capital Improvements Plan	No	-	-	-
Floodplain Management / Basin Plan	No	-	-	-
Stormwater Management Plan	No	-	-	-
Open Space Plan	No	-	-	-

Tool / Program (code, ordinance, plan)	Do you have this? (Yes/No) If Yes, date of adoption or update	Authority (local, county, state, federal)	Dept. /Agency Responsible	Code Citation and Comments (Code Chapter, name of plan, explanation of authority, etc.)
Stream Corridor Management Plan	No	-	-	-
Watershed Management or Protection Plan	No	-	-	-
Economic Development Plan	No	-	-	-
Comprehensive Emergency Management Plan	No	-	-	-
Emergency Response Plan	Yes, 2004	County	County OEM	County Emergency Management Plan
Post-Disaster Recovery Plan	Yes, 2004	County	County OEM	County Emergency Management Plan
Transportation Plan	No	-	-	-
Strategic Recovery Planning Report	No	-	-	-
Other Plans:	No	-	-	-
Regulatory Capability				
Building Code	Yes	State & Local	Code Enforcement (County)	Building Code of New York State (NYS), Local Law #1
Zoning Ordinance	No	-	-	-
Subdivision Ordinance	Yes	Local	Planning Board	Information not provided at the time of the 2018 HMP Update
NFIP Flood Damage Prevention Ordinance	Yes	Federal, State, Local	Code Enforcement Officer	Information not provided at the time of the 2018 HMP Update
NFIP: Cumulative Substantial Damages	No	-	-	-
NFIP: Freeboard	Yes	State, Local	Code Enforcement (County)	State mandated BFE+2 for single and two-family residential construction, BFE+1 for all other construction types
Growth Management Ordinances	No	-	-	-
Site Plan Review Requirements	No	-	-	-
Stormwater Management Ordinance	No	-	-	-
Municipal Separate Storm Sewer System (MS4)	No	-	-	-
Natural Hazard Ordinance	No	-	-	-
Post-Disaster Recovery Ordinance	No	-	-	-
Real Estate Disclosure Requirement	Yes	State	NYS Department of State, Real Estate Agent	NYS mandate, Property Condition Disclosure Act, NY Code - Article 14 §460-467
Other (Special Purpose Ordinances [i.e., sensitive areas, steep slope])	Yes	Local	Code Enforcement (County)	Mobile home prohibition

Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the Town of Argyle.

Table 9.2-7. Administrative and Technical Capabilities

Resources	Is this in place? (Yes or No)	Department/ Agency/Position
Administrative Capability		
Planning Board	Yes	Argyle Planning Board
Mitigation Planning Committee	No	-
Environmental Board/Commission	No	-
Open Space Board/Committee	No	-
Economic Development Commission/Committee	No	-
Maintenance programs to reduce risk	No	-
Mutual aid agreements	Yes	Highway Department, Fire Companies
Technical/Staffing Capability		
Planner(s) or engineer(s) with knowledge of land development and land management practices	Yes	Outside firm contracted
Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Yes	Outside firm contracted
Planners or engineers with an understanding of natural hazards	Yes	Outside firm contracted
NFIP Floodplain Administrator (FPA)	Yes	Town Supervisor
Surveyor(s)	No	-
Personnel skilled or trained in GIS and/or Hazards United States (HAZUS) – Multi-Hazards (MH) applications	No	-
Scientist familiar with natural hazards	No	-
Emergency Manager	No	-
Grant writer(s)	No	-
Staff with expertise or training in benefit/cost analysis	No	-
Professionals trained in conducting damage assessments	No	-

Fiscal Capability

The table below summarizes financial resources available to the Town of Argyle.

Table 9.2-8. 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—legislative restrictions in place currently
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	By referendum
Incur debt through private activity bonds	No
Withhold public expenditures in hazard-prone areas	No

Financial Resources	Accessible or Eligible to Use (Yes/No)
Other federal or state Funding Programs	No
Open Space Acquisition funding programs	No
Other	No

Community Classifications

The table below summarizes classifications for community program available to the Town of Argyle.

Table 9.2-9. Community Classifications

Program	Do you have this? (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	6/6Y	8/27/15
NYSDEC Climate Smart Community	No	-	-
Storm Ready	No	-	-
Firewise	No	-	-
Disaster/safety programs in/for schools	Yes	Refer to the 'Integration of Hazard Mitigation into Existing and Future Planning Mechanisms' below for details	
Organizations with mitigation focus (advocacy group, non-government)	No	-	-
Public education program/outreach (through website, social media)	No	-	-
Public-Private Partnerships	Yes	Private	N/A

Note:
N/A *Not applicable*
NP *Not participating*
- *Unavailable*

The classifications listed above relate to the community's ability to provide effective services to lessen its vulnerability to the hazards identified. These classifications can be viewed as a gauge of the community's capabilities in all phases of emergency management (preparedness, response, recovery and mitigation) and are used as an underwriting parameter for determining the costs of various forms of insurance. The CRS class applies to flood insurance while the BCEGS and Public Protection classifications apply to standard property insurance. CRS classifications range on a scale of 1 to 10 with class 1 being the best possible classification, and class 10 representing no classification benefit. Firewise classifications include a higher classification when the subject property is located beyond 1000 feet of a creditable fire hydrant and is within 5 road miles of a recognized Fire Station.

Criteria for classification credits are outlined in the following documents:

- The Community Rating System Coordinators Manual
- The Building Code Effectiveness Grading Schedule website at https://www.isomitigation.com/bcegs/
- The ISO Mitigation online ISO's Public Protection website at https://www.isomitigation.com/ppc/
- The National Weather Service Storm Ready website at https://www.weather.gov/stormready/
- The National Firewise Communities website at https://www.nfpa.org/Public-Education/By-topic/Wildfire/Firewise-USA

Self-Assessment of Capability

The table below provides an approximate measure of the Town of Argyle's capability to work in a hazard-mitigation capacity and/or effectively implement hazard mitigation strategies to reduce hazard vulnerabilities.

Table 9.2-10. Self-Assessment Capability for the Municipality

Area	Degree of Hazard Mitigation Capability		
	Limited (If limited, what are your obstacles?) *	Moderate	High
Planning and regulatory capability		x	
Administrative and technical capability	limited personnel		
Fiscal capability	Limited due to state mandates		
Community political capability		x	
Community resiliency capability		x	
Capability to integrate mitigation into municipal processes and activities	X political will		

National Flood Insurance Program

NFIP Floodplain Administrator (FPA)

While the Flood Damage Prevention Ordinance identifies the Code Enforcement Officer for the Town of Argyle, code enforcement is performed by Washington County and the County does not provide floodplain administration to any municipality. Therefore, Mr. Robert Henke, Town Supervisor, provided information regarding floodplain administration for the town.

Flood Vulnerability Summary

The Town of Argyle does not maintain lists/inventories of properties that have been damaged by floods. No structures were damaged during Irene or other recent flood events. There is currently no interest within the Town regarding mitigation (elevation or acquisition) of properties.

Resources

The municipal FPA is the sole person assuming the responsibilities of floodplain administration; however, staff can be contracted if needed. To date, NYSDEC staff has been used for difficult situations within the Town. NFIP administration services and functions provided by the FPA includes review of building permits. The FPA reviews permits and makes a determination using 1974 floodplain maps. If a project is determined to be in a floodplain, Code Enforcement inspectors mandate that the project meet state floodplain building specifications. If a determination cannot be made due to the inadequacy of maps, the project is deferred to the NYSDEC for a determination. However, no inspections are done on a town-level.

Education and outreach provided to community regarding flood hazards/risk and flood risk reduction includes the posting of periodic information received from the NYSDEC and other sources.

The FPA indicated that there are barriers to running an effective floodplain management program. This includes the inadequate floodplain mapping for the Town. The scale on the maps is such that the width of the lines designating floodplain areas is 12 feet, which makes it difficult to read in areas with large gradients across the property. The FPA also indicated that he does not feel adequately trained to fulfill this

responsibility but there is support if needed. The FPA stated that he would consider attending continuing education and/or certification training on floodplain management if it were offered.

Compliance History

The community is in good standing with the NFIP. According to NYS DEC, the Town of Argyle's last Community Assistance Visit was on May 5, 2016.

Regulatory

The Town's floodplain management ordinances meet the minimum requirements set by FEMA and the State. There are no additional local ordinances, plans or programs that support floodplain management. The Town does not participate in the CRS program; however, the Town would attend a seminar if offered.

Integration of Hazard Mitigation into Existing and Future Planning Mechanisms

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 this planning effort, each community was surveyed to obtain a better understanding of their community's progress in plan integration. A summary is provided below. In addition, the community identified specific integration activities that will be incorporated into municipal procedures.

Planning

The Town of Argyle Planning Board reviews permit and subdivision applications. The Town Clerk maintains records of Ordinances, resignations, petitions, proof of publications, vouchers, zoning ordinances and maps, annual budgets, etc. There are no zoning regulations within the Town apart from mobile home regulations and subdivision regulations.

Regulatory and Enforcement (Ordinances)

Code Enforcement: Washington County provides code enforcement duties and responsibilities to the Town of Argyle.

Construction Codes, Uniform: The building codes are strictly enforced to make new and renovated buildings as prepared as possible for hazard related incidents. The Town complies with New York State Uniform Fire Prevention and Building Code (the Uniform Code) and the State Energy Conservation Construction Code (the Energy Code).

The Town of Argyle requires a county and town building permit application, as well as one set of prints, a Driveway Permit Application & a Local Compliance Checklist to be completed.

Flood Damage Prevention Ordinance: This ordinance promotes the public health, safety, and general welfare of residents and seeks to minimize public and private losses due to flood conditions. It regulates development to promote flood resistant structures and controls the alteration of floodplains to prevent increased vulnerability.

Sewers: The Town abides by the County-wide Sanitary Code, which protects and regulates its sewage collection and treatment facilities as a matter of public health and environmental safety. It seeks to prohibit the introduction of stormwater, surface, or sub-surface waters into sanitary sewers and to control the quantity and quality of wastes in the sewage system.

Subdivision of Land: The Town's Planning Board is tasked with site plan/subdivision review. The Planning Board pays special attention to ensure that developments mitigate the issues associated natural hazards.

Operational and Administration

The Town has an invasive vegetation intervention and weed harvest in the Cossayuna Lake Basin.

Fiscal

The Town's municipal budget includes line items for strategic culvert replacements, road grading strategies, and ditching programs. Additionally, the budget includes funding for mitigation-related projects through funding from the Consolidated Local Street and Highway Improvement Program (CHIPS).

Education and Outreach

The Town's Highway Superintendent attends annual Highway School in Cornel. The Washington County Highway Association provides training, and annual safety day training.

The Town offers public outreach mechanisms/programs to inform its citizens on natural hazards. This includes educational material distributed at the Town Office Front Porch Forum which is a community email server used to distribute information.

There are two fire companies in the Town of Argyle - J.A. Barkley Hose Company and Cossayuna Vol. Fire Company. The J. A. Barkley Hose Co. #1 Inc., also known as the Argyle Fire Department or Argyle Fire/Rescue, is an all-volunteer Fire Department that provides fire/rescue protection for the Town & Village of Argyle. The company maintains a public website with links to local weather forecasts, the Argyle EMS website, and numerous video clips and other resources about fire safety. They also maintain a Facebook page, and provide mutual-aid for several neighboring departments.

9.2.6 Mitigation Strategy and Prioritization

This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and prioritization.

Past Mitigation Initiative Status

The following table indicates progress on the community's mitigation strategy identified in the 2010 Plan. It should be noted that during the 2010 planning process, only general, countywide actions were identified for each municipality. The Town of Argyle reviewed the previous actions and selected actions they chose to carry forward as part of this plan update. Previous actions that are now on-going programs and capabilities are indicated as such in the following table and may also be found under 'Capability Assessment' presented previously in this annex.

Table 9.2-11. Status of Previous Mitigation Actions

2010 Mitigation Action	Responsible Party	Status (In progress, No progress, Complete)	Describe Status	Next Step (Include in 2018 HMP or Discontinue)	Describe Next Step
Improve drainage at sites where roads have washed out due to natural hazards in the past	County and NYS DHSES	In Progress	The Town replaces culverts as needed and this includes upsizing from original culvert size. Changing from steel to plastic.	Discontinue	This is an ongoing action for the Town
Purchase equipment to provide for local personnel to conduct the drainage improvement	County and NYS DHSES	In Progress	The Town replaces culverts as needed and this includes upsizing from original culvert size. Changing from steel to plastic.	Discontinue	This is an ongoing action for the Town; the Town has adequate equipment to conduct such services
Engineering assessment to determine feasibility of each site improvement	County and NYS DHSES	No Progress	This action doesn't apply to the Town	Discontinue	This action doesn't apply to the Town
Improve dams to prevent flooding causing roads to wash out.	County and NYS DHSES	No Progress	There are no dams in the Town	Discontinue	This action doesn't apply to the Town
Improve identified sites where slope stability is subject to land subsidence and where excavation or planting could mitigate future damage.	County and NYS DHSES	No Progress	Due to funding, this project has not been completed	Include in the 2018 Update	Engineering study of Hinds Road

Completed Mitigation Initiatives Not Identified in the Previous Mitigation Strategy

The Town of Argyle has identified the following mitigation projects/activities that have also been completed but were not identified in the previous mitigation strategy in the 2010 Plan:

- Gordon Road at East Lake – NYSDEC grant received (in-kind) – $44,000 - extremely steep road – filled in deep ditches that eroded and added in stone and riprap to prevent runoff from going into Cossayuna Lake
- EFC Grant for siltation, flooding mitigation on steep slope roadways in Cossayuna Lake Basin, $44,000 with local match with in-kind services for performing the work. Private engineer hired to do design.
- The Highway Department replaces culverts throughout the Town as needed

Proposed Hazard Mitigation Initiatives for the Plan Update

The Town of Argyle participated in a mitigation action workshop in September 2016 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).

Table 9.2-12 summarizes the comprehensive-range of specific mitigation initiatives the Town of Argyle would like to pursue in the future to reduce the effects of hazards. Some of these initiatives may be previous actions carried forward for this plan update. These 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. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table below to further demonstrate the wide-range of activities and mitigation measures selected.

As discussed in Section 6 – Mitigation Strategy, 14 evaluation/prioritization criteria are used 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 your actions as 'High', 'Medium', or 'Low.' The table below summarizes the evaluation of each mitigation initiative, listed by Action Number.

Table 9.2-13 provides a summary of the prioritization of all proposed mitigation initiatives for the Plan update.

Table 9.2-12. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
T. Argyle - 1	Purchase and install permanent generator at the municipal building (critical facility).	Existing	All	1, 4	Town of Argyle Highway Department	High	Medium to High	FEMA Hazard Mitigation Assistance (FMA, HMGP)	Short Term – one to five years	High	SIP	PP, ES
T. Argyle - 2	Purchase and install permanent generator at the highway building (critical facility).	Existing	All	1, 4	Town of Argyle Highway Department	High	Medium to High	FEMA Hazard Mitigation Assistance (FMA, HMGP)	Short Term – one to five years	High	SIP	PP, ES
T. Argyle – 3 (old)	Hinds Road - Slope erosion is affecting the road and causing non-function of a very large cement culvert. An engineering study is needed for this area.	Existing	Flood, Severe Storm	1	Town of Argyle Highway Department	Medium to High	Low to Medium	Washington County Soil & Water Conservation District, Municipal Budget, WQIP	Short Term – one to five years	Medium	LPR	PR, SP
T. Argyle - 4	Replacement and upgrade of existing culverts on Sullivan and Archard Lanes.	Existing	Flood, Severe Storm	1	Town of Argyle Highway Department	High	Low - $15,000	Washington County Soil & Water Conservation District, Municipal Budget, WQIP	Short Term – one to five years	High	SIP	PP
T. Argyle - 5	Replacement and upgrade of culvert on Coach Road.	Existing	Flood, Severe Storm	1	Town of Argyle Highway Department	Medium to High	Low to Medium	Washington County Soil & Water Conservation District, Municipal Budget, WQIP	Short Term – one to five years	Medium	SIP	PP
T. Argyle - 6	Utilize the Hazard Mitigation Plan (HMP) when updating the Master Plan.	Both	All	All	Town Planning Board	High	Low	Municipal Budget and Staff Time	Short Term – one to five years	High	LPR	PR

Notes:

Not all acronyms and abbreviations defined below are included in the table.

**Does this mitigation initiative reduce the effects of hazards on new and/or existing buildings and/or infrastructure? Not applicable (N/A) is inserted if this does not apply.*

Acronyms and Abbreviations:

CAV	*Community Assistance Visit*
CRS	*Community Rating System*
DPW	*Department of Public Works*
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*
PDM	*Pre-Disaster Mitigation Grant Program*
RFC	*Repetitive Flood Claims Grant Program (discontinued in 2015)*
SRL	*Severe Repetitive Loss Grant Program (discontinued in 2015)*

Timeline:

Short	*1 to 5 years*
Long Term	*5 years or greater*
OG	*On-going program*
DOF	*Depending on funding*

OEM *Office of Emergency Management*
WQIP *Water Quality Improvement Project Grant*

Costs:

Where actual project costs have been reasonably estimated:

Low *< $10,000*
Medium *$10,000 to $100,000*
High *> $100,000*

Where actual project costs cannot reasonably be established at this time:

Low *Possible to fund under existing budget. Project is part of, or can be part of an existing on-going program.*
Medium *Could budget for under existing work plan, but would require a reapportionment of the budget or a budget amendment, or the cost of the project would have to be spread over multiple years.*
High *Would require an increase in revenue via an alternative source (i.e., bonds, grants, fee increases) to implement. Existing funding levels are not adequate to cover the costs of the proposed project.*

Benefits:

Where possible, an estimate of project benefits (per FEMA's benefit calculation methodology) has been evaluated against the project costs, and is presented as:

Low= *< $10,000*
Medium *$10,000 to $100,000*
High *> $100,000*

Where numerical project benefits cannot reasonably be established at this time:

Low *Long-term benefits of the project are difficult to quantify in the short term.*
Medium *Project will have a long-term impact on the reduction of risk exposure to life and property, or project will provide an immediate reduction in the risk exposure to property.*
High *Project will have an immediate impact on the reduction of risk exposure to life and property.*

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*

Table 9.2-13. Summary of Prioritization of Actions

Mitigation Action / Project Number	Mitigation Action/Initiative	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
T. Argyle - 1	Purchase and install permanent generator at the municipal building (critical facility).	1	1	1	1	1	1	0	0	1	1	1	1	0	0	10	High
T. Argyle - 2	Purchase and install permanent generator at the highway building (critical facility).	1	1	1	1	1	1	0	0	1	1	1	1	0	0	10	High
T. Argyle – 3 (old)	Hinds Road - Slope erosion is affecting the road and causing non-function of a very large cement culvert. An engineering study is needed for this area.	1	1	1	0	0	0	0	1	0	1	1	1	0	0	7	Medium
T. Argyle - 4	Replacement and upgrade of existing culverts on Sullivan and Archard Lanes.	1	1	1	1	1	1	0	1	0	1	1	1	1	0	11	High
T. Argyle - 5	Replacement and upgrade of culvert on Coach Road.	1	1	1	1	0	0	0	1	0	1	1	1	0	0	8	Medium
T. Argyle - 6	Utilize the Hazard Mitigation Plan (HMP) when updating the Master Plan.	1	1	1	1	0	1	1	0	0	1	1	1	0	0	9	High

Note: Refer to Section 6 – Mitigation Strategy, which conveys guidance on prioritizing mitigation actions.

9.2.7 Future Needs to Better Understand Risk/Vulnerability

None at this time.

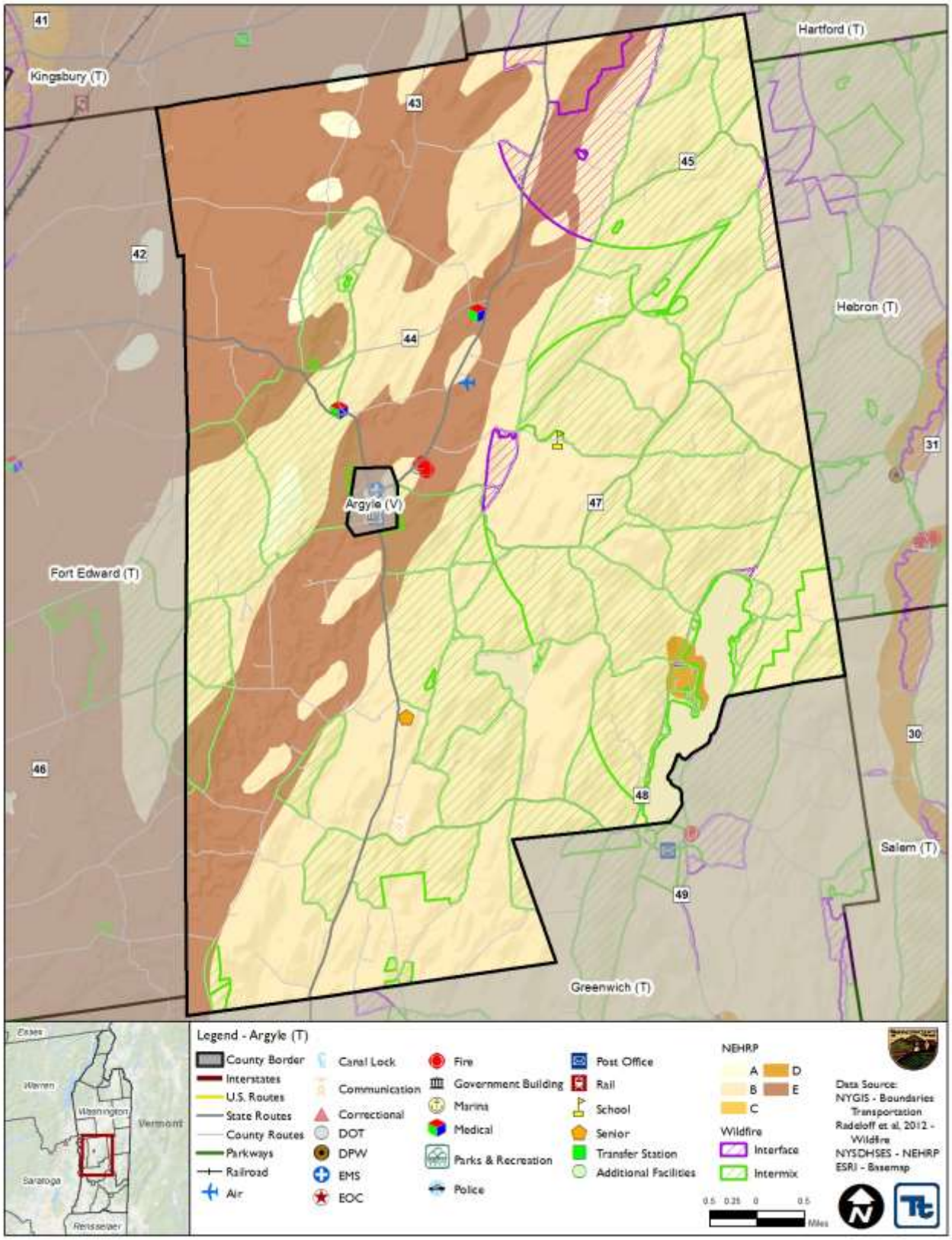
9.2.8 Hazard Area Extent and Location

Hazard area extent and location maps have been generated for the Town of Argyle that illustrate the probable areas impacted within the municipality. These maps are based on the best available data at the time of the preparation of this plan, and are considered to be adequate for planning purposes. Maps have only been generated for those hazards that can be clearly identified using mapping techniques and technologies, and for which the Town of Argyle has significant exposure. These maps are illustrated in the hazard profiles within Section 5.4, Volume I of this Plan.

9.2.9 Additional Comments

None at this time.

Figure 9.2-1. Town of Argyle Hazard Area Extent and Location



Action Number: T. Argyle - 1

Mitigation Action Name: Purchase and install permanent generators at the municipal building.

Assessing the Risk	
Hazard(s) addressed:	All
Specific problem being mitigated:	The Town is vulnerable if there is a loss of power during any event. The municipal building does not have emergency backup power to allow for continuity of operations during a power outage. While power outages are not a frequent occurrence in the town, they do occur during high wind events and last from one hour to several days. If a generator is secured, Town employees can provide public services to the community.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Install solar panels – costly, weather dependent.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Purchase and install a generator at the municipal building, an identified critical facility for the Town. The generator will provide power to the entire building, and municipal employees will benefit as they will be able to continue their day-to-day duties in the event of a power outage.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	Goal 1: Protect Life and Property Goal 4: Provide for Emergency Services
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	High
Estimated Cost	Medium to High
Priority*	High
Plan for Implementation	
Responsible Organization	Highway Department
Local Planning Mechanism	Hazard Mitigation
Potential Funding Sources	FEMA Hazard Mitigation Assistance (FMA, HMGP)
Timeline for Completion	Short Term – one to five years
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: 6/01/2017 Progress on Action/Project: Due to funding, the project has not been completed

Action Number: T. Argyle - 1
Mitigation Action Name: Purchase and install permanent generators at the municipal building.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	Allow critical facilities to function during periods of power outages
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	
Fiscal	0	Need to seek grant funding
Environmental	0	
Social	1	
Administrative	1	
Multi-Hazard	1	All hazards
Timeline	1	
Agency Champion	0	
Other Community Objectives	0	
Total	10	
Priority (H/M/L)	High	

Action Number: T. Argyle –2

Mitigation Action Name: Purchase and install permanent generator at the highway building.

Assessing the Risk	
Hazard(s) addressed:	All
Specific problem being mitigated:	The Town is vulnerable if there is a loss of power during any event. The municipal building does not have emergency backup power to allow for continuity of operations during a power outage. While power outages are not a frequent occurrence in the town, they do occur during high wind events and last from one hour to several days. If a generator is secured, Town employees can provide public services to the community.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Install solar panels – costly, weather dependent
Action/Project Intended for Implementation	
Description of Selected Action/Project	Purchase and install a generator at the highway building, an identified critical facility for the Town. The generator will provide power to the entire building, and municipal employees will benefit as they will be able to continue their day-to-day duties in the event of a power outage.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	Goal 1: Protect Life and Property Goal 4: Provide for Emergency Services
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	High
Estimated Cost	Medium to High
Priority*	High
Plan for Implementation	
Responsible Organization	Highway Department
Local Planning Mechanism	Hazard Mitigation
Potential Funding Sources	FEMA Hazard Mitigation Assistance (FMA, HMGP)
Timeline for Completion	Short Term – one to five years
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: 6/01/2017 Progress on Action/Project: Due to funding, the project has not been completed

Action Number: T. Argyle –2
Mitigation Action Name: Purchase and install permanent generator at the highway building.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	Allow critical facilities to function during periods of power outages
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	
Fiscal	0	Need to seek grant funding
Environmental	0	
Social	1	
Administrative	1	
Multi-Hazard	1	All hazards
Timeline	1	
Agency Champion	0	
Other Community Objectives	0	
Total	10	
Priority (H/M/L)	High	

Action Number: T. Argyle - 3

Mitigation Action Name: Hinds Road engineering study.

Assessing the Risk	
Hazard(s) addressed:	Flood, Severe Storm
Specific problem being mitigated:	Due to nearby slope erosion, the culvert on Hinds Road is being clogged with debris. This inhibits its stormwater capacity and causes the large cement culvert to not function properly.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Clear debris regularly – problem persists.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Complete an engineering study of Hinds Road culvert and surrounding area to determine a plan for mitigation to reduce or alleviate the problem.
Mitigation Action Type	Local Plans and Regulations (LPR)
Goals Met	Goal 1: Protect Life and Property
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	Medium to High
Estimated Cost	Low to Medium
Priority*	Medium
Plan for Implementation	
Responsible Organization	Highway Department
Local Planning Mechanism	Hazard Mitigation
Potential Funding Sources	Washington County Soil & Water Conservation District, Municipal Budget, Water Quality Improvement Project Grant
Timeline for Completion	Short term – one to five years
Reporting on Progress	
Date of Status Report/ Report of Progress	No progress; New project

Action Number: T. Argyle - 3
Mitigation Action Name: Hinds Road engineering study.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	0	
Political	0	
Legal	0	
Fiscal	0	Need grant funding
Environmental	1	
Social	0	
Administrative	1	
Multi-Hazard	1	Flood, Severe Storm
Timeline	1	
Agency Champion	0	
Other Community Objectives	0	
Total	7	
Priority (H/M/L)	Medium	

Action Number: T. Argyle - 4

Mitigation Action Name: Replacement and upgrade of existing culverts on Sullivan and Archard Lanes.

Assessing the Risk	
Hazard(s) addressed:	Flood, Severe Storm
Specific problem being mitigated:	Road closures and flooding from the inadequate culverts on these roadways has caused flooding and complications in emergency response during flooding events in the Town.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Buyout homes and remove dead end roads where flooding is a problem – cost.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Replace existing culverts with larger sized culverts, and install additional culverts in the area of Sullivan and Archard Lanes, both dead end roads. This will reduce the amount of time roads are closed and will allow emergency personnel to access homes on these roads in the event of an emergency.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	Goal 1: Protect Life and Property
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	High
Estimated Cost	Low - $15,000
Priority*	High
Plan for Implementation	
Responsible Organization	Highway Department
Local Planning Mechanism	Hazard Mitigation
Potential Funding Sources	Washington County Soil & Water Conservation District, Municipal Budget, Water Quality Improvement Project Grant
Timeline for Completion	Short term – one to five years
Reporting on Progress	
Date of Status Report/ Report of Progress	No progress; New project

Action Number: T. Argyle – 4

Mitigation Action Name: Replacement and upgrade of existing culverts on Sullivan and Archard Lanes.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	
Fiscal	0	Need to obtain funding
Environmental	1	
Social	0	
Administrative	1	
Multi-Hazard	1	Flood, Severe Storm
Timeline	1	
Agency Champion	1	
Other Community Objectives	0	
Total	11	
Priority (H/M/L)	High	

Action Number: T. Argyle - 5

Mitigation Action Name: Replacement and upgrade of culvert on Coach Road.

Assessing the Risk	
Hazard(s) addressed:	Flood, Severe Storm
Specific problem being mitigated:	Road closures and flooding from the inadequate culverts on Coach Road near the intersection of McEachron Hill Road has caused flooding of residential properties and complications in emergency response during flooding events in the Town.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Raise roadway above flood elevation – cost, flooding of residential properties continues
Action/Project Intended for Implementation	
Description of Selected Action/Project	Replace existing culverts with larger sized culverts in the area of Coach Road near the intersection of McEachron Hill Road. This will reduce the amount of time roads are closed and will allow emergency personnel to access homes on these roads in the event of an emergency.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	Goal 1: Protect Life and Property
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	Medium to High
Estimated Cost	Low to Medium
Priority*	Medium
Plan for Implementation	
Responsible Organization	Town of Argyle Highway Department
Local Planning Mechanism	Hazard Mitigation
Potential Funding Sources	Washington County Soil & Water Conservation District, Municipal Budget, Water Quality Improvement Project Grant
Timeline for Completion	Short term – one to five years
Reporting on Progress	
Date of Status Report/ Report of Progress	No progress; New project

Action Number: T. Argyle - 5

Mitigation Action Name: Replacement and upgrade of culvert on Coach Road.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	Provide further protection to surrounding properties
Cost-Effectiveness	1	
Technical	1	
Political	0	
Legal	0	
Fiscal	0	Need grant funding
Environmental	1	
Social	0	
Administrative	1	
Multi-Hazard	1	Flood, Severe Storm
Timeline	1	
Agency Champion	0	
Other Community Objectives	0	
Total	8	
Priority (H/M/L)	Medium	

Action Number: T. Argyle - 6

Mitigation Action Name: Utilize the Hazard Mitigation Plan (HMP) when updating the Master Plan.

Assessing the Risk	
Hazard(s) addressed:	All
Specific problem being mitigated:	The Master Plan does not currently address hazard identification and risk assessment or mitigation goals.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Update the Master Plan without incorporating mitigation – does not help the Town with preparing for hazard impacts.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Use the results and guidance from the Hazard Mitigation Plan to steer future Master Plan updates to incorporate mitigation into the goals and objectives, as well as in future planning decisions.
Mitigation Action Type	Local Plans and Regulations (LPR)
Goals Met	Goal 1: Protect Life and Property Goal 2: Increase Public Awareness Goal 3: Encourage Partnerships Goal 4: Provide for Emergency Services 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
Applies to existing and or new development, or not applicable	Both
Benefits (losses avoided)	High
Estimated Cost	Low – less than $10,000
Priority*	High
Plan for Implementation	
Responsible Organization	Town
Local Planning Mechanism	Hazard Mitigation
Potential Funding Sources	Municipal Budget and Staff Time
Timeline for Completion	Short Term – one to five years
Reporting on Progress	
Date of Status Report/ Report of Progress	No progress; New project

Action Number: T. Argyle - 6

Mitigation Action Name: Utilize the Hazard Mitigation Plan (HMP) when updating the Master Plan.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	0	
Legal	1	
Fiscal	1	Employee time and municipal budget
Environmental	0	
Social	0	
Administrative	1	
Multi-Hazard	1	All hazards
Timeline	1	
Agency Champion	0	
Other Community Objectives	0	
Total	9	
Priority (H/M/L)	High	

9.3 VILLAGE OF ARGYLE

This section presents the jurisdictional annex for the Village of Argyle.

9.3.1 Hazard Mitigation Plan Point of Contact

The following individuals have been identified as the hazard mitigation plan's primary and alternate points of contact.

Primary Point of Contact	Alternate Point of Contact
Wesley Clark, Mayor P.O. Box 7, Argyle, NY 518-638-8717 walgclark@juno.com	Joyann Stimpson, Clerk/Treasurer P.O. Box 7, Argyle, NY 518-955-2766 stimpsonjoyann@gmail.com

9.3.2 Municipal Profile

The Village of Argyle is located in central Washington County and is fully surrounded by the Town of Argyle. According to the 2010 Census, the population of the Village was 306. The Village has a total area of 0.4 square miles, all of which is land. The Village is located on New York State Route 40. The Moses Kill flows through the Village.

Growth/Development Trends

The following table summarizes recent residential/commercial development since 2010 to present and any known or anticipated major residential/commercial development and major infrastructure development that has been identified in the next five years within the municipality.

Table 9.3-1. Growth and Development

Property or Development Name	Type (e.g. Res., Comm.)	# of Units / Structures	Location (address and/or Parcel ID)	Known Hazard Zone(s)	Description/Status of Development
Recent Development from 2010 to present					
Vaughn Vernold	Res	1	Barkley Ave.	No	Home under construction
Known or Anticipated Development in the Next Five (5) Years					
None due to limited space in Village					

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

9.3.3 Natural Hazard Event History Specific to the Municipality

Washington County has a history of natural and non-natural hazard events as detailed in Volume I, Section 5.0 – Risk Assessment of this plan. 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. For the purpose of this plan update, events that have occurred in the County from 2008 to present were summarized to indicate the range and impact of hazard events in the community. Information regarding specific damages is included, if available, based on reference material or local sources. This information is presented in the table below. For details of these and additional events, refer to Volume I, Section 5.0 – Risk Assessment of this plan.

Table 9.3-2. Hazard Event History

Dates of Event	Event Type (FEMA Disaster Declaration if applicable)	Washington County Designated?	Summary of Damages/Losses
December 11-31, 2008	Severe Winter Storm (DR-1897)	Yes	The Village experienced a power outage as a result of this event.

Notes:

EM *Emergency Declaration (FEMA)*
FEMA *Federal Emergency Management Agency*
DR *Major Disaster Declaration (FEMA)*
IA *Individual Assistance*
N/A *Not applicable*
PA *Public Assistance*

9.3.4 Hazard Vulnerabilities and Ranking

The hazard profiles in Section 5.0 – Risk Assessment of this plan have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes the hazard vulnerabilities and their ranking in the Village of Argyle. For additional vulnerability information relevant to this jurisdiction, refer to Section 5.0 – Risk Assessment. Refer to Figure 9.3-1 later in this annex for hazard vulnerable areas located in the Village of Argyle.

Natural Hazard Risk/Vulnerability Risk Ranking

As discussed in Section 5.3 (Hazard Ranking), each participating town or village may have differing degrees of risk exposure and vulnerability compared to Washington County as a whole. Therefore, each municipality 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 Argyle. Table 9.3-12 provides proposed mitigation initiatives for the high ranked hazards.

Table 9.3-3. Hazard Risk/Vulnerability Risk Ranking

Hazard type	Estimate of Potential Dollar Losses to Structures Vulnerable to the Hazard [a, c]	Probability of Occurrence	Risk Ranking Score (Probability x Impact)	Hazard Ranking [b]
Earthquake	100-Year GBS: $3,806,001 500-Year GBS: $48,024,634 2,500-Year GBS: $331,519,714	Occasional	32	High
Flood	Damage estimate not available.	Frequent	30	Medium
Severe Weather	100-Year MRP: $288,961 500-year MRP: $2,282,736 Annualized: $16,846	Frequent	48	High
Severe Winter Weather	1% GBS: $650,432 5% GBS: $3,252,162	Frequent	51	High
Wildfire	Estimated Value in the WUI Hazard Areas: $0	Occasional	12	Low

Notes:

a. *Building damage ratio estimates based on FEMA 386-2 (August 2001)*
b. *The valuation of general building stock and loss estimates was based on custom inventory for the municipality.*
High = Total hazard priority risk ranking score of 31 and above

Medium = Total hazard priority risk ranking of 20-30+

Low = Total hazard risk ranking below 20

c. Loss estimates for the severe storm and severe winter storm hazards are structural values only and do not include the value of contents.

d Loss estimates for the flood and earthquake hazards represent both structure and contents.

e. The HAZUS-MH earthquake model results are reported by Census Tract.

f. Damage estimate for flood unavailable due to lack of digital floodplain data for Washington County.

National Flood Insurance Program (NFIP) Summary

The following table summarizes the NFIP statistics for the Village of Argyle.

Table 9.3-4. NFIP Summary

Municipality	# Policies (1)	# Claims (Losses) (1)	Total Loss Payments (2)	# Rep. Loss Prop. (1)	# Severe Rep. Loss Prop. (1)
Argyle (V)	1	1	$429	0	0

Source: FEMA, 2016

Note (1) Policies, claims, repetitive loss and severe repetitive loss statistics provided by FEMA and are current as of April 30, 2016 and are summarized by Community Name. Please note the total number of repetitive loss properties excludes the severe repetitive loss properties. The number of claims represents claims closed by 4/30/2016.

Note (2) Total building and content losses from the claims file provided by FEMA Region 2.

Note (3) The policies inside and outside of the flood zones are unavailable due to lack of digital floodplain for Washington County.

Note (4) FEMA noted that where there is more than one entry for a property, there may be more than one policy in force or more than one GIS possibility.

Critical Facilities

At the time of this HMP Update, digitized flood maps for Washington County are unavailable. In order to provide some level of beneficial analysis, a desktop analysis was performed to identify critical facilities located within the floodplain (refer to Section 5.1 [Methodology and Tools] for details). The following table identifies critical facilities located within the municipality and their exposure, if any, to the possible floodplain. This information is a resource for the municipality to determine if flood mitigation actions are appropriate based on historical events and proximity of the facility to a water body. At the time of this 2018 HMP Update, the municipality did not identify any actions associated with these facilities.

The Village of Argyle understands the limitation of the map data and once the updated maps are available, the municipality will work with Washington County to determine which critical facilities are located within the 1% and 0.2% annual chance flood zones. Once identified, the municipality will work with the property owners and develop mitigation actions for each of the critical facilities, ensuring they will be protected to the 500-year (or worst-case scenario) level.

Table 9.3-5. Potential Flood Losses to Critical Facilities

Name	Type	Potential Flood Exposure
Glens Falls National Bank	Bank	X

Source: Washington County; NYS GIS Clearinghouse

Other Vulnerabilities Identified

The Village has not identified any other vulnerabilities.

9.3.5 Capability Assessment

This section identifies the following capabilities of the local jurisdiction:

- Planning and regulatory capability
- Administrative and technical capability
- Fiscal capability
- Community classification
- National Flood Insurance Program
- Integration of mitigation planning into existing and future planning mechanisms

Planning and Regulatory Capability

The table below summarizes the regulatory tools that are available to the Village of Argyle.

Table 9.3-6. Planning and Regulatory Tools

Tool / Program (code, ordinance, plan)	Do you have this? (Yes/No) If Yes, date of adoption or update	Authority (local, county, state, federal)	Dept. /Agency Responsible	Code Citation and Comments (Code Chapter, name of plan, explanation of authority, etc.)
Planning Capability				
Master Plan	No	-	-	-
Capital Improvements Plan	No	-	-	-
Floodplain Management / Basin Plan	No	-	-	-
Stormwater Management Plan	No	-	-	-
Open Space Plan	No	-	-	-
Stream Corridor Management Plan	No	-	-	-
Watershed Management or Protection Plan	No	-	-	-
Economic Development Plan	No	-	-	-
Comprehensive Emergency Management Plan	No	-	-	-
Emergency Response Plan	No	-	-	-
Post-Disaster Recovery Plan	No	-	-	-
Transportation Plan	No	-	-	-
Strategic Recovery Planning Report	No	-	-	-
Other Plans:	No	-	-	-
Regulatory Capability				
Building Code	Yes	State and Local	Code Enforcement (County)	Building Code of New York State (NYS), Local Law #1
Zoning Ordinance	Yes	Local	Zoning Board of Appeals	Local Law #2 of 1988
Subdivision Ordinance	Yes	Local	Planning Board	Village of Argyle Subdivision Regulations 2/8/1990
NFIP Flood Damage Prevention Ordinance	Yes	Local	Mayor	Information not provided at the time of the 2018 HMP Update
NFIP: Cumulative Substantial Damages	No	-	-	-
NFIP: Freeboard	Yes	State, Local		State mandated BFE+2 for single and two-family residential construction, BFE+1 for all other construction types

Tool / Program (code, ordinance, plan)	Do you have this? (Yes/No) If Yes, date of adoption or update	Authority (local, county, state, federal)	Dept. /Agency Responsible	Code Citation and Comments (Code Chapter, name of plan, explanation of authority, etc.)
Growth Management Ordinances	No	-	-	-
Site Plan Review Requirements	No	-	-	-
Stormwater Management Ordinance	No	-	-	-
Municipal Separate Storm Sewer System (MS4)	No	-	-	-
Natural Hazard Ordinance	No	-	-	-
Post-Disaster Recovery Ordinance	No	-	-	-
Real Estate Disclosure Requirement	Yes	State	NYS Department of State, Real Estate Agent	NYS mandate, Property Condition Disclosure Act, NY Code - Article 14 §460-467
Other (Special Purpose Ordinances [i.e., sensitive areas, steep slope])	No	-	-	-

Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the Village of Argyle.

Table 9.3-7. Administrative and Technical Capabilities

Resources	Is this in place? (Yes or No)	Department/ Agency/Position
Administrative Capability		
Planning Board	Yes	Village Board
Mitigation Planning Committee	No	-
Environmental Board/Commission	No	-
Open Space Board/Committee	No	-
Economic Development Commission/Committee	No	-
Maintenance programs to reduce risk	No	-
Mutual aid agreements	No	-
Technical/Staffing Capability		
Planner(s) or engineer(s) with knowledge of land development and land management practices	No	-
Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	No	-
Planners or engineers with an understanding of natural hazards	No	-
NFIP Floodplain Administrator (FPA)	Yes	Mayor
Surveyor(s)	No	-
Personnel skilled or trained in GIS and/or Hazards United States (HAZUS) – Multi-Hazards (MH) applications	No	-
Scientist familiar with natural hazards	No	-
Emergency Manager	No	-

Resources	Is this in place? (Yes or No)	Department/ Agency/Position
Grant writer(s)	No	-
Staff with expertise or training in benefit/cost analysis	No	-
Professionals trained in conducting damage assessments	No	-

Fiscal Capability

The table below summarizes financial resources available to the Village of Argyle.

Table 9.3-8. 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	Yes
Incur debt through private activity bonds	No
Withhold public expenditures in hazard-prone areas	No
Other Federal or State Funding Programs	No
Open space acquisition funding programs	No
Other	No

Community Classifications

The table below summarizes classifications for community program available to the Village of Argyle.

Table 9.3-9. Community Classifications

Program	Do you have this? (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	6/6Y	8/27/15
NYS DEC Climate Smart Community	No	-	-
Storm Ready	No	-	-
Firewise	No	-	-
Disaster/safety programs in/for schools	No	-	-
Organizations with mitigation focus (advocacy group, non-government)	No	-	-
Public education program/outreach (through	No	-	-

Program	Do you have this? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
website, social media)			
Public-Private Partnerships	No	-	-

Note:
N/A *Not applicable*
NP *Not participating*
- *Unavailable*

The classifications listed above relate to the community's ability to provide effective services to lessen its vulnerability to the hazards identified. These classifications can be viewed as a gauge of the community's capabilities in all phases of emergency management (preparedness, response, recovery and mitigation) and are used as an underwriting parameter for determining the costs of various forms of insurance. The CRS class applies to flood insurance while the BCEGS and Public Protection classifications apply to standard property insurance. CRS classifications range on a scale of 1 to 10 with class 1 being the best possible classification, and class 10 representing no classification benefit. Firewise classifications include a higher classification when the subject property is located beyond 1000 feet of a creditable fire hydrant and is within 5 road miles of a recognized Fire Station.

Criteria for classification credits are outlined in the following documents:

- The Community Rating System Coordinators Manual
- The Building Code Effectiveness Grading Schedule website at https://www.isomitigation.com/bcegs/
- The ISO Mitigation online ISO's Public Protection website at https://www.isomitigation.com/ppc/
- The National Weather Service Storm Ready website at https://www.weather.gov/stormready/
- The National Firewise Communities website at https://www.nfpa.org/Public-Education/By-topic/Wildfire/Firewise-USA

Self-Assessment of Capability

The table below provides an approximate measure of the Village of Argyle's capability to work in a hazard-mitigation capacity and/or effectively implement hazard mitigation strategies to reduce hazard vulnerabilities.

Table 9.3-10. Self-Assessment Capability for the Municipality

Area	Degree of Hazard Mitigation Capability		
	Limited (If limited, what are your obstacles?) *	Moderate	High
Planning and Regulatory Capability	X – staff, funding		
Administrative and Technical Capability	X – staff, funding		
Fiscal capability	X – low tax base		
Community political capability	X – size		
Community resiliency capability	X – size		
Capability to Integrate Mitigation into Municipal Processes and Activities.	X – staff, funding		

National Flood Insurance Program

NFIP Floodplain Administrator (FPA)

While the Flood Damage Prevention Ordinance indicates the mayor is the FPA; Mr. Robert Henke, Town of Argyle Supervisor, provided the following information.

Flood Vulnerability Summary

The Village does not maintain lists/inventories of properties that have been damaged by flooding. During recent events, no structures were damaged within the Village. The FPA does not make any substantial damage events and none were declared during recent events. There is currently no interest in mitigation within the community.

Resources

Floodplain administration for the Village is performed by the Town of Argyle. The Village does not provide any NFIP administration services or functions or education and outreach to its residents. The Village indicated that barriers to running an effective floodplain management program include small size and lack of serious threat to flooding. The FPA would consider attending continuing education and/or certification training on floodplain management if it were offered.

Compliance History

The community is in good standing with the NFIP. Per NYS DEC, the Village of Argyle's last Community Assistance Visit was held on July 27, 1992.

Regulatory

The Village's flood damage prevention ordinance meets the minimum set by FEMA and the State. There are no additional ordinances, plans or programs the support floodplain management for the Village. The Village is currently not part of the CRS program but has considered joining and would attend a seminar if offered locally.

Integration of Hazard Mitigation into Existing and Future Planning Mechanisms

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 this planning effort, each community was surveyed to obtain a better understanding of their community's progress in plan integration. A summary is provided below. In addition, the community identified specific integration activities that will be incorporated into municipal procedures.

Planning

Land Use Planning: The Village of Argyle has a Planning Board and Zoning Board of Appeals which review all applications for development and consider natural hazard risk areas in their review. Many development activities require additional levels of environmental review, specifically NYS SEQR and Federal NEPA requirements.

Annual Water Quality Report for 2015: To comply with State regulations, the Village of Argyle (Argyle), issues an annual report describing the quality of its drinking water. The purpose of this report is to raise local understanding of drinking water and awareness and the need to protect drinking water sources. In 2014, Argyle's tap water met all State drinking water health standards that were sampled for.

Regulatory and Enforcement

Code Enforcement: Washington County provides code enforcement duties and responsibilities to the Village of Argyle.

Building/Construction Codes: The building codes are strictly enforced to make new and renovated buildings as prepared as possible for hazard related incidents. The Village complies with New York State Uniform Fire Prevention and Building Code (the Uniform Code) and the State Energy Conservation Construction Code (the Energy Code).

Sewers: The Village abides by the County-wide Sanitary Code, which protects and regulates its sewage collection and treatment facilities as a matter of public health and environmental safety. It seeks to prohibit the introduction of stormwater, surface, or sub-surface waters into sanitary sewers and to control the quantity and quality of wastes in the sewage system.

Subdivision of Land: The Village's Planning Board is authorized and empowered to approve Plats showing lots, blocks or sites, with or without streets or highways, to approve the development or entirely or partially undeveloped plats already filed in the office of the clerk of the county and to conditionally approve preliminary plats within the Village.

Zoning: The Village of Argyle's 1988 zoning code includes standards pertaining to the mitigation of hazards. While there are only three established zones, Article 6 of the code discusses supplementary regulations including those for soil erosion and runoff control standards, clear cutting, and excavation of minerals/gravel.

Fiscal

Operating Budget: The Village operating budget contains minimal provisions for expected activities like storm sewer servicing, snow removal, and street repair after a storm or natural disaster. The 2016-2017 budget also allocates $12,000 for planning services, which may relate to hazard mitigation. The annual budget also includes a separate page for the water fund revenues and expenses.

Grants: The Village received $28,000 in CHIPS grants over the 2015-2016 fiscal year, but did not project similar funding into the 2016-2017 budget.

Education and Outreach

The Village website has links to the quarterly Village newspaper, annual budget, Village Water Commission report, and NYS DEC regulations governing the use of outdoor wood boilers, among links to other regional organizations.

The Village uses the Washington County Reverse 911 (My EM App) and the Front Porch Forum to notify residents of emergency situations, including notifying water users when a boil water notice is issued. Front Porch Forum is a free community-building service in Vermont and some parts of eastern New York. The neighborhood forum is only open to the people who live there and is designed to help neighbors connect.

9.3.6 Mitigation Strategy and Prioritization

This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and prioritization.

Past Mitigation Initiative Status

The following table indicates progress on the community's mitigation strategy identified in the 2010 Plan. It should be noted that during the 2010 planning process, only general, countywide actions were identified for each municipality. The Village of Argyle reviewed the previous actions and selected actions they chose to carry forward as part of this plan update. Previous actions that are now on-going programs and capabilities are indicated as such in the following table and may also be found under 'Capability Assessment' presented previously in this annex.

Table 9.3-11. Status of Previous Mitigation Actions

2010 Mitigation Action	Responsible Party	Status (In progress, No progress, Complete)	Describe Status	Next Step (Include in 2018 HMP or Discontinue)	Describe Next Step
Improve drainage at sites where roads have washed out due to natural hazards in the past	County and NYS DHSES	No Progress	Lack of funding	Discontinue	At the time of this plan update, this action is not relevant to the Village; therefore, it will not be included in the HMP update.
Purchase equipment to provide for local personnel to conduct the drainage improvement	County and NYS DHSES	No Progress	Lack of funding	Discontinue	At the time of this plan update, this action is not relevant to the Village; therefore, it will not be included in the HMP update.
Engineering assessment to determine feasibility of each site improvement	County and NYS DHSES	No Progress	Lack of funding	Discontinue	At the time of this plan update, this action is not relevant to the Village; therefore, it will not be included in the HMP update.
Improve dams to prevent flooding causing roads to wash out.	County and NYS DHSES	No Progress	Lack of funding	Discontinue	At the time of this plan update, this action is not relevant to the Village; therefore, it will not be included in the HMP update.
Improve identified sites where slope stability is subject to land subsidence and where excavation or planting could mitigate future damage.	County and NYS DHSES	No Progress	Lack of funding	Discontinue	At the time of this plan update, this action is not relevant to the Village; therefore, it will not be included in the HMP update.

Completed Mitigation Initiatives Not Identified in the Previous Mitigation Strategy

The Village of Argyle has identified the following mitigation projects/activities that have also been completed but were not identified in the previous mitigation strategy in the 2010 Plan:

- None identified

Proposed Hazard Mitigation Initiatives for the Plan Update

The Village of Argyle participated in a mitigation action workshop in September 2016 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).

Table 9.3-12 summarizes the comprehensive-range of specific mitigation initiatives the Village of Argyle would like to pursue in the future to reduce the effects of hazards. Some of these initiatives may be previous actions carried forward for this plan update. These 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. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table below to further demonstrate the wide-range of activities and mitigation measures selected.

As discussed in Section 6 – Mitigation Strategy, 14 evaluation/prioritization criteria are used 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 your actions as 'High', 'Medium', or 'Low.' The table below summarizes the evaluation of each mitigation initiative, listed by Action Number.

Table 9.3-13 provides a summary of the prioritization of all proposed mitigation initiatives for the Plan update.

Table 9.3-12. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals and Objectives Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
V. Argyle-1	Review the Village's current Flood Damage Prevention Ordinance, and update as necessary to consider and address: • Compliance with the latest model Flood Damage Prevention Ordinances. To request the Model Flood Damage Prevention Law appropriate for your community, please contact the DEC Floodplain Management Section at 518-402-8185 or at floodplain.floodplain@dec.ny.gov. • Proper identification of the local NFIP Floodplain Administrator. Establish a Memorandum of Agreement (MOA) with the County if the County is to formally assume the responsibilities of administering the duties of local floodplain administration. • Reference current regulatory NFIP floodplain mapping, which is currently in an active update process (2016-2017).											
	See above	New and Existing	Flood	All	Village and FPA	Medium	Low	Municipal Budget	Ongoing	High	LPR	PR
V. Argyle-2	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.	Existing	All	3	Village Board	High	Low	Municipal Budget	Short Term	Medium	EAP	PI

Notes:

Not all acronyms and abbreviations defined below are included in the table.

**Does this mitigation initiative reduce the effects of hazards on new and/or existing buildings and/or infrastructure? Not applicable (N/A) is inserted if this does not apply.*

Acronyms and Abbreviations:

CAV	*Community Assistance Visit*
CRS	*Community Rating System*
DPW	*Department of Public Works*
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*
PDM	*Pre-Disaster Mitigation Grant Program*
RFC	*Repetitive Flood Claims Grant Program (discontinued in 2015)*
SRL	*Severe Repetitive Loss Grant Program (discontinued in 2015)*

Timeline:

Short	*1 to 5 years*
Long Term	*5 years or greater*
OG	*On-going program*
DOF	*Depending on funding*

Costs:

Where actual project costs have been reasonably estimated:

Low	*< $10,000*
Medium	*$10,000 to $100,000*
High	*> $100,000*

Benefits:

Where possible, an estimate of project benefits (per FEMA's benefit calculation methodology) has been evaluated against the project costs, and is presented as:

Low=	*< $10,000*
Medium	*$10,000 to $100,000*
High	*> $100,000*

Costs:

Where actual project costs cannot reasonably be established at this time:

Low *Possible to fund under existing budget. Project is part of, or can be part of an existing on-going program.*

Medium *Could budget for under existing work plan, but would require a reapportionment of the budget or a budget amendment, or the cost of the project would have to be spread over multiple years.*

High *Would require an increase in revenue via an alternative source (i.e., bonds, grants, fee increases) to implement. Existing funding levels are not adequate to cover the costs of the proposed project.*

Benefits:

Where numerical project benefits cannot reasonably be established at this time:

Low *Long-term benefits of the project are difficult to quantify in the short term.*

Medium *Project will have a long-term impact on the reduction of risk exposure to life and property, or project will provide an immediate reduction in the risk exposure to property.*

High *Project will have an immediate impact on the reduction of risk exposure to life and property.*

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*

Table 9.3-13. Summary of Prioritization of Actions

Mitigation Action/Project Number	Mitigation Action/Initiative	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
V. Argyle-1	Review the Village's current Flood Damage Prevention Ordinance, and update as necessary	1	1	1	1	0	0	1	1	1	1	1	0	1	0	10	High
V. Argyle-2	Conduct education and outreach to residents and business owners to inform them if their properties are in known hazard areas	1	1	1	1	0	1	0	0	0	1	0	0	0	0	6	Medium

Note: Refer to Section 6 – Mitigation Strategy, which conveys guidance on prioritizing mitigation actions.

9.3.7 Future Needs To Better Understand Risk/Vulnerability

None at this time.

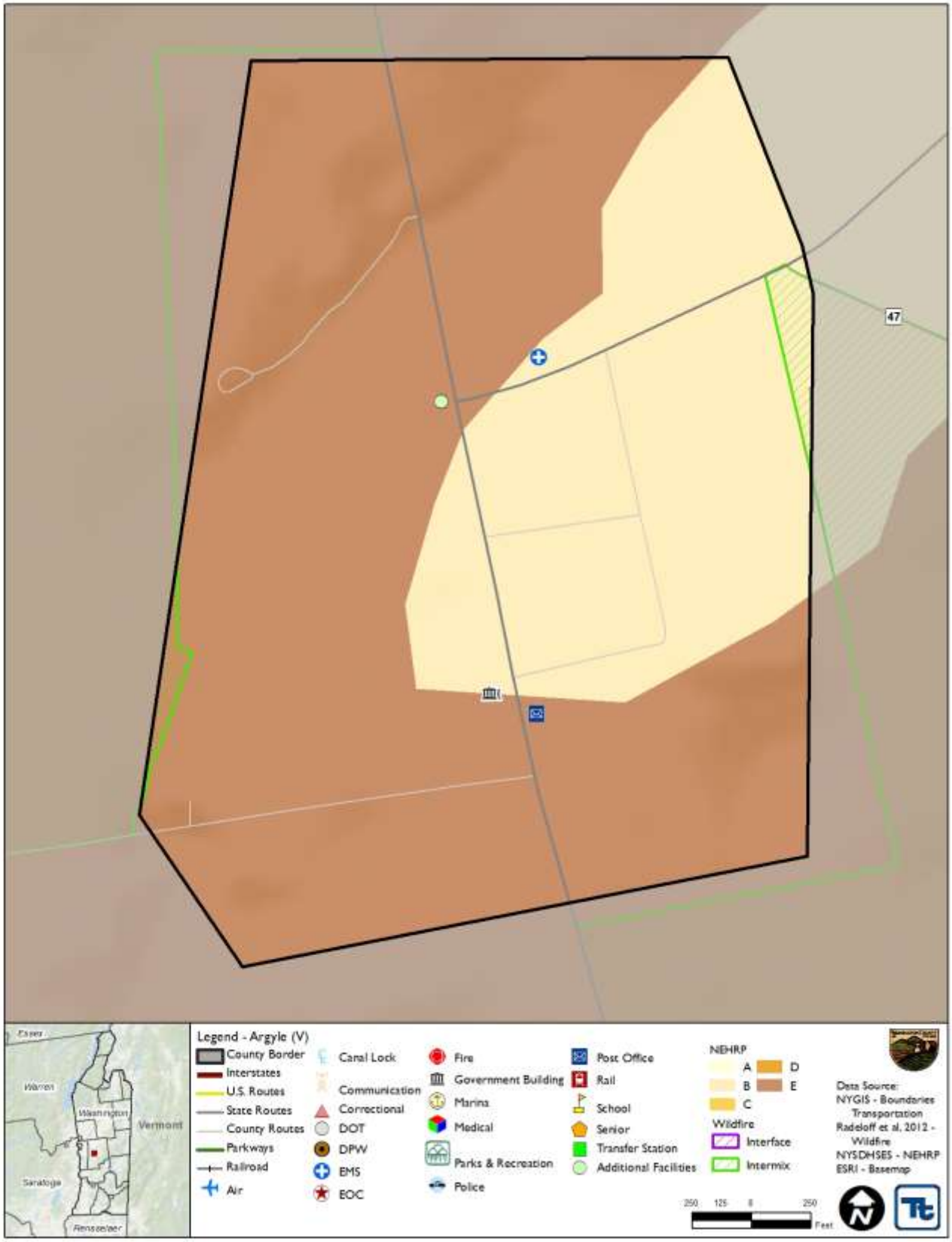
9.3.8 Hazard Area Extent and Location

Hazard area extent and location maps have been generated for the Village of Argyle that illustrate the probable areas impacted within the municipality. These maps are based on the best available data at the time of the preparation of this plan, and are considered to be adequate for planning purposes. Maps have only been generated for those hazards that can be clearly identified using mapping techniques and technologies, and for which the Village of Argyle has significant exposure. These maps are illustrated in the hazard profiles within Section 5.4 – Hazard Profiles, Volume I of this Plan.

9.3.9 Additional Comments

None at this time.

Figure 9.3-1. Village of Argyle Hazard Area Extent and Location



Action Number: V. Argyle-1

Mitigation Action Name: Review the Village's current Flood Damage Prevention Ordinance, and update as necessary.

Assessing the Risk	
Hazard(s) addressed:	Flood
Specific problem being mitigated:	Current floodplain management ordinance could be out of date and less effective than current regulations require.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Exceed FEMA standards for Flood Damage Prevention Ordinance – not interested at this time.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Items to be addressed during the review include: 1) Compliance with the latest model Flood Damage Prevention Ordinances. To request the Model Flood Damage Prevention Law appropriate for the community, contact the DEC Floodplain Management Section at 518-402-8185 or at floodplain.floodplain@dec.ny.gov. 2) Proper identification of the local National Flood Insurance Program (NFIP) Floodplain Administrator. 3) Establish a Memorandum of Agreement (MOA) with the County if the County is to formally assume the responsibilities of administering the duties of local floodplain administration. 4) Reference current regulatory NFIP floodplain mapping, which is currently in an active update process (2016-2017).
Mitigation Action Type	Local Plans and Regulations (LPR)
Goals Met	All
Applies to existing and or new development, or not applicable	Both
Benefits (losses avoided)	Medium
Estimated Cost	Low
Priority*	High
Plan for Implementation	
Responsible Organization	Village Board and Floodplain Administrator
Local Planning Mechanism	Hazard Mitigation
Potential Funding Sources	Municipal Budget
Timeline for Completion	Ongoing
Reporting on Progress	
Date of Status Report/ Report of Progress	No progress; new project

Action Number: V. Argyle-1

Mitigation Action Name: Review the Village's current Flood Damage Prevention Ordinance, and update as necessary.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	0	
Legal	0	
Fiscal	1	Municipal staff time and budget
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	1	
Timeline	0	
Agency Champion	1	
Other Community Objectives	0	
Total	10	
Priority (H/M/L)	High	

Action Number: V. Argyle-2

Mitigation Action Name: Conduct education and outreach to residents and business owners to inform them if their properties are in known hazard areas.

Assessing the Risk	
Hazard(s) addressed:	All
Specific problem being mitigated:	Many residents and business owners could be located within hazard areas and not be aware of the fact.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Rely on outside groups to conduct public outreach – may not be sustainable or at high enough standards.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Support and information regarding hazard vulnerability and mitigation opportunities will be provided to residents and business owners located within the hazard areas.
Mitigation Action Type	Education and Awareness Programs (EAP)
Goals Met	3
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	High
Estimated Cost	Low
Priority*	Medium
Plan for Implementation	
Responsible Organization	Village Board
Local Planning Mechanism	Hazard Mitigation; Public Education
Potential Funding Sources	Municipal Budget
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	No progress; new project

Action Number: V. Argyle-2

Mitigation Action Name: Conduct education and outreach to residents and business owners to inform them if their properties are in known hazard areas.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	0	
Legal	1	
Fiscal	0	Municipal budget
Environmental	0	
Social	0	
Administrative	1	
Multi-Hazard	0	
Timeline	0	To be completed in next five years; however, depends on funding
Agency Champion	0	
Other Community Objectives	0	
Total	6	
Priority (H/M/L)	Medium	

9.4 TOWN OF CAMBRIDGE

This section presents the jurisdictional annex for the Town of Cambridge.

9.4.1 Hazard Mitigation Plan Point of Contact

The following individuals have been identified as the hazard mitigation plan's primary and alternate points of contact.

Primary Point of Contact	Alternate Point of Contact
Jim Buckley, Jr., Highway Superintendent 846 County Route 59, Cambridge, NY 518-378-8738	Catherine (Cassie) Fedler, Town Supervisor 846 County Route 59, Cambridge, NY (518) 796-1877 cfedler@co.washington.ny.us

9.4.2 Municipal Profile

The Town of Cambridge is in southern Washington County, sharing part of its southern border with Rensselaer County. The town has a total area of 36.5 square miles, of which 0.1 square miles is water. Significant waterways in the Town include the Hoosic River, Wampecack Creek, Pencil Brook, and Whipple Brook.

Cambridge is an agricultural town with a population of about 2,000 and falling – according to the 2010 Census, the community's population was 2,021. The population has shrunk by about 8.5% in the last 10 years, with almost no business district or development. Most of the village of Cambridge is in the township of White Creek, and many of the "Cambridge" addresses are either in White Creek or the Town of Jackson. The Town of Cambridge covers an area of 36.5 square miles and has 64 center-line miles of town roads, 47.6 of them paved, the rest gravel, and 19.5 centerline miles of County Road. State Route 372 forms most of the north-east border and then crosses through for about 1.5 miles.

Growth/Development Trends

The Town of Cambridge did not note any recent residential/commercial development since 2010 or any major residential or commercial development, or major infrastructure development planned for the next five years in the municipality.

Table 9.4-1. Growth and Development

Property or Development Name	Type (e.g. Res., Comm.)	# of Units / Structures	Location (address and/or Parcel ID)	Known Hazard Zone(s)	Description/Status of Development
Recent Development from 2010 to present					
None identified by the municipality.					
Known or Anticipated Development in the Next Five (5) Years					
None identified by the municipality.					

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

9.4.3 Natural Hazard Event History Specific to the Municipality

Washington County has a history of natural and non-natural hazard events as detailed in Volume I, Section 5.0 of this plan. 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. For the purpose of this plan update, events that have occurred in the County from 2008 to present were summarized to indicate the range and

impact of hazard events in the community. Information regarding specific damages is included, if available, based on reference material or local sources. This information is presented in the table below. For details of these and additional events, refer to Volume I, Section 5.0 of this plan.

Table 9.4-2. Hazard Event History

Dates of Event	Event Type (FEMA Disaster Declaration if applicable)	Washington County Designated?	Summary of Damages/Losses
December 11-31, 2008	Severe Winter Storm DR-1827	Yes	A significant mixture of snow, sleet and freezing rain occurred from Thursday evening, into midday Friday. Snow and sleet accumulations of 2 to 5 inches, along with ice accretion of around one-half inch, led to numerous reports of trees and power lines down.
August 26-September 5, 2011	Hurricane/T.S. Irene DR-4020	Yes	Major flooding occurred on the Hoosic River in the Oak Hill section of Cambridge at the southern end of town. The Eagle Bridge river gage located on the right bank 0.5 miles upstream from Case Brook, 1.2 miles downstream from Walloomsac River, and 1.2 miles southeast of Eagle Bridge exceeded its 11-foot flood stage at 1:31 pm EST August 28th, its 13-foot moderate flood stage at 3:43 pm, its 16-foot major flood stage at 6:31 pm, it crested at 19.24 feet at 12:30 am August 29th, and dropped below flood stage at 2:29 pm August 29th.
October 27-November 8, 2012	Hurricane/T.S. Sandy EM-3351	Yes	Trees and wires were reported down due to high winds in the Town of Cambridge. One of the trees landed on a vehicle in Cambridge, but no injuries occurred.
February 29, 2016	Strong Winds	N/A	A few town roads experienced washouts, and the Town highway crew brought in 2 loads of gravel, but no major damage was reported.

Notes:

EM *Emergency Declaration (FEMA)*
FEMA *Federal Emergency Management Agency*
DR *Major Disaster Declaration (FEMA)*
N/A *Not applicable*

9.4.4 Hazard Vulnerabilities and Ranking

The hazard profiles in Section 5.0 of this plan have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes the hazard vulnerabilities and their ranking in the Town of Cambridge. For additional vulnerability information relevant to this jurisdiction, refer to Section 5.0.

Natural Hazard Risk/Vulnerability Risk Ranking

As discussed in Section 5.3 (Hazard Ranking), each participating town or village may have differing degrees of risk exposure and vulnerability compared to Washington County as a whole. Therefore, each municipality 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 Cambridge. Table 9.4-12 provides proposed mitigation initiatives for the high ranked hazards.

Table 9.4-3. Hazard Risk/Vulnerability Risk Ranking

Hazard type	Estimate of Potential Dollar Losses to Structures Vulnerable to the Hazard [a, c]	Probability of Occurrence	Risk Ranking Score (Probability x Impact)	Hazard Ranking [b]

Hazard type	Estimate of Potential Dollar Losses to Structures Vulnerable to the Hazard [a, c]	Probability of Occurrence	Risk Ranking Score (Probability x Impact)	Hazard Ranking [b]
Earthquake	100-Year GBS: $0 500-Year GBS: $2,100,840 2,500-Year GBS: $21,010,698	Occasional	28	Medium
Flood	Damage estimate not available.	Frequent	21	Medium
Severe Weather	100-Year MRP: $25,242 500-year MRP: $256,819 Annualized: $1,665	Frequent	48	High
Severe Winter Weather	1% GBS: $3,219,426 5% GBS: $16,097,132	Frequent	51	High
Wildfire	Estimated Value in the WUI Hazard Areas: $172,825,191	Frequent	42	High

Notes:

a. Building damage ratio estimates based on FEMA 386-2 (August 2001)

b. The valuation of general building stock and loss estimates was based on custom inventory for the municipality.
High = Total hazard priority risk ranking score of 31 and above
Medium = Total hazard priority risk ranking of 20-30+
Low = Total hazard risk ranking below 20

c. Loss estimates for the severe storm and severe winter storm hazards are structural values only and do not include the value of contents.

d Loss estimates for the flood and earthquake hazards represent both structure and contents.

e. The HAZUS-MH earthquake model results are reported by Census Tract.

f. Damage estimate for flood unavailable due to lack of digital floodplain data for Washington County.

National Flood Insurance Program (NFIP) Summary

The following table summarizes the NFIP statistics for the Town of Cambridge.

Table 9.4-4. NFIP Summary

Municipality	# Policies (1)	# Claims (Losses) (1)	Total Loss Payments (2)	# Rep. Loss Prop. (1)	Severe Rep. Loss Prop. (1)
Cambridge (T)	1	0	0	0	0

Source: FEMA, 2016

Note (1) Policies, claims, repetitive loss and severe repetitive loss statistics provided by FEMA and are current as of April 30, 2016 and are summarized by Community Name. Please note the total number of repetitive loss properties excludes the severe repetitive loss properties. The number of claims represents claims closed by 4/30/2016.

Note (2) Total building and content losses from the claims file provided by FEMA Region 2.

Note (3) The policies inside and outside of the flood zones are unavailable due to lack of digital floodplain for Washington County.

Note (4) FEMA noted that where there is more than one entry for a property, there may be more than one policy in force or more than one GIS possibility.

Critical Facilities

At the time of this HMP Update, digitized flood maps for Washington County are unavailable. In order to provide some level of beneficial analysis, a desktop analysis was performed to identify critical facilities located within the floodplain (refer to Section 5.1 [Methodology and Tools] for details). The following table identifies critical facilities located within the municipality and their exposure, if any, to the possible floodplain. This information is a resource for the municipality to determine if flood mitigation actions are appropriate based on historical events and proximity of the facility to a water body. At the time of this 2018 HMP Update, the municipality did not identify any actions associated with these facilities.

The Town of Cambridge understands the limitation of the map data and once the updated maps are available, the municipality will work with Washington County to determine which critical facilities are located within the 1% and 0.2% annual chance flood zones. Once identified, the municipality will work with the property owners and develop mitigation actions for each of the critical facilities, ensuring they will be protected to the 500-year (or worst-case scenario) level.

Table 9.4-5. Potential Flood Losses to Critical Facilities

Name	Type	Potential Flood Exposure
None identified		

Source: Washington County; NYS GIS Clearinghouse

Other Vulnerabilities Identified

The municipality has identified the following vulnerabilities within their community:

- The town lacks strong administrative and regulatory support for hazard mitigation. The planning board has little control over development, partly because the town has no zoning ordinance, but residents have expressed strong opposition towards the comprehensive planning activities over the years. However, the Town is not experiencing any development pressure, but rather is seeing a shrinking population, resulting in vacant houses and a shrinking tax base. As a result of these factors, hazard mitigation activities are accomplished operationally thorough routine DPW/highway department functions, including street cleaning, tree trimming, and debris removal.
- The Town of Cambridge has many slopes, and water runs from the top of the hill to the bottom of the hill.
- The town Highway Department completes street and infrastructure maintenance regularly. During heavy storms, culverts sometimes plug and road shoulders wash out, and the town repairs or replacements them. When there is a need to replace a culvert and the size can be increased, the Town will put a bigger one in. The town will also trim or re trees before major storms, if the trees or tree limbs are hanging down over the road and appear likely to come down in the next storm.
- There are three locations where culverts pose regular problems, where there is insufficient space to increase the culvert size.
    - English Rd., where there is a driveway culvert above a silage trench and another below it. Mud, slop and silage from the trench is tracked out into the road where it ends up in the ditch and then, the culverts. During winter extra snow, mixed with the same debris is pushed into the ditch as well increasing problem. The Highway department attempts to keep these culverts clear but sometimes gets behind. Attempts to change habits of the landowners have been unsuccessful.
    - Tingue Rd., a cross culvert with a history of beaver problems. During heavy run off debris would sometimes wash up against the beaver gate (a steel panel that keeps the beavers from building their dam inside of the culvert) and restrict the flow enough for the water to build up and cross the road. As Tingue is gravel the running water would cause surface erosion. Beavers are currently under control (removed) and beaver gate is not in place. Culvert was also replaced and improved this year.
    - Tingue Rd., 2 driveway culverts at the bottom of a VERY steep hill. Gravel washes off of road during rains and build up in culverts restricting flow. Ditches were dug wider and culverts were flushed this summer. A possible solution is to pave this hill. This is not a very reasonable solution though, as the road sees very little traffic, especially on that end, and there are only 5 residences, 2 of which are merely vacation homes that are only used a couple of weeks per year.
- Major problem is down on Turnpike Rd.at the Old McClellan dam at Thurber Pond. The dam is on private property, and needs to be looked at. Currently, the Town does get in there to clean it off

periodically (which may increase their liability in the event of a failure, since they are basically maintaining it.) It holds a 5-6-acre pond, plus has the entire watershed behind it. The dam is in the Town of Cambridge, but a few hundred feet downstream is the Town of White Creek, so they are just as vulnerable. A dam failure may not take out the road in the Town of Cambridge, but it would probably impact White Creek. If it fails, White Creek could lose Turnpike Rd., Owl Kill Rd., maybe some of Rt 22.

  - This issue calls for an engineering study to look at the hydrology and hydraulics of the area. Also, potentially need a project to evaluate the structural condition of the dam.

- Flooding of creeks persists in town, and the town is constrained by regulations that prohibit them from going in and cleaning out debris. People want to live next to the brook, but they don't want it to flood. Flood damage reduction study needed to look at the hydrology and hydraulics of the area and propose flood mitigation solutions.
- The Town does have a beaver problem in places, but the Highway Department is vigilant about keeping the beaver dams under control. There are some beaver dams that could potentially be a problem that are well away from the roadway. There may even be some that are where the Highway Department cannot see and thus are not aware of.
- There are two man-made dams in the town, both of which are on private property. One of these, on Turnpike Road, also has a beaver problem. The dam seems very solid and even though it is away from the road, the Highway Department endeavors to keep the spill-way clear of the beaver dam. In addition, the County engineer inspected the culvert on Turnpike Road and said it was of adequate size and in good condition.
  The other dam, on Stump Church Road, is nearer to the roadway and in very poor condition. The spillway gate is kept completely open to minimize pressure on the retaining wall. If this dam fails (the retaining walls tip out), it could partially, or in an extreme case, fully block the bridge next to it. There is a culvert just along the road from the bridge that would handle most, if not all, of the normal flow of the water. The spillway gate is completely open so there would not be a large volume of water held back to create a flood surge. If the dam failed during a large storm, and caused a blockage of a serious degree to the bridge, there would probably be flooding of the roadway. In the past, when the dams were full, and before the extra culvert was added nearby, the road has flooded during heavy rains or rapid snow melt. But, the water spreads wide enough before it crosses the roadway that there has never been a damage problem, just an inconvenience issue.

9.4.5 Capability Assessment

This section identifies the following capabilities of the local jurisdiction:

- Planning and regulatory capability
- Administrative and technical capability
- Fiscal capability
- Community classification
- National Flood Insurance Program
- Integration of mitigation planning into existing and future planning mechanisms

Planning and Regulatory Capability

The table below summarizes the regulatory tools that are available to the Town of Cambridge.

Table 9.4-6. Planning and Regulatory Tools

Tool / Program (code, ordinance, plan)	Do you have this? (Yes/No) If Yes, date of adoption or update	Authority (local, county, state, federal)	Dept. /Agency Responsible	Code Citation and Comments (Code Chapter, name of plan, explanation of authority, etc.)
Planning Capability				
Master Plan	No	-	-	-
Capital Improvements Plan	No	-	-	-
Floodplain Management / Basin Plan	No	-	-	-
Stormwater Management Plan	No	-	-	-
Open Space Plan	No	-	-	-
Stream Corridor Management Plan	No	-	-	-
Watershed Management or Protection Plan	No	-	-	-
Local Waterfront Revitalization Plan	No	-	-	-
Economic Development Plan	No	-	-	-
Comprehensive Emergency Management Plan	-	-	-	Town Hall and Highway Garage Designated Emergency Shelters
Emergency Response/Operations Plan	-	-	-	Highway Department
Post-Disaster Recovery Plan	-	-	-	Shared Services
Transportation Plan	No	-	-	-
Strategic Recovery Planning Report	No	-	-	-
Other Plans:	No	-	-	-
Regulatory Capability				
Building Code	Yes	State, Local	Code Enforcement Officer	New York State Uniform Fire Prevention and Building Code and State Energy Conservation Construction Code
Zoning Ordinance	No	-	-	-
Subdivision Ordinance	No	-	-	-
NFIP Flood Damage Prevention Ordinance	Yes	Federal, State, Local	Town Supervisor	Local Law #1 of 1987 (Amendment to Local Law #2 of 1984)
NFIP: Freeboard	Yes	State, Local	Code Enforcement Officer	State mandated BFE+2 for single and two-family residential construction, BFE+1 for all other construction types
NFIP: Cumulative Substantial Damages	No	-	-	-
Growth Management Ordinances	No	-	-	-
Site Plan Review Requirements	No	-	-	-
Stormwater Management Ordinance	No	-	-	-
Municipal Separate Storm Sewer System (MS4)	No	-	-	-
Natural Hazard Ordinance	No	-	-	-
Post-Disaster Recovery Ordinance	No	-	-	-

Tool / Program (code, ordinance, plan)	Do you have this? (Yes/No) If Yes, date of adoption or update	Authority (local, county, state, federal)	Dept. /Agency Responsible	Code Citation and Comments (Code Chapter, name of plan, explanation of authority, etc.)
Real Estate Disclosure Requirement	Yes	State	NYS Department of State, Real Estate Agent	NYS mandate, Property Condition Disclosure Act, NY Code - Article 14 §460-467
Other (Special Purpose Ordinances [i.e., sensitive areas, steep slope])	No	-	-	-

Administrative and Technical Capability

The Town of Cambridge has a local government consisting of a Supervisor, Clerk to the supervisor, four Town Board members, Town Clerk, Assessor, and Judge. There is a Building Code Enforcement Officer, who is also Flood Plain Administrator, and a five-member Planning Board. There is a highway crew of four, plus the Superintendent. The town has access to County engineers for technical help if necessary. Shared services with other townships and the Village of Cambridge are also in effect.

The table below summarizes potential staff and personnel resources available to the Town of Cambridge.

Table 9.4-7. Administrative and Technical Capabilities

Resources	Is this in place? (Yes or No)	Department/ Agency/Position
Administrative Capability		
Planning Board	Yes	Planning Board
Mitigation Planning Committee	No	-
Environmental Board/Commission	No	-
Open Space Board/Committee	No	-
Economic Development Commission/Committee	No	-
Maintenance programs to reduce risk	Yes	Highway Department
Mutual aid agreements	Yes	Local Highway Department Shared Services
Technical/Staffing Capability		
Planner(s) or engineer(s) with knowledge of land development and land management practices	No	Soil Conservation Services
Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	No	County Engineers
Planners or engineers with an understanding of natural hazards	No	However, highway department staff have job descriptions that specifically include identifying and/or implementing mitigation projects/actions or other efforts to reduce natural hazard risk
NFIP Floodplain Administrator (FPA)	Yes	Town Supervisor
Surveyor(s)	No	-
Personnel skilled or trained in GIS and/or Hazards United States (HAZUS) – Multi-Hazards (MH) applications	No	County Engineers
Scientist familiar with natural hazards	No	-
Emergency Manager		Highway Superintendent/Town Supervisor

Resources	Is this in place? (Yes or No)	Department/ Agency/Position
Grant writer(s)	No	-
Staff with expertise or training in benefit/cost analysis	No	-
Professionals trained in conducting damage assessments	No	Depending on the damage, County Engineers, Insurance Adjusters, Highway Superintendent

Fiscal Capability

The table below summarizes financial resources available to the Town of Cambridge.

Table 9.4-8. Fiscal Capabilities

Financial Resources	Accessible or Eligible to Use (Yes/No)
Community development Block Grants (CDBG, CDBG-DR)	No
Capital improvements project funding	CHIPS
Authority to levy taxes for specific purposes	No
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 – Bond Anticipation Note
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	Pave N.Y.
Open Space Acquisition funding programs	No
Other	No

Community Classifications

The table below summarizes classifications for community program available to the Town of Cambridge.

Table 9.4-9. Community Classifications

Program	Do you have this? (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	7/7Y	5/1/17
NYSDEC Climate Smart Community	No		
Storm Ready	No	-	-
Firewise	No	-	-
Disaster/safety programs in/for schools	No	-	-
Organizations with mitigation focus (advocacy group, non-government)	No	-	-
Public education program/outreach (through	No	-	-

Program	Do you have this? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
website, social media)			
Public-Private Partnerships	No	-	-

Note:
N/A *Not applicable*
NP *Not participating*
- *Unavailable*

The classifications listed above relate to the community's ability to provide effective services to lessen its vulnerability to the hazards identified. These classifications can be viewed as a gauge of the community's capabilities in all phases of emergency management (preparedness, response, recovery and mitigation) and are used as an underwriting parameter for determining the costs of various forms of insurance. The CRS class applies to flood insurance while the BCEGS and Public Protection classifications apply to standard property insurance. CRS classifications range on a scale of 1 to 10 with class 1 being the best possible classification, and class 10 representing no classification benefit. Firewise classifications include a higher classification when the subject property is located beyond 1000 feet of a creditable fire hydrant and is within 5 road miles of a recognized Fire Station.

Criteria for classification credits are outlined in the following documents:

- The Community Rating System Coordinators Manual
- The Building Code Effectiveness Grading Schedule website at https://www.isomitigation.com/bcegs/
- The ISO Mitigation online ISO's Public Protection website at https://www.isomitigation.com/ppc/
- The National Weather Service Storm Ready website at https://www.weather.gov/stormready/
- The National Firewise Communities website at https://www.nfpa.org/Public-Education/By-topic/Wildfire/Firewise-USA

Self-Assessment of Capability

The table below provides an approximate measure of the Town of Cambridge's capability to work in a hazard-mitigation capacity and/or effectively implement hazard mitigation strategies to reduce hazard vulnerabilities.

Table 9.4-10. Self-Assessment Capability for the Municipality

Area	Degree of Hazard Mitigation Capability		
	Limited (If limited, what are your obstacles?)	Moderate	High
Planning and regulatory capability	Lack of Personnel		
Administrative and technical capability	Lack of Personnel		
Fiscal capability	Tax Base		
Community political capability		X	
Community resiliency capability			X
Capability to integrate mitigation into municipal processes and activities		X	

National Flood Insurance Program

NFIP Floodplain Administrator (FPA)

While the Flood Damage Prevention Ordinance indicates that the town supervisor is the FPA; LaVerne Davis, the Building Code Enforcement Officer, provided the following information.

Flood Vulnerability Summary

The only real flood area is along the Hoosick River, between the river and County Route 59. There are no houses in this area. It is pasture, woods, and some cropland. Most of the water in Cambridge runs off instead of ponding, and ends up in the neighboring townships. There are some wetlands in the town, but, they are constant marsh, so no structures are built in them.

The Town of Cambridge is hilly and the speed at which run off water travels is as much of a concern as the volume. Especially where farmers have removed hedgerows to enlarge fields. Hedgerows create barriers that slow run off and help hold soil in place, instead of in the ditches, and culverts, and sometimes the roadways, when it is washed out through the entrance way to a field. This steepness is what also causes leaves, branches, limbs, and even trees, to sometimes wash down from the woods and cause ditch and culvert blockages.

The Town maintains informal lists/inventories/knowledge of properties that have been flood damaged, but does not make substantial damage estimates. No Town residents have approached the Town with interest in mitigation activities, and the Town is unaware of any ongoing mitigation projects within the town.

Resources

The responsibilities of floodplain administration in the Town of Cambridge currently lies with the Building Code Enforcement Officer. The primary responsibilities of the Town FPA are completing site visits, inspections, etc., and reviewing permits to determine if a development is within the SFHA. There are currently no education or outreach programs to the community regarding flood hazards/risk, and flood risk reduction through NFIP insurance, mitigation, etc.

Compliance History

The community is in good standing with the NFIP. According to NYS DEC, the date of the most recent compliance audit is January 3, 2013.

Regulatory

The Town Flood Damage Prevention ordinance meets, but does not exceed the FEMA and State minimum requirements. The Town Planning Board reviews the location of all subdivisions relative to flood potential.

Integration of Hazard Mitigation into Existing and Future Planning Mechanisms

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 this planning effort, each community was surveyed to obtain a better understanding of their community's progress in plan integration. A summary is provided below. In addition, the community identified specific integration activities that will be incorporated into municipal procedures.

Planning

Land Use Planning: The Town of Cambridge does not have Zoning, a Comprehensive Plan, or Site Plan Review. There is, however, a Planning Board and a Building Code Enforcement Officer. The Planning Board reviews development and subdivision permit applications, Environmental Assessment Form.

Town codes and planning documents including the Building and Property Regulation and Building and Construction (Regulation Inspection) are available at the Town Clerks office.

With almost no business and a dwindling population, the Town of Cambridge needs to attract, not repel, business and people. In 2008 a Comprehensive Plan was proposed. It was a long and cumbersome document that was not well received by the community, as the majority of residents felt that it was invasive and unnecessary. The proposal created very serious tension in the township between the pro and anti-plan factions. The Town Board and Supervisor of the time were insistent about adopting the plan and only intensified the fight and got themselves voted out of office.

Before the Comprehensive plan proposal was finally put to rest, the friction was so intense and the attendance at Town Board meeting so large, that a police presence was required. The Anti-Plan group significantly out-numbered the plan's supporters. The end result of the Comprehensive Planning effort is that the mere mention of any regulation of this sort is enough to create another uprising. It may be many years, or a generation, before this type of regulation will be considered again. People have lived in this area for a long time, and have done so sensibly, and for the most part, with respect to their neighbors.

Regulatory and Enforcement

Construction Codes, Uniform: The building codes are strictly enforced to make new and renovated buildings as prepared as possible for hazard related incidents. The Town complies with New York State Uniform Fire Prevention and Building Code (the Uniform Code) and the State Energy Conservation Construction Code (the Energy Code).

Flood Damage Prevention: The Town of Cambridge has a Law pertaining to the building of structures in potential flood areas. Local Law #1 of 1987 promotes the public health, safety, and general welfare of residents and seeks to minimize public and private losses due to flood conditions. It regulates development to promote flood resistant structures and controls the alteration of floodplains to prevent increased vulnerability. During the update of the next flood damage prevention law, the identified floodplain administrator will be updated accordingly.

Sewers: The Town abides by the County-wide Sanitary Code, which protects and regulates its sewage collection and treatment facilities as a matter of public health and environmental safety. It seeks to prohibit the introduction of stormwater, surface, or sub-surface waters into sanitary sewers and to control the quantity and quality of wastes in the sewage system. The Town has no municipal sewer system – all properties are on private systems.

Subdivision of Land: The Town's Planning Board is tasked with subdivision review. The Planning Board pays special attention to ensure that developments mitigate the issues associated natural hazards.

Administrative / Technical

As part of its ongoing operations, the town conducts hazard management programs such as tree trimming, culvert replacement and maintenance, ditch work, road maintenance, and beaver dam removal. The Highway Department operates with the idea of storm damage mitigation as standard procedure. Culverts are always assessed by the Highway Department before replacing, as whether they should be improved upon as far as size, style, or both. Ditches and roadway shoulders are maintained, and tried to be kept clear of debris. The trimming of trees and the cutting of brush along the roadsides is a constant and ongoing process. Still, sometimes debris will wash down out of the woods or fields and cause partial or full blockage of a ditch or culvert.

Roadways, both gravel and black top are kept in good condition. During winter the roads are plowed, and wings are used to keep the snow banks back as far from the driving lanes as possible. A sand and salt mix are applied to the roads. The sand to salt ratio varies to match the weather conditions. There are monetary restraints due to the size of the tax base and budget, but, we do very well with what we have.

Highway department staff have job descriptions that specifically include identifying and/or implementing mitigation projects/actions or other efforts to reduce natural hazard risk. Depending on the extent of damage from an event, local insurance adjusters or the Highway Superintendent can perform Substantial Damage Estimates.

The Town participates in the Association of Towns, a membership which supports natural hazard risk reduction and builds hazard management capabilities.

Town staff would benefit from benefit from additional training and/or certification with respect to natural hazard risk management.

Fiscal

Operating Budget: The Town of Cambridge has a total budget of less than $1,000,000.00 with a Highway Department working budget of less than $220,000.00 plus salaries and benefits. The Town has a machinery fund to try to keep trucks and machinery relatively current, and the CHIPS and Pave NY money for paving the roads is about $185,000.00 for 2016.

The Town Board (also known as the Town Council) is responsible for all legislation, adoption of town budgets, and personnel matters. The Town Supervisor publishes a monthly Supervisors Report listing general town income and expenses. The Town's operating budget contains minimal provisions for expected repairs like snow removal, road salting, brush trimming, and general repairs on Town-owned equipment and facilities. The Town also allots funding to maintain the 64.04 miles of town highways.

Grants: Moneys levied and collected for repair and improvement of highways, and received from the state for the repair and improvement of highways.

Education and Outreach

The Town Website Committee developed www.townofcambridgeny.org as a resource for the local community. Links to Cambridge EMS, and NYS DEC Q&A page on open burning.

Town employees attend local and regional training events, when available, such as NYSERDA training for Planning and Zoning Boards on Planning/Permitting/Zoning for Solar. Town Highway staff gets training or continuing professional education which supports natural hazard risk reduction, and similar trainings are offered at the local schools. The Town budget also includes line items for the Town Clerk and Highway Superintendent to attend annual conferences.

Cambridge is a sensible town, with, for the most part, a resilient population. If a road is temporarily closed for any reason, they know enough to go around and deal with the situation until it is rectified.

9.4.6 Mitigation Strategy and Prioritization

This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and prioritization.

Past Mitigation Initiative Status

The following table indicates progress on the community's mitigation strategy identified in the 2010 Plan. It should be noted that during the 2010 planning process, only general, countywide actions were identified for each municipality. The Town of Cambridge reviewed the previous actions and selected actions they chose to carry forward as part of this plan update. Previous actions that are now on-going programs and capabilities are indicated as such in the following table and may also be found under 'Capability Assessment' presented previously in this annex.

Table 9.4-11. Status of Previous Mitigation Actions

2010 Mitigation Action	Responsible Party	Status (In progress, No progress, Complete)	Describe Status	Next Step (Include in 2018 HMP or Discontinue)	Describe Next Step
CR 59 landslide; .25 mile west of Morris Road intersection. Propose major engineered project to stabilize embankment continually eroded by meandering stream at the base of the slope. Figure 121 shows the asphalt patch in road where westbound lane is continually undermined.	County	Complete	This is a County problem, not Town, which they took care of.	Discontinue	N/A
Improve drainage at sites where roads have washed out due to natural hazards in the past	County and NYS DHSES	In Progress	Ongoing	Discontinue – Operational Capability	This is under control. Between culvert improvements, ditch work, and beaver control, we have done much to improve the situation and lessen the adverse impacts. This is not 100 % fool proof and mishaps can still happen, but the attempt is current and ongoing.
Purchase equipment to provide for local personnel to conduct the drainage improvement	County and NYS DHSES	In Progress	New Loader 2013 Purchased excavator in 2008	Discontinue	Ongoing capability
Engineering assessment to determine feasibility of each site improvement	County and NYS DHSES	No Progress	Not applicable to the Town	Discontinue	N/A
Improve dams to prevent flooding causing roads to wash out.	County and NYS DHSES	In Progress	Ripped out beaver dams Other dams are privately owned	Include in 2018 HMP	Attempt to control the beavers
Improve identified sites where slope stability is subject to land subsidence and where excavation or planting could mitigate future damage.	County and NYS DHSES	In Progress	Ongoing	Discontinue	Ongoing capability

Completed Mitigation Initiatives Not Identified in the Previous Mitigation Strategy

The Town of Cambridge has identified the following mitigation projects/activities that have also been completed but were not identified in the previous mitigation strategy in the 2010 Plan:

- Ditch work, tree trimming, culvert replacement and maintenance, road maintenance, beaver dam removal
- Bridge on South Union Street – Completed. Involved the Town of Cambridge, Village of Cambridge, and the Town of White Creek

Proposed Hazard Mitigation Initiatives for the Plan Update

The Town of Cambridge participated in a mitigation action workshop in September 2016, 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).

Table 9.4-12 summarizes the comprehensive-range of specific mitigation initiatives the Town of Cambridge would like to pursue in the future to reduce the effects of hazards. Some of these initiatives may be previous actions carried forward for this plan update. These 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. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table below to further demonstrate the wide-range of activities and mitigation measures selected.

As discussed in Section 6, 14 evaluation/prioritization criteria are used 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 your actions as 'High', 'Medium', or 'Low.' The table below summarizes the evaluation of each mitigation initiative, listed by Action Number.

Table 9.4-13 provides a summary of the prioritization of all proposed mitigation initiatives for the Plan update.

Table 9.4-12. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
T. Cambridge-1	Conduct engineering study to look at the hydrology and hydraulics of the area, potentially leading to a Flood Management Plan.	Both	Flood, Severe Storm	1, 4, 5	Town Supervisor, SWCD	High	Medium	Municipal Budget/Time	Short Term – less than five years	Medium	LPR	PR
T. Cambridge-2	Evaluate the structural condition of the old McClellan/ Thurber Pond dam by conducting a study and determining next steps.	Existing	Severe Storm, Severe Winter Storm, Flood	1, 4	Town Highway Department, Planning Board	High	Medium	Municipal Budget/Time	Short Term – less than five years	Medium	LPR	PP ES
T. Cambridge-3	Provide continuing education and training for local Floodplain Administrator to ensure code enforcement and proper inspections	Existing	Flood, severe storms	2, 4	Town FPA with support from Washington County	Medium	Low	Municipal Budget/Time	Short Term – less than five years	High	EAP	PR PI
T. Cambridge-4	Send Town staff to county and state trainings, and complete certification programs with respect to hazard risk management in Benefit Cost Analysis (BCA), Recovery Planning, Damage Estimates, and Debris Management.	N/A	All Hazards	2, 4	Town Highway Department, Town FPA, Code Enforcement with support from Washington County	Medium	Low – Staff Time	FEMA (HMGP, FMA, PDM), CDBG, Municipal Budget/Time	Ongoing	Medium	LPR EAP	PI
T. Cambridge-5 (previous action)	Develop and implement a plan to collaborate with private property owners to reduce risks from beaver dams and prevent flooding causing roads to wash out.	Existing	Flood	2, 3, 5	Town Highway with support from Washington County Public Works	Low	Low	Municipal Budget/Time	Short Term – less than five years	Medium	LPR NSP	PR, NR
T. Cambridge-6 (previous action)	Slope Stabilization - Improve identified sites where slope stability is subject to land subsidence and where excavation or planting could mitigate future damage. • Pettey's Road	N/A	Flood, Severe Storm, Landslide	1, 4, 5	Town Highway with support from Washington County Public Works	High	Medium	Municipal Budget, SWCD, WQIP	Short Term – less than five years	Medium	SIP NSP	PP NR

Table 9.4-12. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
	• Dickensen Road											

Notes:

Not all acronyms and abbreviations defined below are included in the table.

**Does this mitigation initiative reduce the effects of hazards on new and/or existing buildings and/or infrastructure? Not applicable (N/A) is inserted if this does not apply.*

Acronyms and Abbreviations:

CAV	*Community Assistance Visit*
CRS	*Community Rating System*
DPW	*Department of Public Works*
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*
SWCD	*Soil & Water Conservation District*
WQIP	*Water Quality Improvement Project Grant*

Potential FEMA HMA Funding Sources:

FMA	*Flood Mitigation Assistance Grant Program*
HMGP	*Hazard Mitigation Grant Program*
PDM	*Pre-Disaster Mitigation Grant Program*
RFC	*Repetitive Flood Claims Grant Program (discontinued in 2015)*
SRL	*Severe Repetitive Loss Grant Program (discontinued in 2015)*

Timeline:

Short	*1 to 5 years*
Long Term	*5 years or greater*
OG	*On-going program*
DOF	*Depending on funding*

Costs:

Where actual project costs have been reasonably estimated:

Low	*< $10,000*
Medium	*$10,000 to $100,000*
High	*> $100,000*

Where actual project costs cannot reasonably be established at this time:

Low	*Possible to fund under existing budget. Project is part of, or can be part of an existing on-going program.*
Medium	*Could budget for under existing work plan, but would require a reapportionment of the budget or a budget amendment, or the cost of the project would have to be spread over multiple years.*
High	*Would require an increase in revenue via an alternative source (i.e., bonds, grants, fee increases) to implement. Existing funding levels are not adequate to cover the costs of the proposed project.*

Benefits:

Where possible, an estimate of project benefits (per FEMA's benefit calculation methodology) has been evaluated against the project costs, and is presented as:

Low=	*< $10,000*
Medium	*$10,000 to $100,000*
High	*> $100,000*

Where numerical project benefits cannot reasonably be established at this time:

Low	*Long-term benefits of the project are difficult to quantify in the short term.*
Medium	*Project will have a long-term impact on the reduction of risk exposure to life and property, or project will provide an immediate reduction in the risk exposure to property.*
High	*Project will have an immediate impact on the reduction of risk exposure to life and property.*

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*

Table 9.4-13. Summary of Prioritization of Actions

Mitigation Action/Project Number	Mitigation Action/Initiative	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
T. Cambridge-1	Secure funding for an engineering study to look at the hydrology and hydraulics of the area, potentially leading to a Flood Management Plan.	1	1	1	1	0	0	0	1	0	1	1	0	1	0	8	Medium
T. Cambridge-2	Evaluate the structural condition of the old McClellan/ Thurber Pond dam.	1	1	1	1	0	0	0	1	0	1	1	0	1	0	8	Medium
T. Cambridge-3	Provide continuing education and training for local Floodplain Administrator to ensure code enforcement and proper inspections	1	1	1	1	1	0	1	1	0	1	1	1	0	0	10	High
T. Cambridge-4	Send Town staff to county and state trainings, and complete certification programs with respect to hazard risk management in Benefit Cost Analysis (BCA), Recovery Planning, Damage Estimates, and Debris Management.	1	1	1	1	0	0	0	0	0	1	1	1	0	0	7	Medium
T. Cambridge-5	Develop and implement a plan to collaborate with private property owners to reduce risks from beaver dams and prevent flooding causing roads to wash out.	1	1	1	1	0	0	1	1	1	1	0	1	0	0	9	Medium
T. Cambridge-6	Slope Stabilization - Improve identified sites where slope stability is subject to land subsidence and where excavation or planting could mitigate future damage.	0	1	1	1	0	1	1	1	0	1	1	1	0	0	9	Medium

Table 9.4-13. Summary of Prioritization of Actions

Mitigation Action/Project Number	Mitigation Action/Initiative	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
	• Pettey's Road • Dickensen Road																

Note: Refer to Section 6, which conveys guidance on prioritizing mitigation actions.

9.4.7 Future Needs To Better Understand Risk/Vulnerability

None at this time.

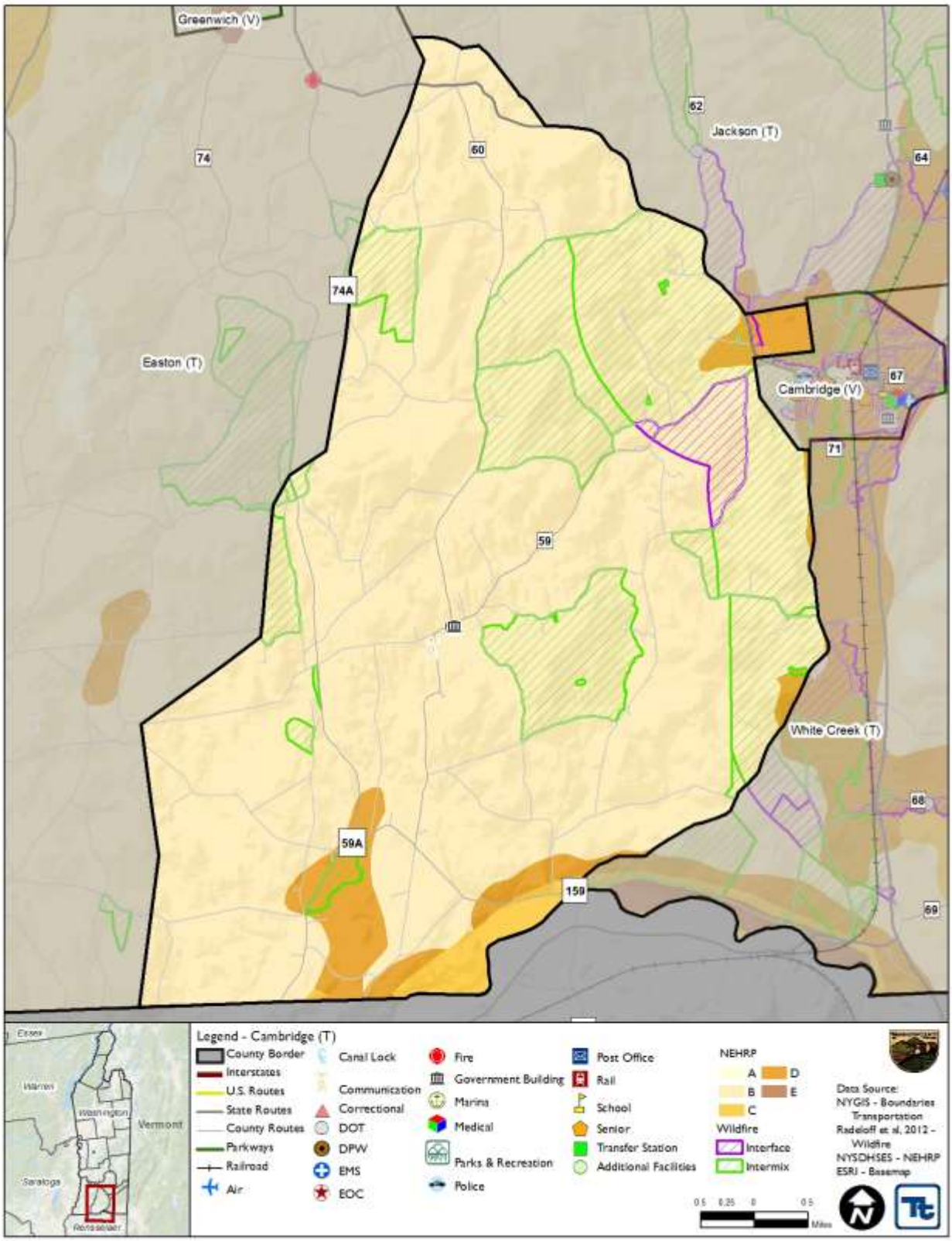
9.4.8 Hazard Area Extent and Location

Hazard area extent and location maps have been generated for the Town of Cambridge that illustrate the probable areas impacted within the municipality. These maps are based on the best available data at the time of the preparation of this plan, and are considered to be adequate for planning purposes. Maps have only been generated for those hazards that can be clearly identified using mapping techniques and technologies, and for which the Town of Cambridge has significant exposure. These maps are illustrated in the hazard profiles within Section 5.4, Volume I of this Plan.

9.4.9 Additional Comments

None at this time.

Figure 9.4-1. Town of Cambridge Hazard Area Extent and Location



Action Number: T. Cambridge-1

Mitigation Action Name: Conduct an engineering study.

Assessing the Risk	
Hazard(s) addressed:	Flood, Severe Storm
Specific problem being mitigated:	Lack of understanding of the hydrology and hydraulics of the area, which leads to a lack of understanding about the floodplain.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Coordinate with neighboring towns to run regional study of floodplain – may not be detailed enough to eventually write Flood Management Plan specific to Town of Cambridge.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Conducting an engineering study to help determine the extent and severity of the floodplain and potential flood events.
Mitigation Action Type	Local Plans and Regulations (LPR)
Goals Met	Goal 1: Protect Life and Property Goal 4: Provide for Emergency Services 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.
Applies to existing and or new development, or not applicable	Both
Benefits (losses avoided)	High
Estimated Cost	Medium
Priority*	Medium
Plan for Implementation	
Responsible Organization	Town Supervisor, County Soil & Water Conservation District
Local Planning Mechanism	Hazard Mitigation
Potential Funding Sources	Town Budget
Timeline for Completion	Short Term – less than five years
Reporting on Progress	
Date of Status Report/ Report of Progress	No progress; new project

Action Number: T. Cambridge-1
Mitigation Action Name: Secure funding for an engineering study.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	0	
Legal	0	
Fiscal	0	Grant funding where available; municipal budget
Environmental	1	
Social	0	
Administrative	1	
Multi-Hazard	1	Flood, Severe Storm
Timeline	0	Once funding is obtained, project will take less than five years
Agency Champion	1	
Other Community Objectives	0	
Total	8	
Priority (H/M/L)	Medium	

Action Number: T. Cambridge-2

Mitigation Action Name: Evaluate the structural condition of the old McClellan/Thurber Pond dam.

Assessing the Risk	
Hazard(s) addressed:	Severe Storm, Severe Winter Storm, Flood
Specific problem being mitigated:	The aging dam could have lost structural integrity since its construction; risk of dam failure and inundation of surrounding areas.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Replace McClellan/Thurber dam – cost.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Evaluate the structural condition of the old McClellan/ Thurber Pond dam by conducting a study and determining next steps.
Mitigation Action Type	Local Plans and Regulations (LPR)
Goals Met	Goal 1: Protect Life and Property Goal 4: Provide for Emergency Services
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	High
Estimated Cost	Medium
Priority*	Medium
Plan for Implementation	
Responsible Organization	Town Highway Department, Planning Board
Local Planning Mechanism	Hazard Mitigation
Potential Funding Sources	Municipal Budget/Time
Timeline for Completion	Short Term – less than five years
Reporting on Progress	
Date of Status Report/ Report of Progress	No progress; new project

Action Number: T. Cambridge-2

Mitigation Action Name: Evaluate the structural condition of the old McClellan/Thurber Pond dam.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	0	
Legal	0	
Fiscal	0	Municipal budget
Environmental	1	
Social	0	
Administrative	1	
Multi-Hazard	1	Severe Storm, Winter Storm, Flood
Timeline	0	
Agency Champion	1	
Other Community Objectives	0	
Total	8	
Priority (H/M/L)	Medium	

Action Number: T. Cambridge-3

Mitigation Action Name: Provide continuing education and training for local Floodplain Administrator.

Assessing the Risk	
Hazard(s) addressed:	Flood, severe storms
Specific problem being mitigated:	Staff members have not been formally trained on Floodplain Administration.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Provide training for a staff member other than local Floodplain Administrator – not preferred, Floodplain Administrator needs to have skillset necessary to run successful Floodplain Administration program
Action/Project Intended for Implementation	
Description of Selected Action/Project	Provide continuing education and training for local Floodplain Administrator to ensure code enforcement and proper inspections. Allow for local staff members to attend trainings and conferences to become educated on how to efficiently run a local Floodplain Administration program
Mitigation Action Type	Education and Awareness Programs (EAP)
Goals Met	Goal 2: Increase Public Awareness Goal 4: Provide for Emergency Services
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	Medium
Estimated Cost	Low
Priority*	High
Plan for Implementation	
Responsible Organization	Town FPA with support from Washington County
Local Planning Mechanism	Hazard Mitigation
Potential Funding Sources	Municipal Budget/Time
Timeline for Completion	Short Term – less than five years
Reporting on Progress	
Date of Status Report/ Report of Progress	No progress; new project

Action Number: T. Cambridge-3

Mitigation Action Name: Provide continuing education and training for local Floodplain Administrator.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	0	
Fiscal	1	Municipal budget and staff time
Environmental	1	
Social	0	
Administrative	1	
Multi-Hazard	1	Flood, Severe Storm
Timeline	1	
Agency Champion	0	
Other Community Objectives	0	
Total	10	
Priority (H/M/L)	High	

Action Number: T. Cambridge-4

Mitigation Action Name: Send Town staff to county and state trainings and complete certification programs.

Assessing the Risk	
Hazard(s) addressed:	All Hazards
Specific problem being mitigated:	Staff members have not been formally trained in these fields.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Hire outside groups and certification programs to come to Town and educated and train Town Staff – cost.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Send Town staff to county and state trainings, and complete certification programs with respect to hazard risk management in Benefit Cost Analysis (BCA), Recovery Planning, Damage Estimates, and Debris Management. Certifications and trainings for hazard risk management will allow for staff members to properly address hazards of concern and mitigation opportunities.
Mitigation Action Type	Local Plans and Regulations (LPR) Education and Awareness Programs (EAP)
Goals Met	Goal 2: Increase Public Awareness Goal 4: Provide for Emergency Services
Applies to existing and or new development, or not applicable	N/A
Benefits (losses avoided)	Medium
Estimated Cost	Low – Staff Time
Priority*	Medium
Plan for Implementation	
Responsible Organization	Town Highway Department, Town FPA, Code Enforcement with support from Washington County
Local Planning Mechanism	Hazard Mitigation
Potential Funding Sources	FEMA (HMGP, FMA, PDM), Community Development Block Grant, Municipal Budget/Time
Timeline for Completion	Ongoing
Reporting on Progress	
Date of Status Report/ Report of Progress	No progress; new project

Action Number: T. Cambridge-4

Mitigation Action Name: Send Town staff to county and state trainings, and complete certification programs.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	0	
Legal	0	
Fiscal	0	Need to secure grant funding
Environmental	0	
Social	0	
Administrative	1	
Multi-Hazard	1	All hazards
Timeline	1	
Agency Champion	0	
Other Community Objectives	0	
Total	7	
Priority (H/M/L)	Medium	

Action Number: T. Cambridge-5

Mitigation Action Name: Develop and implement a plan to collaborate with private property owners

Assessing the Risk	
Hazard(s) addressed:	Flood
Specific problem being mitigated:	Beaver dams are often subject to failure, which causes flooding in the surrounding area. Beaver dams on public property have been removed, but other dams are located on privately owned property.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Move roadways that are prone to wash out – not feasible
Action/Project Intended for Implementation	
Description of Selected Action/Project	Develop and implement a plan to collaborate with private property owners to reduce risks from beaver dams and prevent flooding causing roads to wash out.
Mitigation Action Type	Local Plans and Regulations (LPR) Natural Systems Protection (NSP)
Goals Met	Goal 2: Increase Public Awareness Goal 3: Encourage Partnerships 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.
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	Low
Estimated Cost	Municipal Budget/Time
Priority*	Medium
Plan for Implementation	
Responsible Organization	Town Highway with support from Washington County Public Works
Local Planning Mechanism	Hazard Mitigation
Potential Funding Sources	Municipal Budget/Time
Timeline for Completion	Short Term – less than five years
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: 6/01/2017 Progress on Action/Project: Dams on public property have been removed.

Action Number: T. Cambridge-5

Mitigation Action Name: Develop and implement a plan to collaborate with private property owners

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Work with residents to protect themselves and their property from flooding caused by beaver dams
Property Protection	1	Work with residents to protect themselves and their property from flooding caused by beaver dams
Cost-Effectiveness	1	
Technical	1	
Political	0	
Legal	0	
Fiscal	1	Town staff and budget
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	0	
Timeline	1	
Agency Champion	0	
Other Community Objectives	0	
Total	9	
Priority (H/M/L)	Medium	

Action Number:	T. Cambridge-6
Mitigation Action Name:	Slope Stabilization at Pettey's Road and Dickensen

Assessing the Risk	
Hazard(s) addressed:	Flood, Severe Storm, Landslide
Specific problem being mitigated:	The Town of Cambridge is hilly and the speed at which run off water travels is as much of a concern as the volume, especially where farmers have removed hedgerows to enlarge fields. Hedgerows create barriers that slow run off and help hold soil in place, instead of in the ditches, culverts, and roadways, when it is washed out through the entrance way to a field. This steepness is what also causes leaves, branches, limbs, and even trees, to sometimes wash down from the woods and cause ditch and culvert blockages.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	Pettey's Road - outlawing of ATV's, the family moving away, or do nothing. Currently, do nothing option is most feasible. Dickensen Road – Support embankment with concrete, soil, and sod. Raise the roadway a little more each year with the application of layers of gravel. Make culvert both larger and longer. The latter option may happen at a later date.
Action/Project Intended for Implementation	
Description of Selected Action/Project	1. Pettey's Road. A family that insists upon riding their ATV's up and down the bank by their house which denudes and loosens the soil, causing it to slide into the ditch and at times partially across the road. The only solution to this is the outlawing of ATV's or the family moving away. 2. Dickensen Road. Dickensen Rd. is a gravel road. Runoff to a low spot in the road has caused the erosion of the shoulder of the road and the embankment all the way down to the culvert (about 18 ft.). This bank has washed away several times. This summer the Town stacked layers of old concrete slabs into the bank and filled over with soil and sod, which will hopefully settle and set before a really heavy rain for the layers of old concrete to withstand the erosion. This low area in the road has already been raised about as much as is practical. and slowly over the years the plan is to raise the elevation a little more with the application of layers of gravel. When this culvert needs to be replaced, the Town will consider making it both larger and longer, which will allow for the raising of the road even more.
Mitigation Action Type	Structure and Infrastructure Project (SIP) Natural Systems Protection (NSP)
Goals Met	Goal 1: Protect Life and Property Goal 4: Provide for Emergency Services
Applies to existing and or new development, or not applicable	N/A
Benefits (losses avoided)	High – reduce risk of land subsidence, and improve public safety
Estimated Cost	Medium
Priority*	Medium
Plan for Implementation	
Responsible Organization	Town Highway with support from Washington County Public Works
Local Planning Mechanism	N/A

Potential Funding Sources	Municipal Budget, County Soil & Water Conservation District, Water Quality Improvement Project Grants
Timeline for Completion	Short (1 to 5 years)
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

Action Number: T. Cambridge-6

Mitigation Action Name: Drainage Improvements.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	0	
Property Protection	1	Arrest the erosion of the shoulder of the road and the embankment
Cost-Effectiveness	1	Risk of future losses to areas above and beneath the slopes are greater than the cost to implement the project.
Technical	1	The project is technically feasible.
Political	0	
Legal	1	The Town has legal jurisdiction over the physical project location.
Fiscal	1	Project can be funded under existing program budgets.
Environmental	1	Project will preserve or restore the functions of natural slope.
Social	0	No known social impacts
Administrative	1	Town has administrative capability to manage the work
Multi-Hazard	1	Flood, Severe Storm, Landslide
Timeline	1	Can be completed within 5 years
Agency Champion	0	
Other Community Objectives	0	
Total	9	
Priority (High, Medium, or Low)	Medium	

9.5 VILLAGE OF CAMBRIDGE

This section presents the jurisdictional annex for the Village of Cambridge.

9.5.1 Hazard Mitigation Plan Point of Contact

The following individuals have been identified as the hazard mitigation plan's primary and alternate points of contact.

Primary Point of Contact	Alternate Point of Contact
Matt Toleman, Public Works/DPW Superintendent 56 North Park Street, Cambridge, NY 518-361-9734 mtoleman@cambridgeny.gov	Carman Bogle, Village Mayor 56 North Park Street, Cambridge, NY 802-688-3454 mayorbogle@cambridgeny.gov

9.5.2 Municipal Profile

The Village of Cambridge is partly in the southern part of Washington County, within the town of Cambridge and partly in the town of White Creek. The village is also at the border of the Town of Jackson. The village has a total area of 1.7 square miles, none of which is covered with water. The major water body impacting the Village is the Owl Kill, which runs along the southern Village boundary. According to the 2010 Census, the community's population was 1,870.

Growth/Development Trends

The following table summarizes recent residential/commercial development since 2010 to present and any known or anticipated major residential/commercial development and major infrastructure development that has been identified in the next five years within the municipality.

Table 9.5-1. Growth and Development

Property or Development Name	Type (e.g. Res., Comm.)	# of Units / Structures	Location (address and/or Parcel ID)	Known Hazard Zone(s)	Description/Status of Development
Recent Development from 2010 to present					
Hospital Hill (Former Mary McClellan Hospital site)	Former Hospital (on area currently Zoned residential)	Large former hospital and numerous supporting buildings	263.7-1-1 and 263-2-5	None	Real estate agents currently shopping site – possibility will end up a PDD (Planned Development District) within 5 years
Known or Anticipated Development in the Next Five (5) Years					
None anticipated					

Note: Only location-specific hazard zones or vulnerabilities identified.

9.5.3 Natural Hazard Event History Specific to the Municipality

Washington County has a history of natural and non-natural hazard events as detailed in Volume I, Section 5.0 of this plan. 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. For the purpose of this plan update, events that have occurred in the County from 2008 to present were summarized to indicate the range and impact of hazard events in the community. Information regarding specific damages is included, if available, based on reference material or local sources. This information is presented in the table below. For details of these and additional events, refer to Volume I, Section 5.0 of this plan.

Table 9.5-2. Hazard Event History

Dates of Event	Event Type (FEMA Disaster Declaration if applicable)	Washington County Designated?	Summary of Damages/Losses
July 2-3, 2005	Flash Flooding	N/A	Hadlock Pond breached causing road washouts and destroyed homes below the dam
December 11-31, 2008	Severe Winter Storm DR-1827	Yes	The Village was impacted to the tune of $8,000 - $10,000 in reimbursement from FEMA following a heavy snow-ice-snow event. The funding was reimbursement for salt and man-hours. Aside from the increased requirements for keeping the roads clear of snow, ice took down multiple maple trees on South Union street with diameters of 1 ½ feet, along with numerous smaller trees.
August 26-September 5, 2011	Hurricane/T.S. Irene DR-4020	Yes	The Village did not suffer any major flooding or damage from the event. The Village received a great deal of rain, but no damage or casualties were reported.

Notes:

EM *Emergency Declaration (FEMA)*
FEMA *Federal Emergency Management Agency*
DR *Major Disaster Declaration (FEMA)*
N/A *Not applicable*

9.5.4 Hazard Vulnerabilities and Ranking

The hazard profiles in Section 5.0 of this plan have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes the hazard vulnerabilities and their ranking in the Village of Cambridge. For additional vulnerability information relevant to this jurisdiction, refer to Section 5.0. Refer to 9.5-1 later in this annex for hazard vulnerable areas located in the Village of Cambridge.

Natural Hazard Risk/Vulnerability Risk Ranking

As discussed in Section 5.3 (Hazard Ranking), each participating town or village may have differing degrees of risk exposure and vulnerability compared to Washington County as a whole. Therefore, each municipality 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 Cambridge. Table 9.5-12 provides proposed mitigation initiatives for the high ranked hazards.

Table 9.5-3. Hazard Risk/Vulnerability Risk Ranking

Hazard type	Estimate of Potential Dollar Losses to Structures Vulnerable to the Hazard [a, c]	Probability of Occurrence	Risk Ranking Score (Probability x Impact)	Hazard Ranking [b]
Earthquake	100-Year GBS: $0 500-Year GBS: $2,100,840 2,500-Year GBS: $21,010,698	Occasional	28	Medium
Flood	Damage estimate not available.	Frequent	36	High
Severe Weather	100-Year MRP: $291,015 500-year MRP: $2,056,285 Annualized: $17,303	Frequent	48	High
Severe Winter Weather	1% GBS: $8,669,315 5% GBS: $43,346,573	Frequent	51	High
Wildfire	Estimated Value in the WUI Hazard Areas: $1,467,245,257	Frequent	48	High

Notes:

a. Building damage ratio estimates based on FEMA 386-2 (August 2001)

b. The valuation of general building stock and loss estimates was based on custom inventory for the municipality.
High = Total hazard priority risk ranking score of 31 and above
Medium = Total hazard priority risk ranking of 20-30+
Low = Total hazard risk ranking below 20

c. Loss estimates for the severe storm and severe winter storm hazards are structural values only and do not include the value of contents.

d Loss estimates for the flood and earthquake hazards represent both structure and contents.

e. The HAZUS-MH earthquake model results are reported by Census Tract.

f. Damage estimate for flood unavailable due to lack of digital floodplain data for Washington County.

National Flood Insurance Program (NFIP) Summary

The following table summarizes the NFIP statistics for the Village of Cambridge.

Table 9.5-4. NFIP Summary

Municipality	# Policies (1)	# Claims (Losses) (1)	Total Loss Payments (2)	# Rep. Loss Prop. (1)	Severe Rep. Loss Prop. (1)
Cambridge (V)	13	5	$13,999	0	0

Source: FEMA, 2016
Note (1) Policies, claims, repetitive loss and severe repetitive loss statistics provided by FEMA and are current as of April 30, 2016 and are summarized by Community Name. Please note the total number of repetitive loss properties excludes the severe repetitive loss properties. The number of claims represents claims closed by 4/30/2016.
Note (2) Total building and content losses from the claims file provided by FEMA Region 2.
Note (3) The policies inside and outside of the flood zones are unavailable due to lack of digital floodplain for Washington County.
Note (4) FEMA noted that where there is more than one entry for a property, there may be more than one policy in force or more than one GIS possibility.

Critical Facilities

At the time of this HMP Update, digitized flood maps for Washington County are unavailable. In order to provide some level of beneficial analysis, a desktop analysis was performed to identify critical facilities located within the floodplain (refer to Section 5.1 [Methodology and Tools] for details). The following table identifies critical facilities located within the municipality and their exposure, if any, to the possible floodplain. This information is a resource for the municipality to determine if flood mitigation actions are appropriate based on historical events and proximity of the facility to a water body. At the time of this 2018 HMP Update, the municipality did not identify any actions associated with these facilities.

The Village of Cambridge understands the limitation of the map data and once the updated maps are available, the municipality will work with Washington County to determine which critical facilities are located within the 1% and 0.2% annual chance flood zones. Once identified, the municipality will work with the property owners and develop mitigation actions for each of the critical facilities, ensuring they will be protected to the 500-year (or worst-case scenario) level.

Table 9.5-5. Potential Flood Losses to Critical Facilities

Name	Type	Potential Flood Exposure
Cambridge Valley Rescue Squad	EMS	X
Cambridge DPW	DPW	X
Cambridge Guest Home	Senior	X
Cambridge-Greenwich Village Police	Police	X
Cambridge Library	Library	X
Village of Cambridge	Municipal Hall	X

Name	Type	Potential Flood Exposure
Cambridge volunteer Fire Department	Fire	X
Glens Falls National Bank	Bank	X
Cambridge Hotel	Hotel	X

Source: Washington County; NYS GIS Clearinghouse

Other Vulnerabilities Identified

The municipality has identified the following vulnerabilities within their community:

- Fire Station – The current fire station is insufficient to meet the demands of the Village's fire operations and department requirements. The current facility lacks sufficient storage space and office space, and is too small to store current vehicles, crew equipment, and Personal Protective Equipment. These space issues have resulted in the need to take valuable office space at the Village Offices in order to have a records storage area and an office for the Fire Chief. In addition, the maintenance requirements of the old/current fire station, a building built well over 60 years ago, continue to grow, including expensive roof replacement and asbestos abatement operations during the past two years. There has been a new station planned opposite the office park on Route 313, however, at this time sufficient funds are not available to build the station. The planned new station would have sufficient storage space for newer fire apparatus, as well as sufficient storage and office space.

- Village Offices/Court/Police Station complex is in dire need of a standby generator to provide backup power. The Village Offices are co-located with the Police Department and Village Court. While the facility has not suffered an extended power outage (2+ days) over the past three years, it is always a possibility, historically speaking and considering the local power grid. Without power the Village is unable to operate its police headquarters and Emergency Operations Center for extended periods. An outage would halt computer operations (computer operations would cease once the dedicated back-up power and battery life on the internet and laptop computers runs out) and communications by any method other than cell phones, including personal ones. The Village's alternate municipal building, the fire station, does have backup power, but does not possess sufficient office space to relocate these critical operations during a power outage.

- Records Survivability – multiple original historic records are maintained at the Village Offices, particularly in the Registrar. While the Village Offices have never been flooded (except through roof degradation, since replaced), there are wetlands approximately 300 feet to the rear of the building. Paper records are also vulnerable to fire. Recommend scanning and backing up all municipal data.

- There is a lot of state land in the region, including Mt. Tom State Forest in the Town of White Creek, which may be a fire hazard during major droughts. If there is a fire on Mount Tom, the Town of White Creek and Village of Cambridge may need to evacuate residents.

9.5.5 Capability Assessment

This section identifies the following capabilities of the local jurisdiction:

- Planning and regulatory capability
- Administrative and technical capability
- Fiscal capability
- Community classification
- National Flood Insurance Program
- Integration of mitigation planning into existing and future planning mechanisms

Planning and Regulatory Capability

The table below summarizes the regulatory tools that are available to the Village of Cambridge.

Table 9.5-6. Planning and Regulatory Tools

Tool / Program (code, ordinance, plan)	Do you have this? (Yes/No) If Yes, date of adoption or update	Authority (local, county, state, federal)	Dept. /Agency Responsible	Code Citation and Comments (Code Chapter, name of plan, explanation of authority, etc.)
Planning Capability				
Comprehensive Plan	Yes	Local	Mayor's Office	Updated 4/2005
Capital Improvements Plan	No	-	-	-
Floodplain Management / Basin Plan	No	-	-	-
Stormwater Management Plan	No	-	-	-
Open Space Plan	No	-	-	-
Stream Corridor Management Plan	No	-	-	-
Watershed Management or Protection Plan	No	-	-	-
Economic Development Plan	No	-	-	-
Comprehensive Emergency Management Plan	No	-	-	-
Emergency Response Plan	Yes	Local	Mayor's Office	Updated 5/4/2016
Post-Disaster Recovery Plan	No	-	-	-
Transportation Plan	No	-	-	-
Strategic Recovery Planning Report	No	-	-	-
Other Plans:	No	-	-	-
Regulatory Capability				
Building Code	Yes	State & Local	Washington County Code Enforcement	Building Code of New York State (NYS)
Zoning Ordinance	Yes	Local	Zoning	Local Law #2 Of 2015
Subdivision Ordinance	No	-	-	-
NFIP Flood Damage Prevention Ordinance	Yes	Local	Zoning	Flood Damage Prevention Local Law No. 3 of 2007
NFIP: Cumulative Substantial Damages	Yes	State, Local	-	State mandated BFE+2 for single and two-family residential construction, BFE+1 for all other construction types
NFIP: Freeboard	No	-	-	-
Growth Management Ordinances	No	-	-	-
Site Plan Review Requirements	Yes	Local, County	Zoning	Per Zoning Law
Stormwater Management Ordinance	No	-	-	-
Municipal Separate Storm Sewer System (MS4)	No	-	-	-
Natural Hazard Ordinance	No	-	-	-

Tool / Program (code, ordinance, plan)	Do you have this? (Yes/No) If Yes, date of adoption or update	Authority (local, county, state, federal)	Dept. /Agency Responsible	Code Citation and Comments (Code Chapter, name of plan, explanation of authority, etc.)
Post-Disaster Recovery Ordinance	No	-	-	-
Real Estate Disclosure Requirement	Yes	State		NYS mandate, Property Condition Disclosure Act, NY Code - Article 14 §460-467
Other (Special Purpose Ordinances [i.e., sensitive areas, steep slope])	No	-	-	-

Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the Village of Cambridge.

Table 9.5-7. Administrative and Technical Capabilities

Resources	Is this in place? (Yes or No)	Department/ Agency/Position
Administrative Capability		
Planning Board	Yes	Village Planning Board
Mitigation Planning Committee	No	-
Environmental Board/Commission	No	-
Open Space Board/Committee	No	-
Economic Development Commission/Committee	No	-
Maintenance programs to reduce risk	No	-
Mutual aid agreements	No	-
Technical/Staffing Capability		
Planner(s) or engineer(s) with knowledge of land development and land management practices	Yes	Planning Board
Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Yes	Zoning Enforcement Officer
Planners or engineers with an understanding of natural hazards	No	-
NFIP Floodplain Administrator (FPA)	Yes	Zoning Enforcement Officer
Surveyor(s)	No	-
Personnel skilled or trained in GIS and/or Hazards United States (HAZUS) – Multi-Hazards (MH) applications	No	-
Scientist familiar with natural hazards	No	-
Emergency Manager	Yes	Fire, Police
Grant writer(s)	No	-
Staff with expertise or training in benefit/cost analysis	No	-
Professionals trained in conducting damage assessments	No	-

Fiscal Capability

The table below summarizes financial resources available to the Village of Cambridge.

Table 9.5-8. 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	No
Incur debt through private activity bonds	No
Withhold public expenditures in hazard-prone areas	No
Other federal or state Funding Programs	No
Open Space Acquisition funding programs	No
Other	No

Community Classifications

The table below summarizes classifications for community program available to the Village of Cambridge.

Table 9.5-9. Community Classifications

Program	Do you have this? (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	7/7Y	5/1/17
NYS DEC Climate Smart Community	No		
Storm Ready	No	-	-
Firewise	No	-	-
Disaster/safety programs in/for schools	Yes	N/A	N/A
Organizations with mitigation focus (advocacy group, non-government)	No	-	-
Public education program/outreach (through website, social media)	Yes	N/A	N/A
Public-Private Partnerships	Yes	N/A	N/A

Note:
N/A *Not applicable*
NP *Not participating*
- *Unavailable*

The classifications listed above relate to the community's ability to provide effective services to lessen its vulnerability to the hazards identified. These classifications can be viewed as a gauge of the community's capabilities in all phases of emergency management (preparedness, response, recovery and mitigation) and are used as an underwriting parameter for determining the costs of various forms of insurance. The CRS class applies to flood insurance while the BCEGS and Public Protection classifications apply to standard property insurance. CRS classifications range on a scale of 1 to 10 with class 1 being the best possible classification,

and class 10 representing no classification benefit. Firewise classifications include a higher classification when the subject property is located beyond 1000 feet of a creditable fire hydrant and is within 5 road miles of a recognized Fire Station.

Criteria for classification credits are outlined in the following documents:

- The Community Rating System Coordinators Manual
- The Building Code Effectiveness Grading Schedule
- The ISO Mitigation online ISO's Public Protection website at https://www.isomitigation.com/ppc/
- The National Weather Service Storm Ready website at http://www.stormready.noaa.gov/index.html
- The National Firewise Communities website at http://firewise.org/

Self-Assessment of Capability

The table below provides an approximate measure of the Village of Cambridge's capability to work in a hazard-mitigation capacity and/or effectively implement hazard mitigation strategies to reduce hazard vulnerabilities.

Table 9.5-10. Self-Assessment Capability for the Municipality

Area	Degree of Hazard Mitigation Capability		
	Limited (If limited, what are your obstacles?)	Moderate	High
Planning and regulatory capability		X	
Administrative and technical capability		X	
Fiscal capability	X – debt		
Community political capability		X	
Community resiliency capability		X	
Capability to integrate mitigation into municipal processes and activities		X	

National Flood Insurance Program

NFIP Floodplain Administrator (FPA)

Zoning Administrator; however, the Village Clerk maintains files of FEMA Floodplain maps.

Flood Vulnerability Summary

The Village does not maintain lists/inventories of properties that have been flood damaged or make substantial damage estimates. No Village residents have approached the FPA with interest in mitigation activities.

Resources

The current FPA is the sole person assuming the responsibilities of floodplain administration, but would pull in additional staff if needed. The primary responsibilities of the Village FPA include maintaining records of FEMA Floodplain Maps and tracking updates and changes. There are currently no education or outreach programs to the community regarding flood hazards/risk, and flood risk reduction through NFIP insurance, mitigation, etc.

Barriers to running an effective floodplain management program in the village include low staffing and priority due to the minimal floodplain impacts on the village. The FPA feels adequately supported to fulfill his

responsibilities as the municipal floodplain administrator, but not adequately trained, and would consider attending continuing education and/or certification training on floodplain management if it were offered in the County for all local floodplain administrators.

Compliance History

The community is in good standing with the NFIP. According to the NYS DEC, the date of the most recent compliance audit is May 23, 2014.

Regulatory

The Village Flood Damage Prevention Local Law No. 3 of 2007 meets, but does not exceed the FEMA and State minimum requirements. The community has never considered joining the Community Rating System (CRS) program to reduce flood insurance premiums for their insured, but would attend a CRS seminar if offered locally depending on priorities and workload.

Integration of Hazard Mitigation into Existing and Future Planning Mechanisms

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 this planning effort, each community was surveyed to obtain a better understanding of their community's progress in plan integration. A summary is provided below. In addition, the community identified specific integration activities that will be incorporated into municipal procedures.

Planning

Land Use Planning: The Village of Cambridge has a Planning Board and Zoning Board of Appeals which review all applications for development and consider natural hazard risk areas in their review. The Planning Board considers zoning, including environmental resource overlay (ERO) districts and associated restrictions. Many development activities require additional levels of environmental review, specifically NYS SEQR and Federal NEPA requirements. The Village also has an Emergency committee, which was situationally organized as a part of the CEMP.

Village of Cambridge Comprehensive Plan: The Village of Cambridge created its comprehensive plan in 2005 to define comprehensively a future for the community and to help guide and prioritize the investments that must be made to sustain the Village's future. In the plan's goals, the Village identifies the need to develop lasting and affordable solutions for community water and wastewater needs, and ensure the protection of other natural resources. Some of the relevant recommendations and objectives in the Comprehensive Plan include the following:

1. Zoning and Subdivision Revisions to better safeguard mobile homes from natural hazard impacts
2. Sewer and Water Improvement Task Force - initiate an effort to develop a public sewer system
3. Expand public gen spaces throughout the Village

Within the Village, we have minor flood areas, incident to Cambridge Creek. However, there are few planning considerations which are spelled out in the Comprehensive Plan other than zoning as Environmental Resource overlay districts (Section 5.10 in Village Zoning Law). Furthermore, the Comprehensive Plan does not refer to a local or Countywide Hazard Mitigation Plan. However, during the update of the plan, the Town will integrate the risk assessment from the 2018 HMP Update and recommendations identified in the plan. This establishes resiliency as an overarching value of a community and provides the opportunity for the Town to continuously manage development in a way that does not lead to increased hazard vulnerability.

Emergency Management Plan: This Village Comprehensive Emergency Management Plan (CEMP) is meant to enhance the Village's ability to manage emergency/disaster situations, contributing to the effectiveness of a statewide emergency management program. The plan references the Washington County Hazard Mitigation Plan, and includes an analysis of potential hazards that could affect the county and an assessment of the capabilities existing in the Village to deal with potential hazards.

As an outgrowth of the CEMP, the Village is currently (summer 2016) in the in-planning stages of developing a Continuity of Operations/Continuity of Government (COOP/COG) plan that will serve to protect the Village government and operations from natural hazard disruptions.

Regulatory and Enforcement (Ordinances)

Construction Codes, Uniform: The building codes are strictly enforced to make new and renovated buildings as prepared as possible for hazard related incidents. The Village complies with New York State Uniform Fire Prevention and Building Code (the Uniform Code) and the State Energy Conservation Construction Code (the Energy Code).

Flood Damage Prevention Local Law No. 3 of 2007: This law promotes the public health, safety, and general welfare of residents and seeks to minimize public and private losses, rescue and relief expenditures, and business interruptions due to flood conditions. The law regulates development to promote flood resistant structures and controls the alteration of floodplains to prevent increased vulnerability.

Sewers: The Village abides by the County-wide Sanitary Code, which protects and regulates its sewage collection and treatment facilities as a matter of public health and environmental safety. It seeks to prohibit the introduction of stormwater, surface, or sub-surface waters into sanitary sewers and to control the quantity and quality of wastes in the sewage system. The Village has no municipal sewer system – all properties are on private systems.

Site Plan Review (Article IX of the Village Zoning Law): This law discusses the site plan review process for the Village. The purpose of the site plan review in the Village is to allow the proper integration of uses into the community based on their characteristics, or the special characteristics of the area in which they are to be located; to allow the Village to accommodate growth without creating an adverse effect on the Village and its citizens and taxpayers; to protect the health, safety and welfare of the citizens; and to promote consistency with the goals and objectives of the Village of Cambridge Comprehensive Plan. All new Business Uses; new Community Group Uses; new, or changes to, uses within the Main Street Mixed-Use District; new, or changes to, uses within any Overlay District; and all uses requiring a Special Use Permit are subject to site plan review provisions.

Subdivision Regulations (Major and Minor), Local Law No. 4 of 1999: The Village Planning Board is tasked with subdivision permitting and site plan review. The Village subdivision regulation and site plan review process requires developers to take additional actions to mitigate natural hazard risk. The Planning Board pays special attention to ensure that developments meet the requirements of the stormwater management and erosion and sediment control provisions set by NYS DEC, and mitigate the issues associated with flood, fire, or other natural hazards. The Planning Board references FEMA Flood Plains maps to guide their decisions with respect to natural hazard risk management.

Zoning, Local Law Number 2 of 2015: The Village of Cambridge zoning code includes districts and standards designed to minimize the impact of potential hazards including the environmental resource overlay district (ERO). The code also defines standards for conservation subdivisions and provisions for establishing permanent open space.

Operational and Administration

Representatives from the Village participate in the New York State Planning Commission, which supports natural hazard risk reduction and build hazard management capabilities.

Funding

Operating Budget: The Village operating budget contains provisions for DPW to perform street and sidewalk maintenance throughout the year including snow and ice removal on Village streets and sidewalks, street paving and repair, sidewalk repair and replacement, maintenance of Village parks, street cleaning, Village building maintenance, lawn waste pick up in the spring and fall and a host of other services around the Village.

Grants: The Village has occasionally contracted firms to staff grant requests. Over the 2015-2016 fiscal year, the Village received $60,470 in CHIPS grants, and projections show $59,422 coming from the same source in the 2016-2017 budget. Furthermore, the Village received a grant for $50,716 in 2013-2014.

While the Village does not have any specific mechanisms to fiscally support hazard mitigation projects, it has dealt with emergency one-off situations with Bond issuance, and related loans.

Education and Outreach

The Village offers public education and outreach through its website, which has links to the Village Facebook page, all local laws and planning documents, the annual budget, county and state regulations, as well as links to other regional organizations. Along with the website and Facebook page, the Village also has a public affairs program.

The Village of Cambridge maintains an "In Case of Emergency" webpage, which allows it to post educational materials to residents to reduce vulnerability to local hazards. Currently the web page shows a message from the police chief imploring residents to look out for their neighbors, and encourages residents to sign up for the County-led MyEM App reverse 911 system. The Village also runs disaster safety programs in schools. The Village would like to see customized notifications from FEMA or the state equivalent delivered to property owners on designated wetlands along with appropriate notification of personal preparedness measures.

Members of the Zoning Board of Appeals and the Planning Board take advantage of required annual training requirements, usually sponsored by Washington County. Village staff would benefit from training on regulatory requirements for natural hazard risk management.

9.5.6 Mitigation Strategy and Prioritization

This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and prioritization.

Past Mitigation Initiative Status

The following table indicates progress on the community's mitigation strategy identified in the 2010 Plan. It should be noted that during the 2010 planning process, only general, countywide actions were identified for each municipality. The Village of Cambridge reviewed the previous actions and selected actions they chose to carry forward as part of this plan update. Previous actions that are now on-going programs and capabilities are indicated as such in the following table and may also be found under 'Capability Assessment' presented previously in this annex.

Table 9.5-11. Status of Previous Mitigation Actions

2010 Mitigation Action	Responsible Party	Status (In progress, No progress, Complete)	Describe Status	Next Step (Include in 2018 HMP or Discontinue)	Describe Next Step
Purchase equipment to provide for local personnel to conduct the drainage improvement	N/A	N/A	None needed. Not applicable to the Village.	Discontinue	N/A
The equipment required to excavate drainage ditches and roadways to increase culvert pipe size is not available for local municipal use unless it is contracted. Local highway departments have the expertise to do the work, but not the equipment. A suggestion was made to purchase with mitigation funding five (5) excavators for Towns/Villages with the greatest need. - Group towns and villages for MOA for sharing equipment: Easton, Cambridge, White Creek, Jackson	N/A	N/A	None needed. Not applicable to the Village.	Discontinue	N/A

Completed Mitigation Initiatives Not Identified in the Previous Mitigation Strategy

The Village of Cambridge has identified the following mitigation projects/activities that have also been completed but were not identified in the previous mitigation strategy in the 2010 Plan:

- None identified

Proposed Hazard Mitigation Initiatives for the Plan Update

The Village of Cambridge participated in a mitigation action workshop in September 2016 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).

Table 9.5-12 summarizes the comprehensive-range of specific mitigation initiatives the Village of Cambridge would like to pursue in the future to reduce the effects of hazards. Some of these initiatives may be previous actions carried forward for this plan update. These 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. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table below to further demonstrate the wide-range of activities and mitigation measures selected.

As discussed in Section 6, 14 evaluation/prioritization criteria are used 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 your actions as 'High', 'Medium', or 'Low.' The table below summarizes the evaluation of each mitigation initiative, listed by Action Number.

Table 9.5-13 provides a summary of the prioritization of all proposed mitigation initiatives for the Plan update.

Table 9.5-12. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
V. Cambridge-1	Allow for local staff members to attend trainings and conferences to become educated on how to efficiently run a local Floodplain Administration program.	N/A	All Hazards	2, 4	Village Board and FPA	Medium	Low – Staff Time	Municipal Budget and Time	Short Term	High	EAP	PI
V. Cambridge-2	Send village staff to county and state trainings on regulatory requirements for natural hazard risk management, and encourage certification programs with respect to hazard risk management in Benefit Cost Analysis (BCA), Recovery Planning, Damage Estimates, and Debris Management.	N/A	All Hazards	2, 4	Village Board, Highway Department, Code Enforcement, Planning	Medium	Low – Staff Time	Municipal Budget and Time	Short Term	Medium	LPR EAP	PI
V. Cambridge-3	Customized outreach and notification from FEMA or state equivalent to property owners on designated wetlands	N/A	Flood, Severe Storm	1, 2, 5	Village Board with support from County OEM and NYS DEC	Medium	Low	Municipal Budget and Time	Short Term	Medium	EAP, LPR	PI NR
V. Cambridge-4	Educate residents regarding options for mitigating their properties from natural	N/A	All Hazards	1, 2, 4	Village Board with support from County OEM	Medium	Low	Municipal Budget and Time	Short Term	High	EAP	PI

Table 9.5-12. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
	hazards using various outreach techniques including informational mailers, brochures, school presentations, and other outreach activities.											
V. Cambridge-5	Construct new fire station opposite the office park on Rt. 313.	Existing	All Hazards	1, 4	Village Board, Fire Department	High	Medium	FEMA Assistance to Firefighters Grants	Short Term – less than five years	High	SIP	ES
V. Cambridge-6	Purchase and install a back-up generator for Village Offices/ Court/ Police Station complex.	Existing	All Hazards	1, 4	Village Board, County Office of Emergency Services	High	Medium	FEMA HMA (HMGP and FMA); Village Budget	Short Term	High	SIP	ES
V. Cambridge-7	Digitize/back up original historical records from the Village Offices, including the Registrar.	Existing	Flood	1, 4	Village Board, Village Clerk	High	Low	Municipal Budget and Time	Short Term	Medium	LPR	PR

Notes:

Not all acronyms and abbreviations defined below are included in the table.

**Does this mitigation initiative reduce the effects of hazards on new and/or existing buildings and/or infrastructure? Not applicable (N/A) is inserted if this does not apply.*

Acronyms and Abbreviations:

CAV	*Community Assistance Visit*
CRS	*Community Rating System*
DPW	*Department of Public Works*
FEMA	*Federal Emergency Management Agency*
FPA	*Floodplain Administrator*
HMA	*Hazard Mitigation Assistance*
N/A	*Not applicable*

Potential FEMA HMA Funding Sources:

FMA	*Flood Mitigation Assistance Grant Program*
HMGP	*Hazard Mitigation Grant Program*
PDM	*Pre-Disaster Mitigation Grant Program*
RFC	*Repetitive Flood Claims Grant Program (discontinued in 2015)*
SRL	*Severe Repetitive Loss Grant Program (discontinued in 2015)*

Timeline:

Short	*1 to 5 years*
Long Term	*5 years or greater*
OG	*On-going program*
DOF	*Depending on funding*

NFIP *National Flood Insurance Program*
OEM *Office of Emergency Management*

Costs:

Where actual project costs have been reasonably estimated:

Low *< $10,000*
Medium *$10,000 to $100,000*
High *> $100,000*

Where actual project costs cannot reasonably be established at this time:

Low *Possible to fund under existing budget. Project is part of, or can be part of an existing on-going program.*
Medium *Could budget for under existing work plan, but would require a reapportionment of the budget or a budget amendment, or the cost of the project would have to be spread over multiple years.*
High *Would require an increase in revenue via an alternative source (i.e., bonds, grants, fee increases) to implement. Existing funding levels are not adequate to cover the costs of the proposed project.*

Benefits:

Where possible, an estimate of project benefits (per FEMA's benefit calculation methodology) has been evaluated against the project costs, and is presented as:

Low= *< $10,000*
Medium *$10,000 to $100,000*
High *> $100,000*

Where numerical project benefits cannot reasonably be established at this time:

Low *Long-term benefits of the project are difficult to quantify in the short term.*
Medium *Project will have a long-term impact on the reduction of risk exposure to life and property, or project will provide an immediate reduction in the risk exposure to property.*
High *Project will have an immediate impact on the reduction of risk exposure to life and property.*

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*

Table 9.5-13. Summary of Prioritization of Actions

Mitigation Action / Project Number	Mitigation Action/Initiative	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
V. Cambridge-1	Allow for local staff members to attend trainings and conferences to become educated on how to efficiently run a local Floodplain Administration program.	1	1	1	1	1	0	1	1	0	1	1	1	0	0	10	High
V. Cambridge-3	Send village staff to county and state trainings on regulatory requirements for natural hazard risk management, and encourage certification programs with respect to hazard risk management in Benefit Cost Analysis (BCA), Recovery Planning, Damage Estimates, and Debris Management.	1	1	1	1	0	0	0	0	0	1	1	1	0	0	7	Medium
V. Cambridge-4	Customized outreach and notification from FEMA or state equivalent to property owners on designated wetlands	1	1	1	1	0	1	0	0	0	1	0	0	0	0	6	Medium
V. Cambridge-5	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.	1	1	1	1	0	1	0	0	0	1	0	0	0	0	6	High
V. Cambridge-6	Obtain funding to construct new fire station opposite the office park on Rt. 313.	1	1	1	1	1	0	0	0	0	1	0	0	1	0	7	High
V. Cambridge-7	Obtain funding to purchase a back-up generator for Village Offices/ Court/ Police Station complex.	1	1	1	1	1	1	0	0	1	1	1	1	0	0	10	High
V. Cambridge-8	Digitize/back up original historical records from the Village Offices, including the Registrar.	1	1	1	1	1	1	1	0	0	1	1	1	1	0	11	Medium

Note: Refer to Section 6, which conveys guidance on prioritizing mitigation actions.

9.5.7 Future Needs to Better Understand Risk/Vulnerability

None at this time.

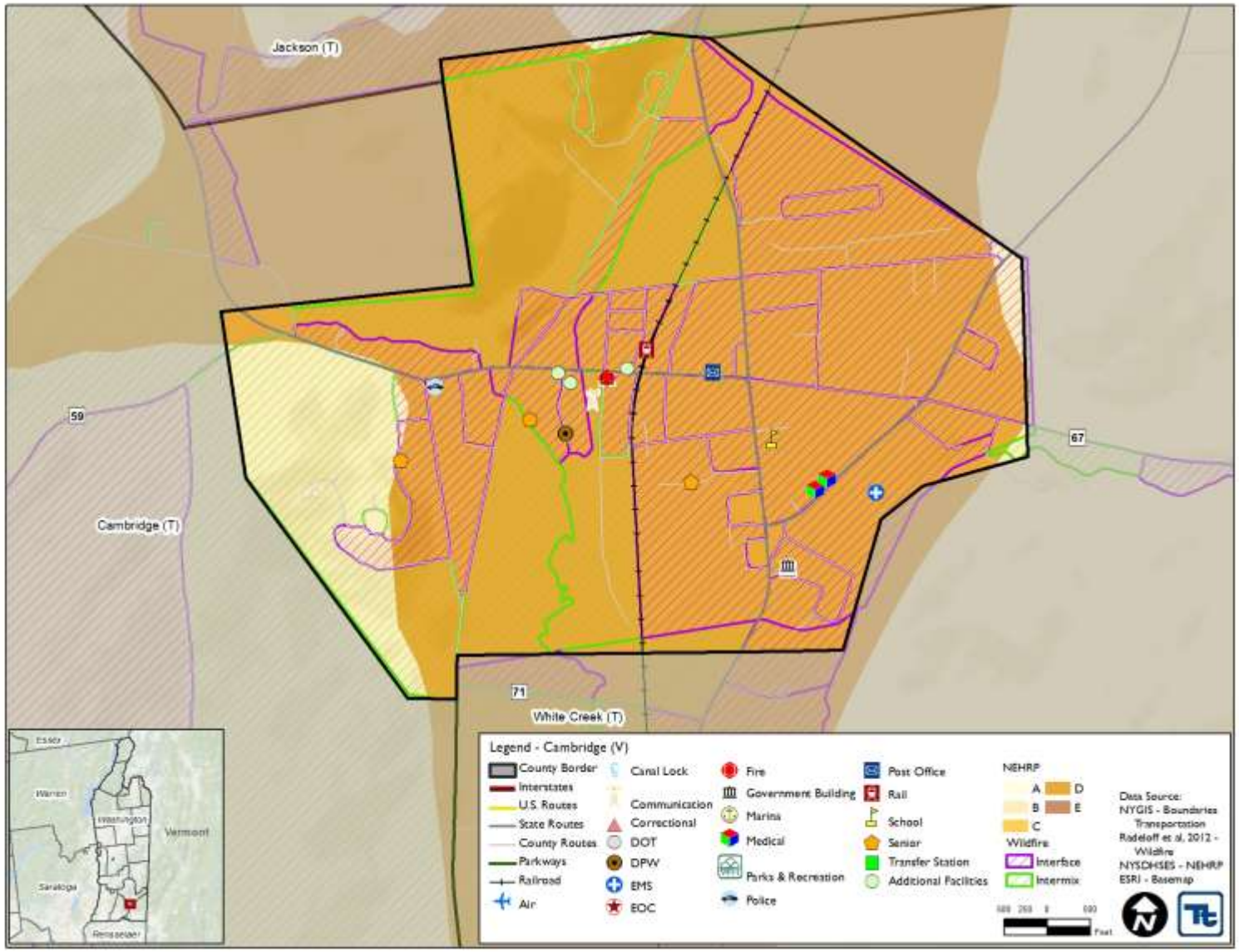
9.5.8 Hazard Area Extent and Location

Hazard area extent and location maps have been generated for the Village of Cambridge that illustrate the probable areas impacted within the municipality. These maps are based on the best available data at the time of the preparation of this plan, and are considered to be adequate for planning purposes. Maps have only been generated for those hazards that can be clearly identified using mapping techniques and technologies, and for which the Village of Cambridge has significant exposure. These maps are illustrated in the hazard profiles within Section 5.4, Volume I of this Plan.

9.5.9 Additional Comments

None at this time.

Figure 9.5-1. Village of Cambridge Hazard Area Extent and Location



Action Number: V. Cambridge-1

Mitigation Action Name: Training and conferences for staff on floodplain administration program.

Assessing the Risk	
Hazard(s) addressed:	All Hazards
Specific problem being mitigated:	Staff members have not been formally trained on Floodplain Administration.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Send other staff member to trainings instead of Floodplain Administrator (FPA). FPA needs to have skills and experience necessary to run a successful Floodplain Management program.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Send local FPA to County and State trainings and to complete certification programs with respect to floodplain management. Also provide continuing education and training to ensure code enforcement and proper inspections.
Mitigation Action Type	Education and Awareness Programs (EAP)
Goals Met	Goal 2: Increase Public Awareness Goal 4: Provide for Emergency Services
Applies to existing and or new development, or not applicable	N/A
Benefits (losses avoided)	Medium
Estimated Cost	Low – Staff Time
Priority*	High
Plan for Implementation	
Responsible Organization	Village Board and FPA
Local Planning Mechanism	Hazard Mitigation, Floodplain ordinance
Potential Funding Sources	Municipal Budget and Time
Timeline for Completion	Short Term – less than five years
Reporting on Progress	
Date of Status Report/ Report of Progress	No progress; new project

Action Number: V. Cambridge-1
Mitigation Action Name: Training and conferences for staff on floodplain administration program.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	0	
Fiscal	1	Municipal budget
Environmental	1	
Social	0	
Administrative	1	Village floodplain administrator
Multi-Hazard	1	
Timeline	1	To be completed in the next five years
Agency Champion	0	
Other Community Objectives	0	
Total	10	
Priority (H/M/L)	High	

Action Number: V. Cambridge-2

Mitigation Action Name: Send staff to trainings on natural hazard risk management.

Assessing the Risk	
Hazard(s) addressed:	All Hazards
Specific problem being mitigated:	Staff members have not been formally trained in Benefit Cost Analysis, Recovery Planning, Damage Estimates, or Debris Management. All are essential in emergency planning and recovery for the Village.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Hire trainers to come to Village to train staff – costly.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Send village staff to county and state trainings on regulatory requirements for natural hazard risk management, and encourage certification programs with respect to hazard risk management in Benefit Cost Analysis (BCA), Recovery Planning, Damage Estimates, and Debris Management. Certifications and trainings for hazard risk management will allow for staff members to properly address hazards of concern and mitigation opportunities.
Mitigation Action Type	Local Plans and Regulations (LPR) Education and Awareness Programs (EAP)
Goals Met	Goal 2: Increase Public Awareness Goal 4: Provide for Emergency Services
Applies to existing and or new development, or not applicable	N/A
Benefits (losses avoided)	Medium
Estimated Cost	Low – Staff Time
Priority*	Medium
Plan for Implementation	
Responsible Organization	Village Board, Highway Department, Code Enforcement, Planning
Local Planning Mechanism	Hazard Mitigation, Emergency Management
Potential Funding Sources	Municipal Budget and Time
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	No progress; new project

Action Number: V. Cambridge-2
Mitigation Action Name: Send staff to trainings on natural hazard risk management.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Entire village population would benefit
Property Protection	1	Entire building stock of village would benefit
Cost-Effectiveness	1	
Technical	1	
Political	0	
Legal	0	
Fiscal	0	Need to obtain funding
Environmental	0	
Social	0	
Administrative	1	Village staff
Multi-Hazard	1	
Timeline	1	
Agency Champion	0	
Other Community Objectives	0	
Total	7	
Priority (H/M/L)	Medium	

Action Number: V. Cambridge-3

Mitigation Action Name: Customized outreach and notification from FEMA or state equivalent to property owners on designated wetlands.

Assessing the Risk	
Hazard(s) addressed:	Flood, Severe Storm
Specific problem being mitigated:	Residents unknowingly living on wetlands may be causing harm to the ecosystem without knowing.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Rely on outside groups to conduct public outreach – may not be sustainable or at high enough standards.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Identify property owners and inform them that they are located on designated wetlands. Outreach to include methods to help protect the ecosystem from unintended harm.
Mitigation Action Type	Local Plans and Regulations (LPR) Education and Awareness Programs (EAP)
Goals Met	Goal 1: Protect Life and Property Goal 2: Increase Public Awareness 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.
Applies to existing and or new development, or not applicable	N/A
Benefits (losses avoided)	Medium
Estimated Cost	Low
Priority*	Medium
Plan for Implementation	
Responsible Organization	Village Board, County OEM, NYS DEC
Local Planning Mechanism	Hazard Mitigation; Public Education
Potential Funding Sources	Municipal Budget and Time
Timeline for Completion	Short
Reporting on Progress	
Date of Status Report/ Report of Progress	No progress; new project

Action Number: V. Cambridge-3

Mitigation Action Name: Customized outreach and notification from FEMA or state equivalent to property owners on designated wetlands.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	0	
Legal	1	
Fiscal	0	Need to obtain funding
Environmental	0	Inform residents of the location of wetlands
Social	0	Specific to residents who live on designated wetlands
Administrative	1	
Multi-Hazard	0	
Timeline	0	
Agency Champion	0	
Other Community Objectives	0	
Total	6	
Priority (H/M/L)	Medium	

Action Number: V. Cambridge-4

Mitigation Action Name: Education and outreach for mitigation properties from natural hazards.

Assessing the Risk	
Hazard(s) addressed:	All Hazards
Specific problem being mitigated:	Many residents and business owners could be located within hazard areas and not be aware of the fact.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Rely on outside groups to conduct public outreach – may not be sustainable or at high enough standards.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Support and information regarding hazard vulnerability and mitigation opportunities will be provided to residents and business owners located within the hazard areas using various outreach techniques including informational mailers, brochures, school presentations, and other outreach activities.
Mitigation Action Type	Education and Awareness Programs (EAP)
Goals Met	Goal 1: Protect Life and Property Goal 2: Increase Public Awareness Goal 4: Provide for Emergency Services
Applies to existing and or new development, or not applicable	N/A
Benefits (losses avoided)	Medium
Estimated Cost	Low
Priority*	High
Plan for Implementation	
Responsible Organization	Village Board with support from County OEM
Local Planning Mechanism	Hazard Mitigation; Public Education; Emergency Management
Potential Funding Sources	Municipal Budget and Time
Timeline for Completion	Short-Term
Reporting on Progress	
Date of Status Report/ Report of Progress	No progress; new project

Action Number: V. Cambridge-4
Mitigation Action Name: Education and outreach for mitigation properties from natural hazards.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Allow residents to gain better knowledge on how to protect themselves and their property from natural hazards
Property Protection	1	Allow residents to gain better knowledge on how to protect themselves and their property from natural hazards
Cost-Effectiveness	1	
Technical	1	
Political	0	
Legal	1	
Fiscal	0	Need to obtain funding – municipal budget, county or NYS
Environmental	0	
Social	1	Benefit the entire population of the Village
Administrative	1	
Multi-Hazard	1	All hazards
Timeline	1	
Agency Champion	0	
Other Community Objectives	0	
Total	9	
Priority (H/M/L)	High	

Action Number: V. Cambridge-5

Mitigation Action Name: Construct new fire station opposite the office park on Rt. 313.

Assessing the Risk	
Hazard(s) addressed:	All Hazards
Specific problem being mitigated:	Original fire station is old and outdated; in need for a new fire house with updated equipment to provide emergency services to the Village.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Refurbish old fire station – too costly to bring up to code and handle needs of community.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Construct new fire station opposite the office park on Rt. 313. Construct a new and updated fire station that will be better equipped to meet the needs of the community.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	Goal 1: Protect Life and Property Goal 4: Provide for Emergency Services
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	High
Estimated Cost	Medium
Priority*	High
Plan for Implementation	
Responsible Organization	Village Board, Fire Department, County Office of Emergency Services
Local Planning Mechanism	Hazard Mitigation
Potential Funding Sources	FEMA Assistance to Firefighters Grants
Timeline for Completion	Short Term – less than five years
Reporting on Progress	
Date of Status Report/ Report of Progress	No progress; new project

Action Number: V. Cambridge-5

Mitigation Action Name: Construct new fire station opposite the office park on Rt. 313.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Provide a new fire station to allow for better protection to residents in the event of a fire
Property Protection	1	Provide a new fire station to allow for better protection to buildings in the event of a fire
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	0	
Fiscal	0	Need to secure funding
Environmental	0	
Social	0	
Administrative	1	
Multi-Hazard	0	
Timeline	0	
Agency Champion	1	
Other Community Objectives	0	
Total	7	
Priority (H/M/L)	High	

Action Number: V. Cambridge-6

Mitigation Action Name: Purchase a back-up generator for Village Offices/ Court/ Police Station complex.

Assessing the Risk	
Hazard(s) addressed:	All Hazards
Specific problem being mitigated:	Potential for loss of functionality during an emergency event.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Install solar panels – Costly, weather dependent.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Purchase a back-up generator for Village Offices/ Court/ Police Station complex. Upon receiving funding, purchase and install back-up generators for Villages Office/Court/Police Station complex.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	Goal 1: Protect Life and Property Goal 4: Provide for Emergency Services
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	High
Estimated Cost	Medium
Priority*	High
Plan for Implementation	
Responsible Organization	Village Board, County Office of Emergency Services
Local Planning Mechanism	Hazard Mitigation
Potential Funding Sources	FEMA HMA (HMGP and FMA); Village Budget
Timeline for Completion	Short
Reporting on Progress	
Date of Status Report/ Report of Progress	No progress; new project

Action Number: V. Cambridge-6

Mitigation Action Name: Purchase a back-up generator for Village Offices/ Court/ Police Station complex.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	Allow the village offices, court and police station to function during periods of power outages
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	
Fiscal	0	Need to identify funding source
Environmental	0	
Social	1	
Administrative	1	
Multi-Hazard	1	
Timeline	1	
Agency Champion	0	
Other Community Objectives	0	
Total	10	
Priority (H/M/L)	High	

Action Number: V. Cambridge-7

Mitigation Action Name: Digitize/back up original historical records from the Village Offices, including the Registrar.

Assessing the Risk	
Hazard(s) addressed:	Flood
Specific problem being mitigated:	The Village has a lack of digital copies for its records.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Create hardcopies of original historical records and hold at secondary location – not preferred, costly.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Records should be scanned and maintained electronically to reduce risk of losing records during a natural disaster. Paper copies of historical records will be scanned and filed to prevent their loss during a natural disaster.
Mitigation Action Type	Local Plans and Regulations (LPR)
Goals Met	Goal 1: Protect Life and Property Goal 4: Provide for Emergency Services
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	High
Estimated Cost	Medium
Priority*	Medium
Plan for Implementation	
Responsible Organization	Village Board, Village Clerk
Local Planning Mechanism	Hazard Mitigation
Potential Funding Sources	Village Budget
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	No progress; new project

Action Number: V. Cambridge-7

Mitigation Action Name: Digitize/back up original historical records from the Village Offices, including the Registrar.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	0	
Property Protection	0	
Cost-Effectiveness	1	Reduce the risk of municipal records from being destroyed during a hazard event
Technical	1	
Political	1	
Legal	1	
Fiscal	1	Municipal budget and staff time
Environmental	0	
Social	0	
Administrative	1	
Multi-Hazard	1	All hazards
Timeline	1	
Agency Champion	1	
Other Community Objectives	0	
Total	11	
Priority (H/M/L)	Medium	

9.6 TOWN OF DRESDEN

This section presents the jurisdictional annex for the Town of Dresden.

9.6.1 Hazard Mitigation Plan Point of Contact

The following individuals have been identified as the hazard mitigation plan's primary and alternate points of contact.

Primary Point of Contact	Alternate Point of Contact
Richard Hobus – Highway Superintendent 576 County Route 6 Clemons, NY 12819 Phone: 518-499-2040 Email:hobus@verizon.net	George Gang – Town Supervisor 102 Clemons Center Rd. Clemons, NY 12819 Phone: 518-499-1100 Email:townofdresden@hotmail.com

9.6.2 Municipal Profile

The Town of Dresden is in the Adirondack Mountains in New York State and is located between the shores of Lake George to the west and Lake Champlain and South Bay to the east. It is found in northern Washington County. The Town is bordered to the north by the Town of Putnam and to the south by the Town of Fort Ann. The following hamlets are found in the Town: Clemons, Dresden, Dresden Station, and Huletts Landing. Pine Lake, Lake George, Lake Champlain, and South Bay are the major bodies of water found throughout the Town.

The Town has a total area of 55.0 square miles, of which, 53.4 square miles is land and 1.6 square miles is water. According to the 2010 Census, the community's population was 677. The Town is governed by the Town Board consisting of town council and the town supervisor.

Growth/Development Trends

The following table summarizes recent residential/commercial development since 2010 to present and any known or anticipated major residential/commercial development and major infrastructure development that has been identified in the next five years within the municipality.

Table 9.6-1. Growth and Development

Property or Development Name	Type (e.g. Res., Comm.)	# of Units / Structures	Location (address and/or Parcel ID)	Known Hazard Zone(s)	Description/Status of Development
Recent Development from 2010 to present					
None identified by the municipality.					
Known or Anticipated Development in the Next Five (5) Years					
None identified by the municipality.					

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

9.6.3 Natural Hazard Event History Specific to the Municipality

Washington County has a history of natural and non-natural hazard events as detailed in Volume I, Section 5.0 of this plan. 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. For the purpose of this plan update, events that have occurred in the County from 2008 to present were summarized to indicate the range and impact of hazard events in the community. Information regarding specific damages is included, if available,

based on reference material or local sources. This information is presented in the table below. For details of these and additional events, refer to Volume I, Section 5.0 of this plan.

Table 9.6-2. Hazard Event History

Dates of Event	Event Type (FEMA Disaster Declaration if applicable)	Washington County Designated?	Summary of Damages/Losses
December 11-31, 2008	Severe Winter Storm DR-1827	Yes	Police overtime cost: $1,979.27; DPW clean-up and debris removal cost: $5,451.89
August 26-September 5, 2011	Hurricane/T.S. Irene DR-4020	Yes	Road closures and utility outages; Damage to roads, bridges and culverts; Police overtime cost $1,441.92; DPW clean-up and debris removal cost: $969.45
June 17, 2013	Severe Thunderstorms - Hail	N/A	The Town noted that this event impacted the municipality; however, losses were not significant.
July 11, 2013	Beaver Dam Failure – Flooding DR-4129	No	The Town noted that this event impacted the municipality; however, losses were not significant.
February 29, 2016	Strong Winds	N/A	The Town noted that this event impacted the municipality; however, losses were not significant.

Notes:

EM *Emergency Declaration (FEMA)*
FEMA *Federal Emergency Management Agency*
DR *Major Disaster Declaration (FEMA)*
IA *Individual Assistance*
N/A *Not applicable*
PA *Public Assistance*

9.6.4 Hazard Vulnerabilities and Ranking

The hazard profiles in Section 5.0 of this plan have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes the hazard vulnerabilities and their ranking in the Town of Dresden. For additional vulnerability information relevant to this jurisdiction, refer to Section 5.0. Refer to Figure 9.6-1 later in this annex for hazard vulnerable areas located in the town.

Natural Hazard Risk/Vulnerability Risk Ranking

As discussed in Section 5.3 (Hazard Ranking), each participating town or village may have differing degrees of risk exposure and vulnerability compared to Washington County as a whole. Therefore, each municipality 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 Dresden. Table 9.6-12 provides proposed mitigation initiatives for the high ranked hazards.

Table 9.6-3. Hazard Risk/Vulnerability Risk Ranking

Hazard type	Estimate of Potential Dollar Losses to Structures Vulnerable to the Hazard [a, c]	Probability of Occurrence	Risk Ranking Score (Probability x Impact)	Hazard Ranking [b]
Earthquake	100-Year GBS: $0 500-Year GBS: $2,844,861 2,500-Year GBS: $33,492,916	Occasional	28	Medium

Hazard type	Estimate of Potential Dollar Losses to Structures Vulnerable to the Hazard [a, c]	Probability of Occurrence	Risk Ranking Score (Probability x Impact)	Hazard Ranking [b]
Flood	Damage estimate not available.	Frequent	36	High
Severe Weather	100-Year MRP: $235,422 500-year MRP: $2,755,493 Annualized: $17,486	Frequent	48	High
Severe Winter Weather	1% GBS: $2,227,679 5% GBS: $11,138,394	Frequent	51	High
Wildfire	Estimated Value in the WUI Hazard Areas: $252,018,058	Frequent	48	High

Notes:

a. Building damage ratio estimates based on FEMA 386-2 (August 2001)

b. The valuation of general building stock and loss estimates was based on custom inventory for the municipality.
High = Total hazard priority risk ranking score of 31 and above
Medium = Total hazard priority risk ranking of 20-30+
Low = Total hazard risk ranking below 20

c. Loss estimates for the severe storm and severe winter storm hazards are structural values only and do not include the value of contents.

d Loss estimates for the flood and earthquake hazards represent both structure and contents.

e. The HAZUS-MH earthquake model results are reported by Census Tract.

f. Damage estimate for flood unavailable due to lack of digital floodplain data for Washington County.

National Flood Insurance Program (NFIP) Summary

The following table summarizes the NFIP statistics for the Town of Dresden.

Table 9.6-4. NFIP Summary

Municipality	# Policies (1)	# Claims (Losses) (1)	Total Loss Payments (2)	# Rep. Loss Prop. (1)	# Severe Rep. Loss Prop. (1)
Dresden (T)	11	10	$154,154	0	0

Source: FEMA, 2016

Note (1) Policies, claims, repetitive loss and severe repetitive loss statistics provided by FEMA and are current as of April 30, 2016 and are summarized by Community Name. Please note the total number of repetitive loss properties excludes the severe repetitive loss properties. The number of claims represents claims closed by 4/30/2016.

Note (2) Total building and content losses from the claims file provided by FEMA Region 2.

Note (3) The policies inside and outside of the flood zones are unavailable due to lack of digital floodplain for Washington County.

Note (4) FEMA noted that where there is more than one entry for a property, there may be more than one policy in force or more than one GIS possibility.

Critical Facilities

At the time of this HMP Update, digitized flood maps for Washington County are unavailable. In order to provide some level of beneficial analysis, a desktop analysis was performed to identify critical facilities located within the floodplain (refer to Section 5.1 [Methodology and Tools] for details). The following table identifies critical facilities located within the municipality and their exposure, if any, to the possible floodplain. This information is a resource for the municipality to determine if flood mitigation actions are appropriate based on historical events and proximity of the facility to a water body. At the time of this 2018 HMP Update, the municipality did not identify any actions associated with these facilities.

The Town of Dresden understands the limitation of the map data and once the updated maps are available, the municipality will work with Washington County to determine which critical facilities are located within the 1% and 0.2% annual chance flood zones. Once identified, the municipality will work with the property owners

and develop mitigation actions for each of the critical facilities, ensuring they will be protected to the 500-year (or worst-case scenario) level.

Table 9.6-5. Potential Flood Losses to Critical Facilities

Name	Type	Potential Flood Exposure
Huletts Landing Fire Department	Fire	X
US Postal Service - Huletts Landings	Post Office	X
Huletts Marina	Marina	X

Source: Washington County; NYS GIS Clearinghouse

Other Vulnerabilities Identified

The municipality has identified the following vulnerabilities within their community:

- None identified

9.6.5 Capability Assessment

This section identifies the following capabilities of the local jurisdiction:

- Planning and regulatory capability
- Administrative and technical capability
- Fiscal capability
- Community classification
- National Flood Insurance Program
- Integration of Mitigation Planning into Existing and Future Planning Mechanisms

Planning and Regulatory Capability

The table below summarizes the regulatory tools that are available to the Town of Dresden.

Table 9.6-6. Planning and Regulatory Tools

Tool / Program (code, ordinance, plan)	Do you have this? (Yes/No) If Yes, date of adoption or update	Authority (local, county, state, federal)	Dept. /Agency Responsible	Code Citation and Comments (Code Chapter, name of plan, explanation of authority, etc.)
Planning Capability				
Master Plan	No	-	-	-
Capital Improvements Plan	Yes	Local	Highway	Updated annually – municipal budget / capital budget
Floodplain Management / Basin Plan	No	-	-	-
Stormwater Management Plan	No	-	-	-
Open Space Plan	No	-	-	-
Stream Corridor Management Plan	No	-	-	-
Watershed Management or Protection Plan	No	-	-	-
Economic Development Plan	No	-	-	-
Comprehensive Emergency Management Plan	No	-	-	-

Tool / Program (code, ordinance, plan)	Do you have this? (Yes/No) If Yes, date of adoption or update	Authority (local, county, state, federal)	Dept. /Agency Responsible	Code Citation and Comments (Code Chapter, name of plan, explanation of authority, etc.)
Emergency Response Plan	No	-	-	-
Post-Disaster Recovery Plan	No	-	-	-
Transportation Plan	No	-	-	-
Strategic Recovery Planning Report	No	-	-	-
Other Plans:	No	-	-	-
Regulatory Capability				
Building Code	Yes	State & County	Code Enforcement (county)	Building Code of New York State (NYS), Local Law #1
Zoning Ordinance	No	-	-	-
Subdivision Ordinance	No	-	-	-
NFIP Flood Damage Prevention Ordinance	Yes	Federal, State, Local	Town Supervisor	Information not provided at the time of the 2018 HMP Update
NFIP: Freeboard	Yes	State, Local	Town Supervisor	State mandated BFE+2 for single and two-family residential construction, BFE+1 for all other construction types
NFIP: Cumulative Substantial Damages	No	-	-	-
Growth Management Ordinances	No	-	-	-
Site Plan Review Requirements	No	-	-	-
Stormwater Management Ordinance	No	-	-	-
Municipal Separate Storm Sewer System (MS4)	No	-	-	-
Natural Hazard Ordinance	No	-	-	-
Post-Disaster Recovery Ordinance	No	-	-	-
Real Estate Disclosure Requirement	Yes	State	Information not provided at the time of the 2018 HMP Update	NYS mandate, Property Condition Disclosure Act, NY Code - Article 14 §460-467
Other [Special Purpose Ordinances (i.e., sensitive areas, steep slope)]	No	-	-	-

Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the Town of Dresden.

Table 9.6-7. Administrative and Technical Capabilities

Resources	Is this in place? (Yes or No)	Department/ Agency/Position
Administrative Capability		
Planning Board	No	-

Resources	Is this in place? (Yes or No)	Department/ Agency/Position
Mitigation Planning Committee	No	-
Environmental Board/Commission	No	-
Open Space Board/Committee	No	-
Economic Development Commission/Committee	No	-
Maintenance Programs to Reduce Risk	No	-
Mutual Aid Agreements	Yes	Fire - Whitehall
Technical/Staffing Capability		
Planner(s) or Engineer(s) with knowledge of land development and land management practices	No	-
Engineer(s) or Professional(s) trained in construction practices related to buildings and/or infrastructure	No	-
Planners or engineers with an understanding of natural hazards	No	-
NFIP Floodplain Administrator	Yes	Town Supervisor
Surveyor(s)	No	-
Personnel skilled or trained in GIS and/or HAZUS-MH applications	No	-
Scientist familiar with natural hazards	No	-
Emergency Manager	No	-
Grant Writer(s)	No	-
Staff with expertise or training in benefit/cost analysis	No	-
Professionals trained in conducting damage assessments	No	-

Fiscal Capability

The table below summarizes financial resources available to the Town of Dresden.

Table 9.6-8. Fiscal Capabilities

Financial Resources	Accessible or Eligible to Use (Yes/No)
Community development Block Grants (CDBG, CDBG-DR)	No
Capital Improvements Project Funding	Yes - Highway
Authority to Levy Taxes for specific purposes	No
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	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	No
Open Space Acquisition Funding Programs	No
Other	No

Community Classifications

The table below summarizes classifications for community program available to the Town of Dresden.

Table 9.6-9. Community Classifications

Program	Do you have this? (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	-	-
NYSDEC Climate Smart Community	No	-	-
Storm Ready	No	-	-
Firewise	No	-	-
Disaster/Safety Programs in/for Schools	No	-	-
Organizations with Mitigation Focus (advocacy group, non-government)	No	-	-
Public Education Program/Outreach (through website, social media)	Yes	The town utilitzes the municipal website as a form of public education and outreach	
Public-Private Partnerships	No	-	-

N/A = Not applicable. NP = Not participating. - = Unavailable. TBD = To be determined.

The classifications listed above relate to the community's ability to provide effective services to lessen its vulnerability to the hazards identified. These classifications can be viewed as a gauge of the community's capabilities in all phases of emergency management (preparedness, response, recovery and mitigation) and are used as an underwriting parameter for determining the costs of various forms of insurance. The CRS class applies to flood insurance while the BCEGS and Public Protection classifications apply to standard property insurance. CRS classifications range on a scale of 1 to 10 with class 1 being the best possible classification, and class 10 representing no classification benefit. Firewise classifications include a higher classification when the subject property is located beyond 1000 feet of a creditable fire hydrant and is within 5 road miles of a recognized Fire Station.

Criteria for classification credits are outlined in the following documents:

- The Community Rating System Coordinators Manual
- The Building Code Effectiveness Grading Schedule website at https://www.isomitigation.com/bcegs/
- The ISO Mitigation online ISO's Public Protection website at https://www.isomitigation.com/ppc/
- The National Weather Service Storm Ready website at https://www.weather.gov/stormready/
- The National Firewise Communities website at https://www.nfpa.org/Public-Education/By-topic/Wildfire/Firewise-USA

Self-Assessment of Capability

The table below provides an approximate measure of the Town of Dresden's capability to work in a hazard-mitigation capacity and/or effectively implement hazard mitigation strategies to reduce hazard vulnerabilities.

Table 9.6-10. Self-Assessment Capability for the Municipality

	Degree of Hazard Mitigation Capability

Area	Limited (If limited, what are your obstacles?)*	Moderate	High
Planning and Regulatory Capability	X – lack of funding		
Administrative and Technical Capability	X – lack of funding		
Fiscal Capability	X – lack of funding		
Community Political Capability	X – lack of funding		
Community Resiliency Capability	X – lack of funding		
Capability to Integrate Mitigation into Municipal Processes and Activities.		X	

National Flood Insurance Program

NFIP Floodplain Administrator (FPA)

While the Town Supervisor is identified as the muncipal FPA, Mr. Richard Hobus, Highway Superintendent, provided information regarding the floodplain program in the Town.

Flood Vulnerability Summary

The municipality currently does not maintain an inventory of propeties that have been flood damaged and which of the owners are interested in some sort of mitigation action. The FPA indicated that there have been 12 structures damaged as a result of storm events, including Hurricane Floyd and Hurricane Irene.

Resources

The FPA is the sole person assumking the responsibilities of floodplain administration. The municipality does not provide any outreach or education to the community regarding flood hazards/risk and flood risk reduction through NFIP insurance and mitigation. The FPA indicated that he does not believe that he is adequately supported and trained to fulfill the responsibility of floodplain administrator. The FPA also indicated a lack of funding as a barrier to running an effective floodplain management program for the community.

Regulatory

The floodplain management regulations and ordinances of the muniicpality meet the FEMA and state minimum requirements. The municipality is not a part of the CRS program, but if it were offered locally, the FPA would consider attending a CRS seminar.

The community is in good standing with the NFIP. Information provided by NYS DHSES indicated that the last Community Assistance Visit was August 26, 2009.

Integration of Hazard Mitigation into Existing and Future Planning Mechanisms

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 this planning effort, each community was surveyed to obtain a better understanding of their community's progress in plan integration. A summary is provided below. In addition, the community identified specific integration activities that will be incorporated into municipal procedures.

Planning

Land Use Planning: The Town of Dresden falls under the jurisdiction of the Adirondack Park Agency (APA), and therefore is subject to the APA Land Area Use Classification. In the Adirondack Park Land Use and

Development Plan (APLUDP), all private lands in the Park are classified into six categories: hamlet, moderate intensity use, low intensity use, rural use, resource management, and industrial use.

The classification of a particular area depends on such factors as:

- existing land use and population growth patterns;
- physical limitations related to soils, slopes and elevations;
- unique features such as gorges and waterfalls;
- biological considerations;
- public considerations

In addition, Lake George Park Commission (LGPC) is a State agency that issues construction permits in and adjacent to Lake George that may apply to projects/ properties in the Town of Dresden. LGPC permits, SEQRA Review or other approvals may be needed for Stormwater management Docks, wharfs and moorings, projects in a wetland, fish spawning areas or other environmentally sensitive areas, and excavation and fill (cribs and seawalls).

Lake Champlain Watershed Water Quality Management Planning: Roadside Erosion Assessment and Inventory: The Lake Champlain Watershed Water Quality Management Planning project was one of 11 projects in New York State that was funded through the Federal Government's American Recovery and Reinvestment Act Initiative. The goal of the project was to identify critically eroding roadside banks that have contributed significant sediment loads to the high-quality streams throughout the Champlain Watershed (Clinton, Essex, Franklin, Warren and Washington Counties). The plan identified 319 roadside erosion sites in need to remediation. In Washington County, 31 sites were identified (12 high priority, 11 moderate priority, and 8 low priority). One site was located in the Town of Dresden.

Regulatory and Enforcement

Code Enforcement: Washington County provides code enforcement duties and responsibilities to the Town of Dresden.

Construction Codes, Uniform: The building codes are strictly enforced to make new and renovated buildings as prepared as possible for hazard related incidents. The Town complies with New York State Uniform Fire Prevention and Building Code (the Uniform Code) and the State Energy Conservation Construction Code (the Energy Code).

Flood Damage Prevention: This ordinance promotes the public health, safety, and general welfare of residents and seeks to minimize public and private losses due to flood conditions. It regulates development to promote flood resistant structures and controls the alteration of floodplains to prevent increased vulnerability.

Sewers: The Town abides by the County-wide Sanitary Code, which protects and regulates its sewage collection and treatment facilities as a matter of public health and environmental safety. It seeks to prohibit the introduction of stormwater, surface, or sub-surface waters into sanitary sewers and to control the quantity and quality of wastes in the sewage system.

Subdivision of Land: An APA permit may be needed for subdivisions. Most permit applications are acted upon by the APA staff—specifically, the Director of Regulatory Programs—without going to the full Agency Board.

Fiscal

Operating Budget: The Town's operating budget contains provisions for expected repairs like snow removal, leaf pickup, and infrastructure repair after a storm or natural disaster. The Town also allots funding for sewer operation and maintenance.

Grants: The Town is the recipient of a number of county, state, and federal grant programs. In 2014, nearly $160,000 of the Town's revenue consisted of grants and contributions from FEMA and the NY Consolidated Local Street and Highway Improvement Program (CHIPS).

Capital Improvement Plan/Program: Capital improvements and planned expenditures, including those for local sewer districts and highway improvements, are reported in the annual Town budget. In 2015, the Town allotted $94,029 for highway capital improvements and another $17,876 for bridge capital construction.

Education and Outreach

On the Town website, there is a section for community updates that is used to post pertinent information regarding what is currently going on in the Town.

9.6.6 Mitigation Strategy and Prioritization

This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and prioritization.

Past Mitigation Initiative Status

The following table indicates progress on the community's mitigation strategy identified in the 2010 Plan. It should be noted that during the 2010 planning process, only general, countywide actions were identified for each municipality. The Town of Dresden reviewed the previous actions and selected actions they chose to carry forward as part of this plan update. Previous actions that are now on-going programs and capabilities are indicated as such in the following table and may also be found under 'Capability Assessment' presented previously in this annex.

Table 9.6-11. Status of Previous Mitigation Actions

2010 Mitigation Action	Responsible Party	Status (In progress, No progress, Complete)	Describe Status	Next Step (Include in 2018 HMP or Discontinue)	Describe Next Step
Improve drainage at sites where roads have washed out due to natural hazards in the past	County and NYS DHSES	No Progress	Lack of funding	Include in 2018 HMP	The town has identified several locations where culverts need to be upgraded; refer to Table 9.6-12 for the revised actions
Purchase equipment to provide for local personnel to conduct the drainage improvement	County and NYS DHSES	No Progress	Lack of funding	Include in 2018 HMP	The town has identified several locations where culverts need to be upgraded; refer to Table 9.6-12 for the revised actions
Engineering assessment to determine feasibility of each site improvement	County and NYS DHSES	No Progress	Lack of funding	Include in 2018 HMP	The town has identified several locations where culverts need to be upgraded; refer to Table 9.6-12 for the revised actions
Improve dams to prevent flooding causing roads to wash out.	County and NYS DHSES	No Progress	Lack of funding	Include in 2018 HMP	The town has identified several dams that should be monitored and/or improved; refer to Table 9.6-12 for the revised actions
Improve identified sites where slope stability is subject to land subsidence and where excavation or planting could mitigate future damage.	County and NYS DHSES	No Progress	Not a concern for the Town	Discontinue	Not a concern for the Town at this time; therefore, it will not be included in the 2018 HMP Update

Completed Mitigation Initiatives not Identified in the Previous Mitigation Strategy

The Town of Dresden has identified the following mitigation projects/activities that have also been completed but were not identified in the previous mitigation strategy in the 2010 Plan:

- None identified

Proposed Hazard Mitigation Initiatives for the Plan Update

The Town of Dresden participated in a mitigation action workshop in September 2016 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).

Table 9.6-12 summarizes the comprehensive-range of specific mitigation initiatives the Town of Dresden would like to pursue in the future to reduce the effects of hazards. Some of these initiatives may be previous actions carried forward for this plan update. These 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. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table below to further demonstrate the wide-range of activities and mitigation measures selected.

As discussed in Section 6, 14 evaluation/prioritization criteria are used 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 your actions as 'High', 'Medium', or 'Low.' The table below summarizes the evaluation of each mitigation initiative, listed by Action Number.

Table 9.6-13 provides a summary of the prioritization of all proposed mitigation initiatives for the Plan update.

Table 9.6-12. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures *	Hazard(s) Mitigated	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
T. Dresden-1	Clemmons Road - stabilize with French drains, install erosion and sediment control blankets and hydroseed with conservation mix and soil amendments	Existing	Flood, Severe Storm	1	Town with support from Lake Champlain-Lake George Regional Planning Board	Medium	Low	County Soil & Water Conservation district, municipal budget, Water Quality Improvement Project Grants	Short Term	High	SIP	PP, NR
T. Dresden-2 (previous action)	Long Pond Dam – develop and enforce monitoring plan for dam; conduct surveys; review the Emergency Action Plan	Existing	Flood, Severe Storm	1	Town Engineer with support from NYS DEC	High	Low	Municipal budget	Short Term / Ongoing	Medium	LPR, EAP	PR
T. Dresden-3 (previous action)	Pike Brook Dam - develop and enforce monitoring plan for dam; conduct surveys; review the Emergency Action Plan	Existing	Flood, Severe Storm	1	Town Engineer with support from NYS DEC	High	Low	Municipal budget	Short Term / Ongoing	Medium	LPR, EAP	PR
T. Dresden-4	Huletts Landing Sewer District – Foster Brook - bury the existing sewer line under Foster Brook to prevent future damage from heavy rainfall or flooding events.	Existing	Flood, Severe Storm	1	Highway Department and Town Board with support from Huletts Landing District 1	High	Medium	HMGP-PDM, Private funding	Long-term	Medium	LPR, SIP	PP, PR
T. Dresden-5 (previous action)	Mosier Road box culvert – raise elevation of rad and replace existing box culvert with larger	Existing	Flood, Severe Storm	1	Dresden Highway	High	Medium	HMGP-PDM, Bridge NY, Local cost share	Short Term	High	LPR, SIP	PP, PR

Table 9.6-12. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures *	Hazard(s) Mitigated	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
	culvert to meet the stormwater demands from heavy water flow											
T. Dresden-6 (previous action)	T-14 Pike Brook box culvert - Raise the elevation of Pike Brook Road and replace existing box culvert with larger culvert to meet the stormwater demands from heavy water flow.	Existing	Flood, Severe Storm	1	Dresden Highway	High	Medium	HMGP-PDM, Local cost share, Bridge NY	Long-term	High	LPR, SIP	PP, PR
T. Dresden-7 (previous action)	T-6 Sands Bridge box culvert - Raise the elevation of the Sands Bridge box culvert and replace existing box culvert with larger culvert to meet the stormwater demands from heavy water flow.	Existing	Flood, Severe Storm	1	Dresden Highway	High	Medium	HMGP-PDM, Local cost share, Bridge NY	Long-term	High	LPR, SIP	PP, PR
T. Dresden-8	Locate and identify beaver dams in the Town and develop a plan to reduce risks from beaver dams and prevent flooding; implement plan.	Existing	Flood (beaver dam failure)	1	Dresden Highway	High	Medium	Municipal Budget	Long-term	High	SIP, EAP, NSP	PP, PR, NR
T. Dresden-9	Lake Road – Riprap and vegetation installation	Existing	Flood, Severe Storm	1	Dresden Highway	High	Medium	HMGP-PDM, Local cost share, NRCS, NYS DEC	Long-term	Low	LPR, SIP	PP, PR
T. Dresden-10	Upgrade Mannelville box culvert	Existing	Flood, Severe Storm	1	Dresden Highway	High	Medium	HMGP-PDM, Local cost share, Bridge NY	Long-term	High	LPR, SIP	PP, PR

Table 9.6-12. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures *	Hazard(s) Mitigated	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
(previous action)												
T. Dresden-11	Consider becoming a New York State certified Climate Smart Community	N/A	All	1, 5	Town with support from NYSDEC	Medium	Low	Municipal Budget	Short Term	Medium	LPR, EAP	PR, PI

Notes:

Not all acronyms and abbreviations defined below are included in the table.

**Does this mitigation initiative reduce the effects of hazards on new and/or existing buildings and/or infrastructure? Not applicable (N/A) is inserted if this does not apply.*

Acronyms and Abbreviations:

CAV	*Community Assistance Visit*
CRS	*Community Rating System*
DPW	*Department of Public Works*
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*
PDM	*Pre-Disaster Mitigation Grant Program*
RFC	*Repetitive Flood Claims Grant Program (discontinued in 2015)*
SRL	*Severe Repetitive Loss Grant Program (discontinued in 2015)*

Timeline:

Short	*1 to 5 years*
Long Term	*5 years or greater*
OG	*On-going program*
DOF	*Depending on funding*

Costs:

Where actual project costs have been reasonably estimated:

Low	*< $10,000*
Medium	*$10,000 to $100,000*
High	*> $100,000*

Where actual project costs cannot reasonably be established at this time:

Low	*Possible to fund under existing budget. Project is part of, or can be part of an existing on-going program.*
Medium	*Could budget for under existing work plan, but would require a reapportionment of the budget or a budget amendment, or the cost of the project would have to be spread over multiple years.*
High	*Would require an increase in revenue via an alternative source (i.e., bonds, grants, fee increases) to implement. Existing funding levels are not*

Benefits:

Where possible, an estimate of project benefits (per FEMA's benefit calculation methodology) has been evaluated against the project costs, and is presented as:

Low=	*< $10,000*
Medium	*$10,000 to $100,000*
High	*> $100,000*

Where numerical project benefits cannot reasonably be established at this time:

Low	*Long-term benefits of the project are difficult to quantify in the short term.*
Medium	*Project will have a long-term impact on the reduction of risk exposure to life and property, or project will provide an immediate reduction in the risk exposure to property.*
High	*Project will have an immediate impact on the reduction of risk exposure to life and property.*

Costs: *Benefits:*

adequate to cover the costs of the proposed project.

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*

Table 9.6-13. Summary of Prioritization of Actions

Mitigation Action / Project Number	Mitigation Action/Initiative	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
T. Dresden-1	Clemmons Road - stabilize with French drains, install erosion and sediment control blankets and hydroseed with conservation mix and soil amendments	1	1	1	1	1	0	0	0	0	1	1	1	1	0	9	High
T. Dresden-2 (previous action)	Long Pond Dam – develop and enforce monitoring plan for dam; conduct surveys; review the Emergency Action Plan	1	1	0	1	0	0	1	0	0	1	1	0	0	0	6	Medium
T. Dresden-3 (previous action)	Pike Brook Dam - develop and enforce monitoring plan for dam; conduct surveys; review the Emergency Action Plan	1	1	0	1	0	0	1	0	0	1	1	0	0	0	6	Medium
T. Dresden-4	Huletts Landing Sewer District – Foster Brook - bury the existing sewer line under Foster Brook to prevent future damage from heavy rainfall or flooding events.	0	1	1	1	1	0	0	1	0	1	1	0	0	0	7	Medium
T. Dresden-5 (previous action)	Mosier Road box culvert – raise elevation of rad and replace existing box culvert with larger culvert to meet the stormwater demands from heavy water flow	1	1	1	1	1	1	1	1	1	1	1	1	1	0	13	High
T. Dresden-6 (previous action)	T-14 Pike Brook box culvert - Raise the elevation of Pike Brook Road and replace existing box culvert with larger culvert to meet the stormwater demands from heavy water flow.	1	1	1	1	1	0	0	1	0	0	1	1	1	1	10	High
T. Dresden-7 (previous action)	T-6 Sands Bridge box culvert - Raise the elevation of the Sands Bridge box culvert and replace existing box culvert with larger culvert to meet the stormwater demands from heavy water flow.	1	1	1	1	1	0	0	1	0	0	1	1	1	0	9	High
T. Dresden-8	Locate and identify beaver dams in the Town and develop a plan to reduce risks from beaver dams and prevent flooding; implement plan.	1	1	1	1	1	0	0	1	0	0	1	1	1	0	9	High
T. Dresden-9	Lake Road – Riprap and	1	1	0	-1	-1	1	-1	0	0	-1	1	-1	0	0	-1	Low

Table 9.6-13. Summary of Prioritization of Actions

Mitigation Action / Project Number	Mitigation Action/Initiative	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
	vegetation installation																
T. Dresden-10 (previous action)	Upgrade Mannelville box culvert	1	1	1	1	1	1	1	1	1	1	1	1	1	0	13	High
T. Dresden-11	Consider becoming a New York State certified Climate Smart Community	1	1	0	1	0	1	0	0	0	1	1	0	0	0	6	Medium

Note: Refer to Section 6 which contains the guidance on conducting the prioritization of mitigation actions.

9.6.7 Future Needs To Better Understand Risk/Vulnerability

None at this time.

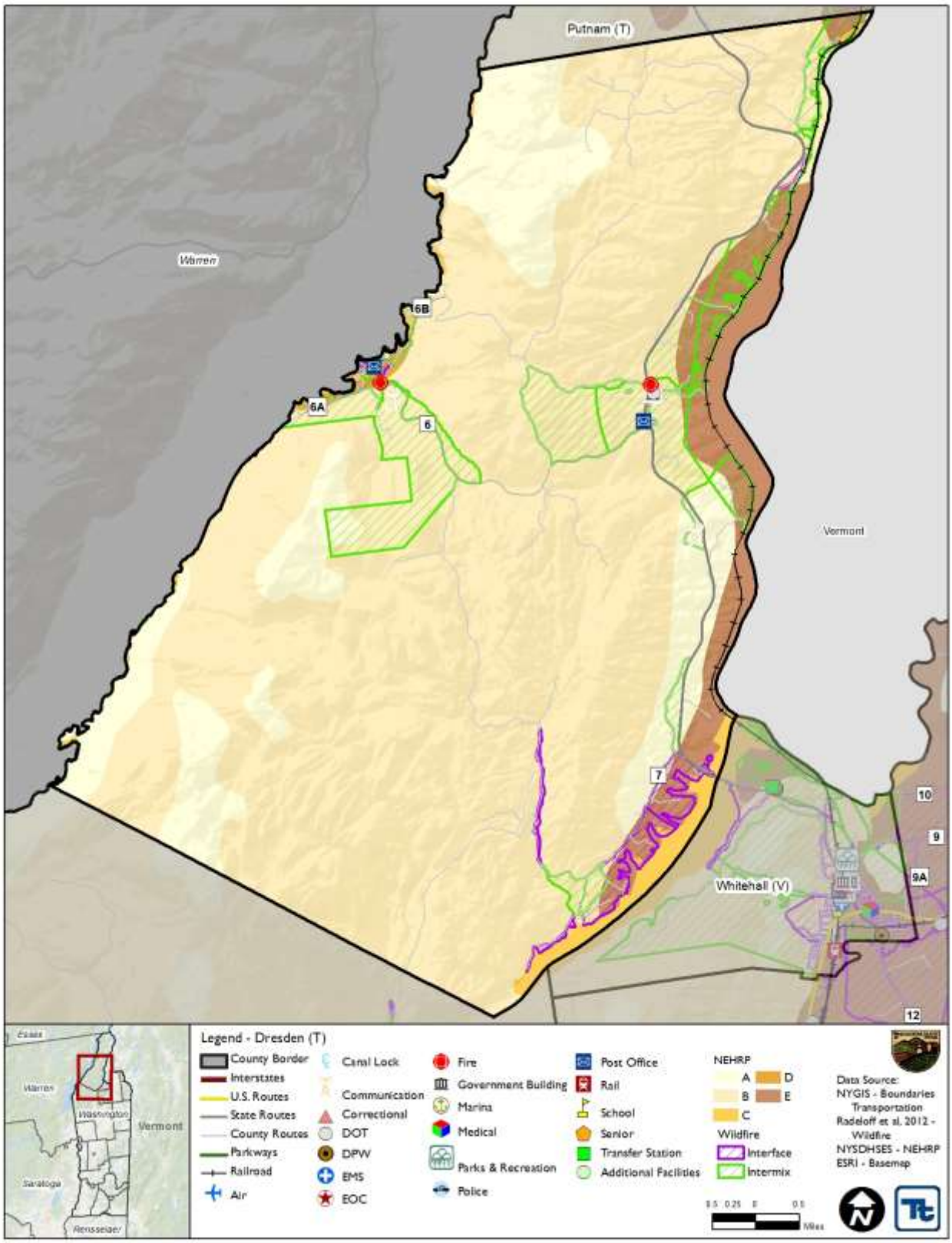
9.6.8 Hazard Area Extent and Location

Hazard area extent and location maps have been generated for the Town of Dresden that illustrate the probable areas impacted within the municipality. These maps are based on the best available data at the time of the preparation of this plan, and are considered to be adequate for planning purposes. Maps have only been generated for those hazards that can be clearly identified using mapping techniques and technologies, and for which the Town of Dresden has significant exposure. These maps are illustrated in the hazard profiles within Section 5.4, Volume I of this Plan.

9.6.9 Additional Comments

None at this time.

Figure 9.6-1. Town of Dresden Hazard Area Extent and Location



Action Number: T. Dresden-1

Mitigation Action Name: Clemmons Road.

Assessing the Risk	
Hazard(s) addressed:	Flood, Severe Storm
Specific problem being mitigated:	Eroding slope sides along the roadway can lead to flooding, closed roadways, impacting accessibility, and contributing to significant sediment loads to the stream. Roadway is more prone to inundation during periods of heavy rain.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action – current problem continues. Relocate Clemmons Road – not feasible. Install retaining wall – costly.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Clemmons Road – construct French drains, install erosion and sediment control blankets, and replace with hydroseed with conservation mix and soil amendments. This will help prevent erosion and improve stream channel functionality.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	Goal 1: Protect Life and Property
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	Medium
Estimated Cost	$500-$600
Priority*	Medium
Plan for Implementation	
Responsible Organization	Town Highway Department with support from Lake Champlain-Lake George Regional Planning Board
Local Planning Mechanism	Hazard Mitigation
Potential Funding Sources	County Soil & Water Conservation district, municipal budget, Water Quality Improvement Project Grants
Timeline for Completion	Short Term – less than five years to complete
Reporting on Progress	
Date of Status Report/ Report of Progress	New project; no progress

Action Number: T. Dresden-1
Mitigation Action Name: Clemmons Road.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	The costs to implement this project correspond with the benefits achieved
Technical	1	This action is technically feasible
Political	1	
Legal	0	
Fiscal	0	County Soil & Water Conservation district, municipal budget, Water Quality Improvement Project Grants
Environmental	0	
Social	0	
Administrative	1	The Town has the administrative capabilities to complete the action
Multi-Hazard	1	Flood, Severe Storm
Timeline	1	Short Term
Agency Champion	1	
Other Community Objectives	0	
Total	9	
Priority (H/M/L)	High	

Action Number: T. Dresden – 2

Mitigation Action/Initiative: Long Pond Dam.

Assessing the Risk	
Hazard(s) addressed:	Flood
Specific problem being mitigated:	There is currently no monitoring system in place to inspect the structural integrity of the Long Pond Dam. This prevents the Town from knowing any issues with the dam.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	Do nothing – current problem continues. Conduct inspections and surveys of the dam – chosen project. Replace the dam – cost.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Develop and enforce a monitoring plan for the Long Pond Dam. Conduct surveys and review the Emergency Action Plan. Inform residents living in the inundation area of the dam if a failure were to occur and ensure they understand the evacuation process, if needed. This project will allow town to gain better understanding of dam and inform residents of what to do in the event of an emergency
Action/Project Category	Local Plans and Regulations (LPR) Education and Awareness Programs (EAP)
Goals/Objectives Met	Goal 1: Protect Life and Property
Applies to existing and/or new development; or not applicable	Existing
Benefits (losses avoided)	High
Estimated Cost	Low – less than $10,000
Priority*	Medium
Plan for Implementation	
Responsible/Lead Agency/Department	Town Engineer with support from NYS DEC
Local Planning Mechanism	Hazard Mitigation, Emergency Management
Potential Funding Sources	Municipal budget
Timeline for Completion	Short-Term
Reporting on Progress	
Date of Status Report/ Report of Progress	New project; no progress

Action Number: T. Dresden - 2

Mitigation Action/Initiative: Long Pond Dam.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	By monitoring the dam, will identify any issues to correct prior to dam failing
Cost-Effectiveness	0	
Technical	1	
Political	0	
Legal	0	
Fiscal	1	
Environmental	0	
Social	0	
Administrative	1	
Multi-Hazard	1	
Timeline	0	Ongoing project
Local Champion	0	
Other Community Objectives	0	
Total	6	
Priority (High/Med/Low)	**Medium**	

Action Number: T. Dresden - 3

Mitigation Action/Initiative: Pike Brook Dam.

Assessing the Risk	
Hazard(s) addressed:	Flood
Specific problem being mitigated:	There is currently no monitoring system in place to inspect the structural integrity of the Pike Brook Dam. This prevents the Town from knowing any issues with the dam.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	Do nothing – current problem continues. Conduct inspections and surveys of the dam – chosen project. Replace the dam – cost.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Develop and enforce a monitoring plan for the Pike Brook Dam. Conduct surveys and review the Emergency Action Plan. Inform residents living in the inundation area of the dam if a failure were to occur and ensure they understand the evacuation process, if needed. This project will allow town to gain better understanding of dam and inform residents of what to do in the event of an emergency
Action/Project Category	Local Plans and Regulations (LPR) Education and Awareness Programs (EAP)
Goals/Objectives Met	Goal 1: Protect Life and Property
Applies to existing and/or new development; or not applicable	Existing
Benefits (losses avoided)	High
Estimated Cost	Low – less than $10,000
Priority*	Medium
Plan for Implementation	
Responsible/Lead Agency/Department	Town Engineer with support from NYS DEC
Local Planning Mechanism	Hazard Mitigation, Emergency Management
Potential Funding Sources	Municipal budget
Timeline for Completion	Short-Term
Reporting on Progress	
Date of Status Report/ Report of Progress	New project; no progress

Action Number: T. Dresden - 3

Mitigation Action/Initiative: Pike Brook Dam.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	By monitoring the dam, will identify any issues to correct prior to dam failing
Cost-Effectiveness	0	
Technical	1	
Political	0	
Legal	0	
Fiscal	1	
Environmental	0	
Social	0	
Administrative	1	
Multi-Hazard	1	
Timeline	0	Ongoing project
Local Champion	0	
Other Community Objectives	0	
Total	6	
Priority (High/Med/Low)	**Medium**	

Action Number: T. Dresden - 4

Mitigation Action/Initiative: Huletts Landing Sewer District 1 – Foster Brook.

Assessing the Risk	
Hazard(s) addressed:	Flood – Severe winter – Severe storm
Specific problem being mitigated:	The current sewer line is above ground as it crosses Foster Brook. During Tropical Storm Irene and a beaver dam failure event, significant stormwater runoff occurred and may have resulted in damage to the sewer line and surrounding area. Tropical Storm Irene was a near-miss but another event and the sewer line could be damage.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	Do nothing – current problem continues. Bury sewer line under Foster Brook – chosen project. Move sewer line – not feasible.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Bury the existing sewer line under Foster Brook to prevent future damage from heavy rainfall or flooding events. This project will reduce impacts and damages to the sewer line in the Town.
Action/Project Category	Local Plans and Regulations (LPR) Structure and Infrastructure Project (SIP)
Goals/Objectives Met	Goal 1: Protect Life and Property
Applies to existing and/or new development; or not applicable	Existing
Benefits (losses avoided)	High
Estimated Cost	Medium
Priority*	Medium
Plan for Implementation	
Responsible/Lead Agency/Department	Highway Department and Town Board with support from Huletts Landing District 1
Local Planning Mechanism	Hazard Mitigation, Municipal Budget, Wastewater
Potential Funding Sources	HMGP-PDM, Private funding
Timeline for Completion	Long-term
Reporting on Progress	
Date of Status Report/ Report of Progress	New project; no progress

Action Number: T. Dresden - 4

Mitigation Action/Initiative: Huletts Landing Sewer District 1 – Foster Brook.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	0	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	0	
Fiscal	0	Need to obtain funding
Environmental	1	
Social	0	
Administrative	1	
Multi-Hazard	1	
Timeline	0	
Local Champion	0	
Other Community Objectives	0	
Total	7	
Priority (High/Med/Low)	**Medium**	

Action Number: T. Dresden - 5

Mitigation Action/Initiative: Mosier Rd Box Culvert.

Assessing the Risk	
Hazard(s) addressed:	Flood – Severe Storm
Specific problem being mitigated:	Current box culvert is inadequate for stormwater demand from heavy water flow.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	Do nothing – current problem continues. Raise elevation of road and install wider and taller box culvert – chosen project. Relocate roadway and remove culvert – not feasible.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Raise the elevation of Moiser Road and replace existing box culvert with larger culvert to meet the stormwater demands from heavy water flow. This project will reduce flooding of roadway and damage to surrounding property.
Action/Project Category	Local Plans and Regulations (LPR) Structure and Infrastructure Project (SIP)
Goals/Objectives Met	Goal 1: Protect Life and Property
Applies to existing and/or new development; or not applicable	Existing
Benefits (losses avoided)	High
Estimated Cost	Medium
Priority*	High
Plan for Implementation	
Responsible/Lead Agency/Department	Town Highway Department, Town Board
Local Planning Mechanism	Hazard Mitigation, Town Budget
Potential Funding Sources	HMGP-PDM, Bridge NY, Local cost share
Timeline for Completion	Short Term – less than five years
Reporting on Progress	
Date of Status Report/ Report of Progress	New project; no progress

Action Number: T. Dresden - 5

Mitigation Action/Initiative: Mosier Rd Box Culvert.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	
Fiscal	1	Grants with use of some local funding
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	1	
Timeline	1	
Local Champion	1	
Other Community Objectives	0	
Total	13	
Priority (High/Med/Low)	**High**	

Action Number: T. Dresden - 6

Mitigation Action/Initiative: T-14 Pike Brook Box Culvert.

Assessing the Risk	
Hazard(s) addressed:	Flood – Severe Storm
Specific problem being mitigated:	Current box culvert is inadequate for stormwater demand from heavy water flow.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	Do nothing – current problem continues. Raise elevation of road and install wider and taller box culvert – chosen project. Relocate roadway and remove culvert – not feasible.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Raise the elevation of Pike Brook Road and replace existing box culvert with larger culvert to meet the stormwater demands from heavy water flow. This project will reduce flooding of roadway and damage to surrounding property.
Action/Project Category	Local Plans and Regulations (LPR) Structure and Infrastructure Project (SIP)
Goals/Objectives Met	Goal 1: Protect Life and Property
Applies to existing and/or new development; or not applicable	Existing
Benefits (losses avoided)	High
Estimated Cost	Medium
Priority*	High
Plan for Implementation	
Responsible/Lead Agency/Department	Town Highway Department, Town Board
Local Planning Mechanism	Hazard Mitigation, Town Budget
Potential Funding Sources	HMGP-PDM, Local cost share, Bridge NY
Timeline for Completion	Short Term – less than five years
Reporting on Progress	
Date of Status Report/ Report of Progress	New project; no progress

Action Number: T. Dresden - 6

Mitigation Action/Initiative: T-14 Pike Brook Box Culvert.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	0	
Political	1	
Legal	1	
Fiscal	-1	Grants needed
Environmental	0	
Social	1	
Administrative	1	
Multi-Hazard	1	
Timeline	1	
Local Champion	1	
Other Community Objectives	1	
Total	10	
Priority (High/Med/Low)	**High**	

Action Number: T. Dresden - 7

Mitigation Action/Initiative: T-6 Sands Bridge box culvert.

Assessing the Risk	
Hazard(s) addressed:	Flood – Severe Storm
Specific problem being mitigated:	Current box culvert is inadequate for stormwater demand from heavy water flow.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	Do nothing – current problem continues. Raise elevation of road and install wider and taller box culvert – chosen project. Relocate roadway and remove culvert – not feasible.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Raise the elevation of the Sands Bridge box culvert and replace existing box culvert with larger culvert to meet the stormwater demands from heavy water flow. This project will reduce flooding of roadway and damage to surrounding property.
Action/Project Category	Local Plans and Regulations (LPR) Structure and Infrastructure Project (SIP)
Goals/Objectives Met	Goal 1: Protect Life and Property
Applies to existing and/or new development; or not applicable	Existing
Benefits (losses avoided)	High
Estimated Cost	Medium
Priority*	High
Plan for Implementation	
Responsible/Lead Agency/Department	Town Highway Department, Town Board
Local Planning Mechanism	Hazard Mitigation, Town Budget
Potential Funding Sources	HMGP-PDM, Local cost share, Bridge NY
Timeline for Completion	Short Term – less than five years
Reporting on Progress	
Date of Status Report/ Report of Progress	New project; no progress

Action Number: T. Dresden - 7

Mitigation Action/Initiative: T-6 Sands Bridge box culvert.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	0	
Political	1	
Legal	1	
Fiscal	-1	Grants needed
Environmental	0	
Social	0	
Administrative	1	Outside help needed
Multi-Hazard	1	
Timeline	1	
Local Champion	1	
Other Community Objectives	1	
Total	9	
Priority (High/Med/Low)	**High**	

Action Number: T. Dresden - 8

Mitigation Action/Initiative: Locating and identifying beaver dams and their potential for failure.

Assessing the Risk	
Hazard(s) addressed:	Flood – Beaver dams
Specific problem being mitigated:	Unknown location of beaver dams on state and local land
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	Do nothing – current problem continues. Locate unknown beaver dams – chosen project. Remove all beaver dams – may not be necessary.
Action/Project Intended for Implementation	
Description of Selected Action/Project	There are numerous unfound beaver dams throughout the Town. These dams are susceptible to failure which could cause flooding problems depending on the size and location of them. By locating and identifying the location of beaver dams, the Town can develop a plan to reduce risks from beaver dams and prevent flooding. Once plan is completed, implementation of the plan can begin.
Action/Project Category	Structure and Infrastructure Project (SIP) Natural Systems Protection (NSP) Education and Awareness Programs (EAP)
Goals/Objectives Met	Goal 1: Protect Life and Property
Applies to existing and/or new development; or not applicable	Existing
Benefits (losses avoided)	High
Estimated Cost	Medium
Priority*	High
Plan for Implementation	
Responsible/Lead Agency/Department	Dresden Highway
Local Planning Mechanism	Hazard Mitigation, Town Budget
Potential Funding Sources	Municipal Budget
Timeline for Completion	Long-term
Reporting on Progress	
Date of Status Report/ Report of Progress	New project; no progress

Action Number: T. Dresden - 8

Mitigation Action/Initiative: Locating and identifying beaver dams and their potential for failure.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	0	
Fiscal	0	
Environmental	1	
Social	0	
Administrative	0	Outside help needed
Multi-Hazard	1	
Timeline	1	
Local Champion	1	
Other Community Objectives	0	
Total	9	
Priority (High/Med/Low)	**High**	

Action Number: T. Dresden-9

Mitigation Action/Initiative: Lake Road – Riprap and vegetation installation

Assessing the Risk	
Hazard(s) addressed:	Flood - Stormwater
Specific problem being mitigated:	The area is within a very steep valley with clay soils. The area has been moving for years due to stormwater runoff and has had continually financial costs for the Town. There is a constant risk for embankment failure in this area.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	Do nothing – current problem continues. Area stabilization with riprap. Move roadway – not feasible.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Prevent erosion of the slopes along Lake Road with property stabilization by installing riprap and planting vegetation on slopes. This will stabilize the slopes and reduce or prevent future erosion from stormwater runoff.
Action/Project Category	Local Plans and Regulations (LPR) Structure and Infrastructure Project (SIP)
Goals/Objectives Met	Goal 1: Protect Life and Property
Applies to existing and/or new development; or not applicable	Existing
Benefits (losses avoided)	High
Estimated Cost	Medium
Priority*	Low
Plan for Implementation	
Responsible/Lead Agency/Department	Dresden Highway
Local Planning Mechanism	Dresden Highway, Town Board
Potential Funding Sources	FEMA Pre-Disaster Mitigation Grant, USDA Natural Resources Conservation Services, NYS DEC, Local Cost Share
Timeline for Completion	Long-term
Reporting on Progress	
Date of Status Report/ Report of Progress	New project; no progress

Action Number: T. Dresden - 9

Mitigation Action/Initiative: Lake Road – Riprap and vegetation installation

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	0	
Technical	-1	
Political	-1	
Legal	1	
Fiscal	-1	
Environmental	0	
Social	0	
Administrative	-1	Outside help needed
Multi-Hazard	1	
Timeline	-1	
Local Champion	0	
Other Community Objectives	0	
Total	-1	
Priority (High/Med/Low)	**Low**	

Action Number: T. Dresden - 10

Mitigation Action/Initiative: Upgrade Mannelville Box Culvert.

Assessing the Risk	
Hazard(s) addressed:	Flood – Severe Winter – Severe Storm – Ice Jam
Specific problem being mitigated:	Current box culvert is inadequate for stormwater demand from heavy water flow.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	Do nothing – current problem continues. Raise elevation of road and install wider and taller box culvert – chosen project. Relocate roadway and remove culvert – not feasible.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Raise elevation of the roadway and replace current box culvert with taller and wider culvert that meets stormwater demands in this area of the town. This will decrease the risk of flooding in this area.
Action/Project Category	Local Plans and Regulations (LPR) Structure and Infrastructure Project (SIP)
Goals/Objectives Met	Goal 1: Protect Life and Property
Applies to existing and/or new development; or not applicable	Existing
Benefits (losses avoided)	High
Estimated Cost	Medium
Priority*	High
Plan for Implementation	
Responsible/Lead Agency/Department	Dresden Highway
Local Planning Mechanism	Dresden Highway, Town Board
Potential Funding Sources	FEMA Pre-Disaster Mitigation Grant, Local cost share, Bridge NY
Timeline for Completion	Long-term
Reporting on Progress	
Date of Status Report/ Report of Progress	New project; no progress

Action Number: T. Dresden - 10

Mitigation Action/Initiative: Upgrade Mannelville Box Culvert.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	
Fiscal	1	Grants with use of some local funding
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	1	
Timeline	1	
Local Champion	1	
Other Community Objectives	0	
Total	13	
Priority (High/Med/Low)	**High**	

Action Number: T. Dresden-11

Mitigation Action Name: Consider becoming a New York State certified Climate Smart Community.

Assessing the Risk	
Hazard(s) addressed:	All
Specific problem being mitigated:	Currently not a Climate Smart Community, and the Town does not have a Climate Action Plan that identifies policies, planning goals, and actions.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action – current problem continues. Take actions to meet Climate Smart Community criteria but not apply for certification – missed opportunity for public outreach and support
Action/Project Intended for Implementation	
Description of Selected Action/Project	Determine the benefits of becoming a New York State-certified Climate Smart Community. By joining, the Town will become engaged in reducing greenhouse gas emissions and improving climate resilience. The Town will also identify policies, measures, planning goals, actions, funding, responsibility, and schedules.
Mitigation Action Type	Local Plans and Regulations (LPR) Education and Awareness Programs (EAP)
Goals Met	Goal 1: Protect Life and Property
Applies to existing and or new development, or not applicable	N/A
Benefits (losses avoided)	Medium
Estimated Cost	Low
Priority*	Medium
Plan for Implementation	
Responsible Organization	Town Board with support from NYSDEC
Local Planning Mechanism	Hazard Mitigation
Potential Funding Sources	Municipal Budget
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	New project; no progress

Action Number: T. Dresden-11

Mitigation Action Name: Consider becoming a New York State certified Climate Smart Community.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	0	
Technical	1	
Political	0	
Legal	1	
Fiscal	0	Staff time and budget
Environmental	0	
Social	0	
Administrative	1	
Multi-Hazard	1	
Timeline	0	Short Term
Agency Champion	0	
Other Community Objectives	0	
Total	6	
Priority (H/M/L)	Medium	

9.7 TOWN OF EASTON

This section presents the jurisdictional annex for the Town of Easton.

9.7.1 Hazard Mitigation Plan Point of Contact

The following individuals have been identified as the hazard mitigation plan's primary and alternate points of contact.

Primary Point of Contact	Alternate Point of Contact
Daniel Shaw, Town Supervisor 1071 State Route 40, Easton, New York 695-4677; 744-2951 eastonsuper1@hotmail.com	Randy Moy, Councilman 1071 State Route 40, Easton, New York 692-9455; 462-9455

9.7.2 Municipal Profile

The Town of Easton is in southwestern Washington County, along the county's western border. The west town line is defined by the Hudson River with Saratoga County on the opposite bank. The south town line is the border of Rensselaer County. To the north the town is bounded by the Town of Greenwich, and to the east by the Towns of Jackson and Cambridge. A small portion of the Village of Greenwich lies within the Town of Easton.

The town has a total area of 63.2 square miles, of which 0.9 square miles is water. Significant water bodies in the town include the Battenkill, Ensign Brook, and Fly Creek, along with the Hudson River along the Town's western boundary.

According to the 2010 Census, the community's population was 2,336.

Growth/Development Trends

The Town of Easton did not note any recent residential/commercial development since 2010 or any major residential or commercial development, or major infrastructure development planned for the next five years in the municipality.

Table 9.7-1. Growth and Development

Property or Development Name	Type (e.g. Res., Comm.)	# of Units / Structures	Location (address and/or Parcel ID)	Known Hazard Zone(s)	Description/Status of Development
Recent Development from 2010 to present					
None identified by the municipality.					
Known or Anticipated Development in the Next Five (5) Years					
None identified by the municipality.					

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

9.7.3 Natural Hazard Event History Specific to the Municipality

Washington County has a history of natural and non-natural hazard events as detailed in Volume I, Section 5.0 of this plan. 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. For the purpose of this plan update, events that have occurred in the County from 2008 to present were summarized to indicate the range and impact of hazard events in the community. Information regarding specific damages is included, if available,

based on reference material or local sources. This information is presented in the table below. For details of these and additional events, refer to Volume I, Section 5.0 of this plan.

Table 9.7-2. Hazard Event History

Dates of Event	Event Type (FEMA Disaster Declaration if applicable)	Washington County Designated?	Summary of Damages/Losses
July 2-3, 2005	Flash Flooding	N/A	The flooding washed out a bridge on Valley Falls Rd., forcing that road to close for many weeks. Crandall's Corner and Hoag Roads were also closed as a result of the flooding. Town highway crews were deployed after the flood waters subsided to backfill roads throughout town. The Valley Falls bridge was eventually replaced by large culverts.
Sept. 2008	Hurricane Hanna	N/A	Wright Road was closed due to a washed-out culvert. Town crews spent two weeks on tree and debris removal in the wake of the event.
December 11-31, 2008	Severe Winter Storm DR-1827	Yes	Town workers worked significant overtime hours. Other damages included fuel costs and wear on the trucks and equipment.
August 26-September 5, 2011	Hurricane/T.S. Irene DR-4020	Yes	Town highway crews worked minimal overtime filling in roadway washouts.
October 27 – November 8, 2012	Hurricane/T.S. Sandy EM-3351	Yes	Heavy rains from the event backfilled culverts around town. Losses were incurred due to roadway clean-up and backfill.
June 17, 2013	Severe Thunderstorms – Hail	N/A	Flooding from the heavy rains washed out two culverts and forced the closure of Verbeck Avenue. Town crews later replaced two culvert pipes on Verbeck Avenue.

Notes:
EM *Emergency Declaration (FEMA)*
FEMA *Federal Emergency Management Agency*
DR *Major Disaster Declaration (FEMA)*
N/A *Not applicable*

9.7.4 Hazard Vulnerabilities and Ranking

The hazard profiles in Section 5.0 of this plan have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes the hazard vulnerabilities and their ranking in the Town of Easton. For additional vulnerability information relevant to this jurisdiction, refer to Section 5.0. Refer to Figure 9.7-1 later in this annex for hazard vulnerable areas located in the Town of Easton.

Natural Hazard Risk/Vulnerability Risk Ranking

As discussed in Section 5.3 (Hazard Ranking), each participating town or village may have differing degrees of risk exposure and vulnerability compared to Washington County as a whole. Therefore, each municipality 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 Easton. Table 9.7-12 provides proposed mitigation initiatives for the high ranked hazards.

Table 9.7-3. Hazard Risk/Vulnerability Risk Ranking

Hazard type	Estimate of Potential Dollar Losses to Structures Vulnerable to the Hazard [a, c]	Probability of Occurrence	Risk Ranking Score (Probability x Impact)	Hazard Ranking [b]

Hazard type	Estimate of Potential Dollar Losses to Structures Vulnerable to the Hazard [a, c]	Probability of Occurrence	Risk Ranking Score (Probability x Impact)	Hazard Ranking [b]
Earthquake	100-Year GBS: $0 500-Year GBS: $2,019,966 2,500-Year GBS: $21,660,795	Occasional	28	Medium
Flood	Damage estimate not available.	Frequent	27	Medium
Severe Weather	100-Year MRP: $215,622 500-year MRP: $1,109,779 Annualized: $10,253	Frequent	48	High
Severe Winter Weather	1% GBS: $4,286,514 5% GBS: $21,432,572	Frequent	51	High
Wildfire	Estimated Value in the WUI Hazard Areas: $163,931,667	Frequent	39	High

Notes:

a. Building damage ratio estimates based on FEMA 386-2 (August 2001)

b. The valuation of general building stock and loss estimates was based on custom inventory for the municipality.
High = Total hazard priority risk ranking score of 31 and above
Medium = Total hazard priority risk ranking of 20-30+
Low = Total hazard risk ranking below 20

c. Loss estimates for the severe storm and severe winter storm hazards are structural values only and do not include the value of contents.

d Loss estimates for the flood and earthquake hazards represent both structure and contents.

e. The HAZUS-MH earthquake model results are reported by Census Tract.

f. Damage estimate for flood unavailable due to lack of digital floodplain data for Washington County.

National Flood Insurance Program (NFIP) Summary

The following table summarizes the NFIP statistics for the Town of Easton.

Table 9.7-4. NFIP Summary

Municipality	# Policies [a]	# Claims (Losses) [a]	Total Loss Payments [b]	# Repetitive Loss Prop. [a]	# Severe Rep. Loss Prop. [a]
Easton (T)	12	0	$0	0	0

Source: FEMA, 2016

Note (1) Policies, claims, repetitive loss and severe repetitive loss statistics provided by FEMA and are current as of April 30, 2016 and are summarized by Community Name. Please note the total number of repetitive loss properties excludes the severe repetitive loss properties. The number of claims represents claims closed by 4/30/2016.

Note (2) Total building and content losses from the claims file provided by FEMA Region 2.

Note (3) The policies inside and outside of the flood zones are unavailable due to lack of digital floodplain for Washington County.

Note (4) FEMA noted that where there is more than one entry for a property, there may be more than one policy in force or more than one GIS possibility.

Critical Facilities

At the time of this HMP Update, digitized flood maps for Washington County are unavailable. In order to provide some level of beneficial analysis, a desktop analysis was performed to identify critical facilities located within the floodplain (refer to Section 5.1 [Methodology and Tools] for details). The following table identifies critical facilities located within the municipality and their exposure, if any, to the possible floodplain. This information is a resource for the municipality to determine if flood mitigation actions are appropriate

based on historical events and proximity of the facility to a water body. At the time of this 2018 HMP Update, the municipality did not identify any actions associated with these facilities.

The Town of Easton understands the limitation of the map data and once the updated maps are available, the municipality will work with Washington County to determine which critical facilities are located within the 1% and 0.2% annual chance flood zones. Once identified, the municipality will work with the property owners and develop mitigation actions for each of the critical facilities, ensuring they will be protected to the 500-year (or worst-case scenario) level.

Table 9.7-5. Potential Flood Losses to Critical Facilities

Name	Type	Potential Exposure
None identified		

Source: Washington County; NYS GIS Clearinghouse

Other Vulnerabilities Identified

The municipality has identified the following vulnerabilities within their community:

- Past flood damages have occurred at various locations along Valley Falls Rd, Lee's Crossing, Wood Rd., Wright Rd., Verbeck Ave., Hoag Rd., and east of Beadle Hill Rd.
- Flash flooding has contributed greatly in the past to roadway damage.
- The town has been trying to replace damaged culverts and washed out culverts with larger size culverts as needed. However, with the ditches plugged (due to lack of excavation equipment) it is very hard to direct the water into the culverts and not into the roads where it builds up volume and creates large washouts when it finally finds a route off the road.
- The town is still in desperate need of excavation equipment. The town of Easton is the only Town in Washington County that does not have a machine that is capable of digging ditches or culverts – all other towns have either excavators or back hoes that are able to accomplish this. The highway department struggles to maintain all of the ditches and culverts with existing equipment. Currently, the town rents an excavator for specific projects, but never has enough time to attack the preventative maintenance of ditches and culverts that is so desperately needed. The Town also does not have a pole barn to store equipment in either. The biggest obstacles with either of these items are a willing town board and the tax cap that the Governor has instituted.

9.7.5 Capability Assessment

This section identifies the following capabilities of the local jurisdiction:

- Planning and regulatory capability
- Administrative and technical capability
- Fiscal capability
- Community classification
- National Flood Insurance Program
- Integration of mitigation planning into existing and future planning mechanisms

Planning and Regulatory Capability

The table below summarizes the regulatory tools that are available to the Town of Easton.

Table 9.7-6. Planning and Regulatory Tools

Tool / Program (code, ordinance, plan)	Do you have this? (Yes/No) If Yes, date of adoption or update	Authority (local, county, state, federal)	Dept. /Agency Responsible	Code Citation and Comments (Code Chapter, name of plan, explanation of authority, etc.)
Planning Capability				
Comprehensive Plan	Yes	Local	Town of Easton	March 21, 1972
Capital Improvements Plan	No	-	-	-
Floodplain Management / Basin Plan	No	-	-	-
Stormwater Management Plan	No	-	-	-
Open Space Plan	No	-	-	-
Stream Corridor Management Plan	No	-	-	-
Watershed Management or Protection Plan	No	-	-	-
Local Waterfront Revitalization Plan	No	-	-	-
Economic Development Plan	No	-	-	-
Comprehensive Emergency Management Plan	No	-	-	-
Emergency Response/Operations Plan	No	-	-	-
Post-Disaster Recovery Plan	No	-	-	-
Transportation Plan	No	-	-	-
Strategic Recovery Planning Report	No	-	-	-
Other Plans:	No	-	-	-
Regulatory Capability				
Building Code	Yes	State, Local	Code Enforcement Officer	New York State Uniform Fire Prevention and Building Code and State Energy Conservation Construction Code
Zoning Ordinance	No	-	-	-
Subdivision Ordinance	Yes	Local	Planning Board	Town Subdivision Law #3 Of 1999
NFIP Flood Damage Prevention Ordinance	Yes	Federal, State, Local	Building Inspector, Planning Board	Flood Damage Prevention (Local Law 1-1986), Updated as Local Law 3-1998
NFIP: Freeboard	Yes	State, Local	Building Inspector	State mandated BFE+2 for single and two-family residential construction, BFE+1 for all other construction types
NFIP: Cumulative Substantial Damages	No	-	-	-
Growth Management Ordinances	No	-	-	-
Site Plan Review Requirements	No	-	-	-
Stormwater Management Ordinance	No	-	-	-
Municipal Separate Storm Sewer	No	-	-	-

Tool / Program (code, ordinance, plan)	Do you have this? (Yes/No) If Yes, date of adoption or update	Authority (local, county, state, federal)	Dept. /Agency Responsible	Code Citation and Comments (Code Chapter, name of plan, explanation of authority, etc.)
System (MS4)				
Natural Hazard Ordinance	No	-	-	-
Post-Disaster Recovery Ordinance	No	-	-	-
Real Estate Disclosure Requirement	Yes	State	NYS Department of State, Real Estate Agent	NYS mandate, Property Condition Disclosure Act, NY Code - Article 14 §460-467
Other (Special Purpose Ordinances [i.e., sensitive areas, steep slope])	No	-	-	-

Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the Town of Easton.

Table 9.7-7. Administrative and Technical Capabilities

Resources	Is this in place? (Yes or No)	Department/ Agency/Position
Administrative Capability		
Planning Board	Yes	Planning Board
Mitigation Planning Committee	No	-
Environmental Board/Commission	No	-
Open Space Board/Committee	No	-
Economic Development Commission/Committee	No	-
Maintenance programs to reduce risk	No	-
Mutual aid agreements	Yes	Fire Department and State shared service agreement
Technical/Staffing Capability		
Planner(s) or engineer(s) with knowledge of land development and land management practices	No	-
Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	No	-
Planners or engineers with an understanding of natural hazards	No	-
NFIP Floodplain Administrator (FPA)	Yes	Building Inspector, Planning Board
Surveyor(s)	No	-
Personnel skilled or trained in GIS and/or Hazards United States (HAZUS) – Multi-Hazards (MH) applications	No	-
Scientist familiar with natural hazards	No	-
Emergency Manager	No	-
Grant writer(s)	No	-
Staff with expertise or training in benefit/cost analysis	No	-
Professionals trained in conducting damage assessments	No	-

Fiscal Capability

The table below summarizes financial resources available to the Town of Easton.

Table 9.7-8. 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	No
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	No
Incur debt through private activity bonds	No
Withhold public expenditures in hazard-prone areas	No
Other federal or state Funding Programs	No
Open Space Acquisition funding programs	No
Other	No

Community Classifications

The table below summarizes classifications for community program available to the Town of Easton.

Table 9.7-9. Community Classifications

Program	Do you have this? (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	9/10	1/4/17
NYSDEC Climate Smart Community	No	-	-
Storm Ready	No	-	-
Firewise	No	-	-
Disaster/safety programs in/for schools	No	-	-
Organizations with mitigation focus (advocacy group, non-government)	No	-	-
Public education program/outreach (through website, social media)	No	-	-
Public-Private Partnerships	No	-	-

Note:
N/A *Not applicable*
NP *Not participating*
- *Unavailable*

The classifications listed above relate to the community's ability to provide effective services to lessen its vulnerability to the hazards identified. These classifications can be viewed as a gauge of the community's capabilities in all phases of emergency management (preparedness, response, recovery and mitigation) and are used as an underwriting parameter for determining the costs of various forms of insurance. The CRS class applies to flood insurance while the BCEGS and Public Protection classifications apply to standard property insurance. CRS classifications range on a scale of 1 to 10 with class 1 being the best possible classification, and class 10 representing no classification benefit. Firewise classifications include a higher classification when the subject property is located beyond 1000 feet of a creditable fire hydrant and is within 5 road miles of a recognized Fire Station.

Criteria for classification credits are outlined in the following documents:

- The Community Rating System Coordinators Manual
- The Building Code Effectiveness Grading Schedule website at https://www.isomitigation.com/bcegs/
- The ISO Mitigation online ISO's Public Protection website at https://www.isomitigation.com/ppc/
- The National Weather Service Storm Ready website at https://www.weather.gov/stormready/
- The National Firewise Communities website at https://www.nfpa.org/Public-Education/By-topic/Wildfire/Firewise-USA

Self-Assessment of Capability

The table below provides an approximate measure of the Town of Easton's capability to work in a hazard-mitigation capacity and/or effectively implement hazard mitigation strategies to reduce hazard vulnerabilities.

Table 9.7-10. Self-Assessment Capability for the Municipality

Area	Degree of Hazard Mitigation Capability		
	Limited (If limited, what are your obstacles?)	Moderate	High
Planning and regulatory capability	X – No staff, no money		
Administrative and technical capability	X – No staff, no money		
Fiscal capability	X – No staff, no money		
Community political capability	X – No staff, no money		
Community resiliency capability	X – No staff, no money		
Capability to integrate mitigation into municipal processes and activities	X – No staff, no money		

National Flood Insurance Program

NFIP Floodplain Administrator (FPA)

While the Flood Damage Prevention Ordinance indicates that the building inspector is the FPA; Steven Mueller, Highway Superintendent provided the following information.

Flood Vulnerability Summary

The Town does not maintain lists/inventories of properties that have been flood damaged or make substantial damage estimates, and is unaware of any residential, commercial, or industrial structures that were damaged during past flood events.

No Town residents have approached the FPA with interest in mitigation activities, and the FPA is unaware of any ongoing mitigation projects within the town.

Resources

The current FPA is the sole person assuming the responsibilities of floodplain administration. The primary responsibilities of the Town FPA/Town Supervisor are pre-approving building permits prior to submission to County Code Enforcement who completes site visit, inspections, etc. There are currently no education or outreach programs to the community regarding flood hazards/risk, and flood risk reduction through NFIP insurance, mitigation, etc.

The Town reports costs and time as barriers to running an effective floodplain management program. The FPA feels adequately supported, but not adequately trained to fulfill the responsibilities of a municipal floodplain administrator, and would consider attending continuing education and/or certification training on floodplain management if it were offered in the County for all local floodplain administrators.

Compliance History

The community is in good standing with the NFIP. According to NYS DEC, the date of the most recent NFIP compliance audit is January 3, 2013.

Regulatory

The Town Flood Damage Prevention ordinance meets, but does not exceed the FEMA and State minimum requirements. The Town Planning Board reviews the location of all subdivisions relative to flood potential.

The community is not interested in joining the Community Rating System (CRS) program to reduce flood insurance premiums for their insured.

Integration of Hazard Mitigation into Existing and Future Planning Mechanisms

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 this planning effort, each community was surveyed to obtain a better understanding of their community's progress in plan integration. A summary is provided below. In addition, the community identified specific integration activities that will be incorporated into municipal procedures.

Planning

Land Use Planning: Much of the Town of Easton lies within Washington County Agricultural District No 3, and within Town of Easton Critical Environmental Area-1, with three other Critical Environmental Areas also designated. Throughout the town there are State and Federal wetland areas, as well as Federal Flood Map Zone A sections. Existing land use maps are available from the Town. The Town Planning Board refers to SEQR and NYSDEC guidance in making their decisions with respect to natural hazard risk management.

Town of Easton Comprehensive Plan: The Town has a Comprehensive Plan, adopted March 21, 1972, that includes the subdivision ordinance, but does not specifically discuss areas of natural hazard risk or refer to a County-wide Hazard Mitigation Plan. The plan is available at the Town offices in hard copy only.

Regulatory and Enforcement

Construction Codes, Uniform: The building codes are strictly enforced to make new and renovated buildings as prepared as possible for hazard related incidents. The Town complies with New York State Uniform Fire

Prevention and Building Code (the Uniform Code) and the State Energy Conservation Construction Code (the Energy Code).

Flood Damage Prevention Ordinance: This ordinance promotes the public health, safety, and general welfare of residents and seeks to minimize public and private losses due to flood conditions. It regulates development to promote flood resistant structures and controls the alteration of floodplains to prevent increased vulnerability.

Sewers: The Town abides by the County-wide Sanitary Code, which protects and regulates its sewage collection and treatment facilities as a matter of public health and environmental safety. It seeks to prohibit the introduction of stormwater, surface, or sub-surface waters into sanitary sewers and to control the quantity and quality of wastes in the sewage system.

Subdivision Law No. 3 (1999): The Town's Planning Board is tasked with site plan/subdivision review. The Planning Board pays special attention to ensure that developments mitigate the issues associated natural hazards. The Town of Easton's emphasis on supporting agriculture and mitigating the impacts of new development on farms is evident throughout the subdivision law. Minor subdivisions undergo a two-step process, while major subdivisions have a three-step process. For projects that require environmental impact statements, the town requires an element describing the impact on agriculture when the proposed action is located within or contiguous to an agricultural district.

Education and Outreach

The Town of Easton provides links to hazard mitigation resources from its home webpage, including links to FEMA Forms and instructions, FEMA mapping, and an NYS DEC environmental news bulletin.

Town staff would benefit from additional training and/or certification with respect to natural hazard risk management, especially with regards to individual staff-members' roles in mitigation, risk reduction, and floodplain management.

9.7.6 Mitigation Strategy and Prioritization

This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and prioritization.

Past Mitigation Initiative Status

The following table indicates progress on the community's mitigation strategy identified in the 2010 Plan. It should be noted that during the 2010 planning process, only general, countywide actions were identified for each municipality. The Town of Easton reviewed the previous actions and selected actions they chose to carry forward as part of this plan update. Previous actions that are now on-going programs and capabilities are indicated as such in the following table and may also be found under 'Capability Assessment' presented previously in this annex.

Table 9.7-11. Status of Previous Mitigation Actions

2010 Mitigation Action	Responsible Party	Status (In progress, No progress, Complete)	Describe Status	Next Step (Include in 2018 HMP or Discontinue)	Describe Next Step
Improve drainage at sites where roads have washed out due to natural hazards in the past.	Town Highway Dept.	In progress	Town makes repairs and upgrades as needed and as funding is available.	Include in the 2018 HMP	Improve drainage at sites where roads have washed out due to natural hazards in the past including: Valley Falls Rd, Lee's Crossing, Wood Rd., Wright Rd., Verbeck Ave., Hoag Rd., and east of Beadle Hill Rd.
Purchase equipment to provide for local personnel to conduct the drainage improvement.	Highway Department, County, NYS DHSES	No progress	The equipment required to excavate drainage ditches and roadways to increase culvert pipe size is not available for local municipal use unless it is contracted. Local highway departments have the expertise to do the work, but not the equipment. A suggestion was made to purchase with mitigation funding five (5) excavators for Towns with the greatest need.	Include in the 2018 HMP	Purchase excavator equipment in coordination with the Towns of Easton, Cambridge, White Creek, and Jackson.
Engineering assessment to determine feasibility of each site improvement	N/A	No progress	None needed. Not applicable to the Town.	Discontinue	At the time of this plan update, this action does not pertain to the town. Therefore, it will not be included in the 2018 HMP Update.
Improve dams to prevent flooding causing roads to wash out.	N/A	No progress	No dam improvements needed. Not applicable to the Town.	Discontinue	At the time of this plan update, this action does not pertain to the town. Therefore, it will not be included in the 2018 HMP Update.
Improve identified sites where slope stability is subject to land subsidence and where excavation or planting could mitigate future damage.	N/A	No progress	No sites identified. Not applicable to the Town.	Discontinue	At the time of this plan update, this action does not pertain to the town. Therefore, it will not be included in the 2018 HMP Update.
Construct pole barn additions to highway department barns where new excavation equipment will be housed.	Highway Department, County, NYS DHSES	No progress	Only necessary if funding for new excavation equipment is acquired.	Include in the 2018 HMP	Once purchase of new excavator equipment is secured, construct pole barn additions to highway department barn where new excavation equipment will be housed.

Completed Mitigation Initiatives Not Identified in the Previous Mitigation Strategy

The Town of Easton has identified the following mitigation projects/activities that have also been completed but were not identified in the previous mitigation strategy in the 2010 Plan:

- Efforts by the Town to mitigate against further damage and to correct damage included adding rip rap to drainage ditches along roadsides and installing larger culvert tubes under roadbeds.

Proposed Hazard Mitigation Initiatives for the Plan Update

The Town of Easton participated in a mitigation action workshop in September 2016 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).

Table 9.7-12 summarizes the comprehensive-range of specific mitigation initiatives the Town of Easton would like to pursue in the future to reduce the effects of hazards. Some of these initiatives may be previous actions carried forward for this plan update. These 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. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table below to further demonstrate the wide-range of activities and mitigation measures selected.

As discussed in Section 6, 14 evaluation/prioritization criteria are used 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 your actions as 'High', 'Medium', or 'Low.' The table below summarizes the evaluation of each mitigation initiative, listed by Action Number.

Table 9.7-13 provides a summary of the prioritization of all proposed mitigation initiatives for the Plan update.

Table 9.7-12. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
T. Easton-1 (previous action)	Drainage Improvements - Improve drainage at sites where roads have washed out due to natural hazards in the past including: • Valley Falls Rd, • Lee's Crossing, • Wood Rd., • Wright Rd., • Verbeck Ave., • Hoag Rd., and • east of Beadle Hill Rd.	N/A	Flood, severe storm	1, 4	Town Highway Department	High	Medium	County, Local Budget, Bridge NY	Short	Medium	SIP	PP, PR, SP
T. Easton-2	Update Comprehensive Plan to include flood overlay district, and to integrate the risk assessment and recommendations of the hazard mitigation plan with the comprehensive plan.	Both	All hazards	1, 4, 5	Town Board	Medium	Low	Local Budget	Short	High	LPR	PR
T. Easton-3 (previous action)	Clean and reshape all ditches and culverts in the Town to meet 50-year storm requirements and reduce flooding overflow.	Existing	Flood, severe storm	1, 4	Town Highway Department with support from Washington County	High	Medium to High	FEMA (HMGP, PDM), County, Local Budget, Bridge NY	Short	Medium	LPR, SIP NSP	PP, PR, SP
T. Easton-4 (previous action)	Purchase excavation equipment to provide for local personnel to conduct the drainage improvement. Construct a storage facility for the equipment. The facility will be located at the highway department barn.	N/A	Flood, severe storm	1, 4	Town Highway Department with support from Washington County	High	Med-High	FEMA (HMGP, PDM), County, Local Budget	Short	Medium	LPR, SIP NSP	PP, PR, SP
T. Easton-5	Institute a purchasing plan/capital improvements plan to ensure greatest needs are addressed with available	N/A	Flood, severe storm, severe winter storm	1, 4	Town Board, Town Highway Department	High	Low	Local Budget	Short	High	LPR	PR, PI

Table 9.7-12. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
	funding.											
T. Easton-6	Send local staff members to attend trainings and conferences to become educated on how to efficiently run a local Floodplain Administration program.	Existing	Flood, severe storm	2	Town Board, County Public Safety	Medium	Low	Local Budget	Short	High	EAP	PR PI
T. Easton-7	Send Town staff to county and state trainings, and complete certification programs with respect to hazard risk management in Benefit Cost Analysis (BCA), Recovery Planning, Damage Estimates, and Debris Management.	N/A	All Hazards	2, 3	Town Highway Department, Code Enforcement, County	Medium	Low – Staff Time	Local Budget	Ongoing	High	LPR EAP	PI

Notes:

Not all acronyms and abbreviations defined below are included in the table.

**Does this mitigation initiative reduce the effects of hazards on new and/or existing buildings and/or infrastructure? Not applicable (N/A) is inserted if this does not apply.*

Acronyms and Abbreviations:

CAV	*Community Assistance Visit*
CRS	*Community Rating System*
DPW	*Department of Public Works*
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*
PDM	*Pre-Disaster Mitigation Grant Program*
RFC	*Repetitive Flood Claims Grant Program (discontinued in 2015)*
SRL	*Severe Repetitive Loss Grant Program (discontinued in 2015)*

Timeline:

Short	*1 to 5 years*
Long Term	*5 years or greater*
OG	*On-going program*
DOF	*Depending on funding*

Costs:

Where actual project costs have been reasonably estimated:

Low	*< $10,000*
Medium	*$10,000 to $100,000*
High	*> $100,000*

Where actual project costs cannot reasonably be established at this time:

Benefits:

Where possible, an estimate of project benefits (per FEMA's benefit calculation methodology) has been evaluated against the project costs, and is presented as:

Low=	*< $10,000*
Medium	*$10,000 to $100,000*
High	*> $100,000*

Costs:

Low *Possible to fund under existing budget. Project is part of, or can be part of an existing on-going program.*

Medium *Could budget for under existing work plan, but would require a reapportionment of the budget or a budget amendment, or the cost of the project would have to be spread over multiple years.*

High *Would require an increase in revenue via an alternative source (i.e., bonds, grants, fee increases) to implement. Existing funding levels are not adequate to cover the costs of the proposed project.*

Benefits:

Where numerical project benefits cannot reasonably be established at this time:

Low *Long-term benefits of the project are difficult to quantify in the short term.*

Medium *Project will have a long-term impact on the reduction of risk exposure to life and property, or project will provide an immediate reduction in the risk exposure to property.*

High *Project will have an immediate impact on the reduction of risk exposure to life and property.*

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*

Table 9.7-13. Summary of Prioritization of Actions

Mitigation Action / Project Number	Mitigation Action/Initiative	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
T. Easton-1 (previous action)	Drainage Improvements	1	0	1	1	0	1	0	0	0	1	1	1	0	0	7	Medium
T. Easton-2	Update Comprehensive Plan to include flood overlay district, and to integrate the risk assessment and recommendations of the hazard mitigation plan with the comprehensive plan.	1	1	1	1	1	0	1	0	0	1	1	1	0	0	9	High
T. Easton-3 (previous action)	Clean and reshape all ditches and culverts in the Town to meet 50-year storm requirements and reduce flooding overflow.	1	1	1	1	0	1	0	0	0	1	1	1	0	0	8	Medium
T. Easton-4 (previous action)	Purchase excavation equipment to provide for local personnel to conduct the drainage improvement. Construct a storage facility for the equipment. The facility will be located at the highway department barn.	1	1	1	1	0	0	0	0	0	1	1	0	0	0	6	Medium
T. Easton-6	Institute a purchasing plan/capital improvements plan to ensure greatest needs are addressed with available funding.	1	1	1	1	1	0	0	0	0	1	1	1	0	0	8	High
T. Easton-7	Send local staff members to attend trainings and conferences to become educated on how to efficiently run a local Floodplain Administration program.	1	1	1	1	1	0	1	1	0	1	1	1	0	0	10	High

Table 9.7-13. Summary of Prioritization of Actions

Mitigation Action / Project Number	Mitigation Action/Initiative	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
T. Easton-8	Send Town staff to county and state trainings, and complete certification programs with respect to hazard risk management in Benefit Cost Analysis (BCA), Recovery Planning, Damage Estimates, and Debris Management.	1	1	1	1	0	0	0	0	0	1	1	1	0	0	7	High

Note: Refer to Section 6, which conveys guidance on prioritizing mitigation actions.

9.7.7 Future Needs to Better Understand Risk/Vulnerability

None at this time.

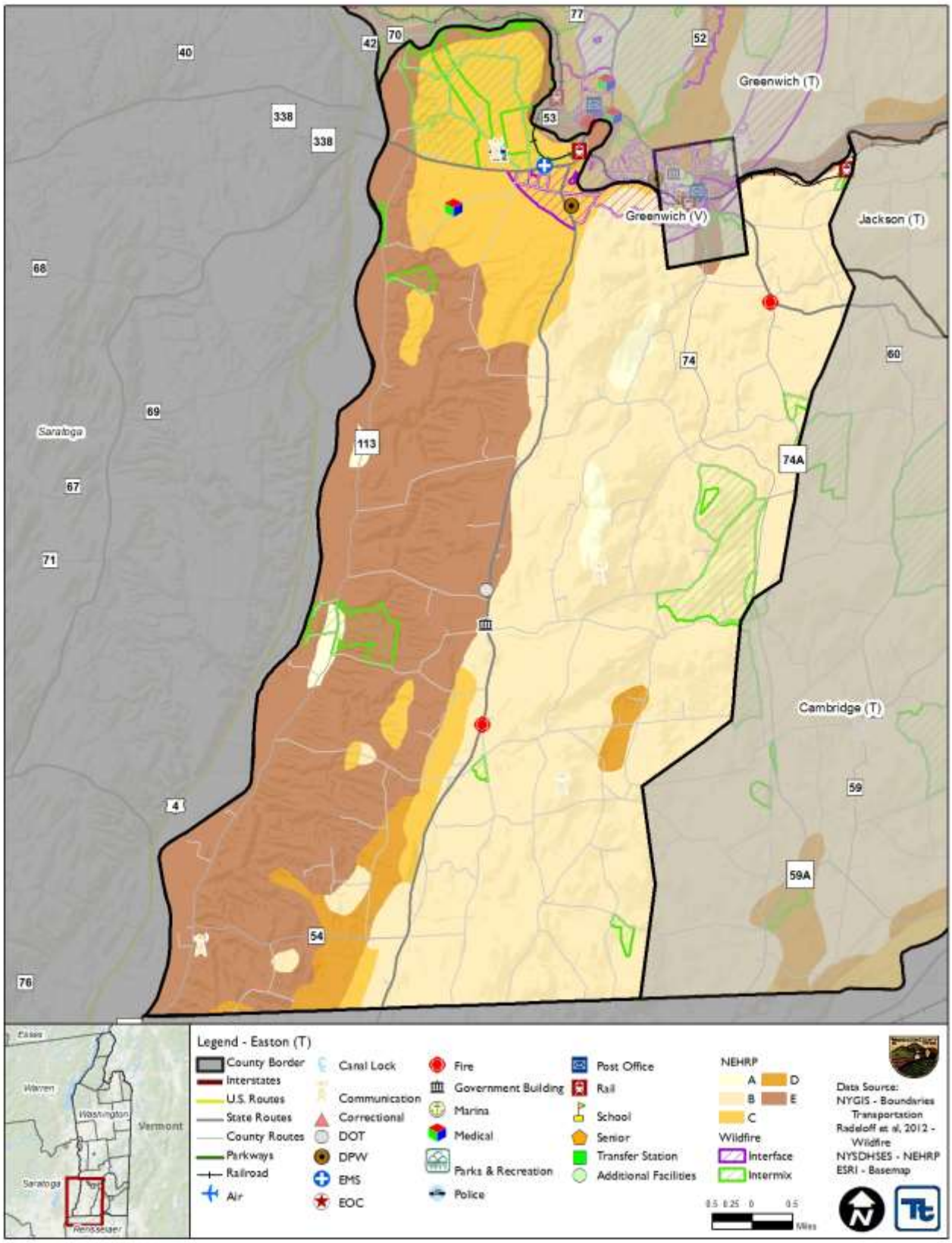
9.7.8 Hazard Area Extent and Location

Hazard area extent and location maps have been generated for the Town of Easton that illustrate the probable areas impacted within the municipality. These maps are based on the best available data at the time of the preparation of this plan, and are considered to be adequate for planning purposes. Maps have only been generated for those hazards that can be clearly identified using mapping techniques and technologies, and for which the Town of Easton has significant exposure. These maps are illustrated in the hazard profiles within Section 5.4, Volume I of this Plan.

9.7.9 Additional Comments

None at this time.

Figure 9.7-1. Town of Easton Hazard Area Extent and Location



Action Number: T. Easton-1

Mitigation Action Name: Drainage Improvements.

Assessing the Risk	
Hazard(s) addressed:	Flood, Severe Storm
Specific problem being mitigated:	Roadway washout – Drainage sites do not currently meet 50-year storm requirements, causing flood overflow during heavy rain events. This prevents emergency access during periods of heavy rain and flooding, impacting the life and safety of town residents.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	If left unimproved, flooding will persist, leading to roadway washout and increasing risk to life and safety. Relocate roadways that have previously washed out – not feasible
Action/Project Intended for Implementation	
Description of Selected Action/Project	Improve drainage at sites where roads have washed out due to natural hazards in the past including: • Valley Falls Rd. • Lee's Crossing. • Wood Rd. • Wright Rd. • Verbeck Ave. • Hoag Rd. • East of Beadle Hill Rd.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	Goal 1: Protect Life and Property Goal 4: Provide for Emergency Services
Applies to existing and or new development, or not applicable	N/A
Benefits (losses avoided)	High – reduce risk of washout, and improve public safety
Estimated Cost	Medium
Priority*	Medium
Plan for Implementation	
Responsible Organization	Town Highway Department
Local Planning Mechanism	Hazard Mitigation
Potential Funding Sources	Town Budget, County
Timeline for Completion	Short (1 to 5 years)
Reporting on Progress	
Date of Status Report/ Report of Progress	No progress; New project

Action Number: T. Easton-1
Mitigation Action Name: Drainage Improvements.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Will ensure through access for motorists, including emergency services personnel
Property Protection	0	
Cost-Effectiveness	1	Reduced future losses to the roadway and hindrance to transportation system are greater than the cost to implement the project
Technical	1	Project is technically feasible
Political	0	
Legal	1	Town has legal jurisdiction over the physical project location
Fiscal	0	
Environmental	0	No known environmental impacts
Social	0	No known social impacts
Administrative	1	Town has administrative capability to manage the work
Multi-Hazard	1	Flood, Severe Storm
Timeline	1	Can be completed within 5 years
Agency Champion	0	
Other Community Objectives	0	
Total	7	
Priority (H/M/L)	Medium	

Action Number: T. Easton - 2

Mitigation Action Name: Update Village Comprehensive Plan.

Assessing the Risk	
Hazard(s) addressed:	All hazards
Specific problem being mitigated:	The Comprehensive Plan does not currently address hazard identification, risk assessment, or mitigation goals. This prevents hazard assessment information from being incorporated into future land use and other elements.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Update the Comprehensive Plan without incorporating results and guidance from the Hazard Mitigation Plan – problem persists.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Use the results and guidance from the Hazard Mitigation Plan to aid in updating the Comprehensive Plan to include flood overlay district and to integrate the risk assessment and recommendations of the hazard mitigation plan with the comprehensive plan. This ensures that hazard assessments are incorporated into future land use and other elements of the comprehensive plan.
Mitigation Action Type	Local Plans and Regulations (LPR)
Goals Met	Goal 1: Protect Life and Property Goal 4: Provide for Emergency Services 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.
Applies to existing and or new development, or not applicable	Both
Benefits (losses avoided)	Medium
Estimated Cost	Low
Priority*	High
Plan for Implementation	
Responsible Organization	Town Board
Local Planning Mechanism	Hazard Mitigation, Comprehensive Planning
Potential Funding Sources	Local Budget
Timeline for Completion	Short
Reporting on Progress	
Date of Status Report/ Report of Progress	No progress; new project

Action Number: T. Easton - 2
Mitigation Action Name: Update Village Comprehensive Plan.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	0	
Fiscal	1	
Environmental	0	
Social	0	
Administrative	1	
Multi-Hazard	1	All hazards
Timeline	1	Completed within 5 years of start of project
Agency Champion	0	
Other Community Objectives	0	
Total	9	
Priority (H/M/L)	High	

Action Number: T. Easton-3

Mitigation Action Name: Culvert Improvements.

Assessing the Risk	
Hazard(s) addressed:	Flood, Severe Storm
Specific problem being mitigated:	The culverts in the town are all undersized and/or failing. This leads to road washouts, roadway flooding, and subsequent damage. This also impacts the life and safety of residents in the event of an emergency if roadways are closed and emergency vehicles cannot access parts of the town.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	If left unimproved, flooding of roadway will persist, potentially leading to washout. Relocate roadways and buildings subject to flooding due to culverts – costly, not feasible
Action/Project Intended for Implementation	
Description of Selected Action/Project	Clean and reshape all ditches and culverts in the Town to meet 50-year storm requirements and reduce flooding overflow. This will allow for continuity of operations, reduction in flood damage in the town, and protect the life and safety of residents.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	Goal 1: Protect Life and Property Goal 4: Provide for Emergency Services
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	High – reduce risk of washout, and improve public safety on roadway
Estimated Cost	Medium to High
Priority*	Medium
Plan for Implementation	
Responsible Organization	Town Highway Department
Local Planning Mechanism	Hazard Mitigation, Capital Improvement
Potential Funding Sources	FEMA (HMGP, FMA, PDM), County, Local Budget, Bridge NY
Timeline for Completion	Short (1 to 5 years)
Reporting on Progress	
Date of Status Report/ Report of Progress	No progress; New project

Action Number: T. Easton-3
Mitigation Action Name: Culvert Improvements.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Will ensure through access for motorists, including emergency services personnel
Property Protection	1	
Cost-Effectiveness	1	Reduced future losses to the roadway and hindrance to transportation system are greater than the cost to implement the project
Technical	1	The project is technically feasible
Political	0	
Legal	1	The Town has legal jurisdiction over the culverts listed
Fiscal	0	
Environmental	0	No known environmental impacts
Social	0	No known social impacts
Administrative	1	Town has administrative capability to manage the work
Multi-Hazard	1	Flood, Severe Storm
Timeline	1	Can be completed within 5 years
Agency Champion	0	
Other Community Objectives	0	
Total	8	
Priority (H/M/L)	Medium	

Action Number: T. Easton - 4

Mitigation Action Name: Purchase excavation equipment and construct storage facility.

Assessing the Risk	
Hazard(s) addressed:	Flood, severe storm
Specific problem being mitigated:	The town currently does not have equipment to aid in improving the drainage in the community. Without this equipment, the work that needs to be done on the drainage areas cannot be completed. Additionally, the town does not have a storage area to store the equipment when not in use.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Request county equipment – not feasible. Rent the equipment when needed – not feasible at it is costly to rent and the town will not have the equipment on hand when needed.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Purchase excavation equipment to provide for local personnel to conduct the drainage improvement. Construct a storage facility for the equipment. The facility will be located at the highway department barn. This project will be completed in coordination with the Towns of Easton, Cambridge, White Creek, and Jackson.
Mitigation Action Type	Structure and Infrastructure Project (SIP) Natural Systems Protection (NSP)
Goals Met	Goal 1: Protect Life and Property Goal 4: Provide for Emergency Services
Applies to existing and or new development, or not applicable	N/A
Benefits (losses avoided)	High
Estimated Cost	Med-High
Priority*	Medium
Plan for Implementation	
Responsible Organization	Town Highway Department, County with support from the Towns of Easton, Cambridge, White Creek, and Jackson
Local Planning Mechanism	Hazard Mitigation
Potential Funding Sources	FEMA (HMGP, PDM), County, Local Budget
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: 6/01/2017 Progress on Action/Project: Coordinate with Towns of Cambridge, White Creek, and Jackson on equipment purchase

Action Number: T. Easton - 4

Mitigation Action Name: Purchase excavation equipment and construct storage facility.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	0	
Legal	0	
Fiscal	0	Need to obtain funding
Environmental	0	
Social	0	
Administrative	1	
Multi-Hazard	1	Flood, severe storm
Timeline	0	
Agency Champion	0	
Other Community Objectives	0	
Total	6	
Priority (H/M/L)	Medium	

Action Number: T. Easton - 5

Mitigation Action Name: Institute a purchasing plan/capital improvements plan to ensure greatest needs are addressed with available funding.

Assessing the Risk	
Hazard(s) addressed:	Flood, severe storm, severe winter storm
Specific problem being mitigated:	Town does not have a purchasing plan/capital improvements plan. By not having one, the town does not have a formal identification of capital projects and equipment purchases or a planning schedule and financing options for these projects and equipment.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Include funding in municipal budge for purchasing – not preferred solution
Action/Project Intended for Implementation	
Description of Selected Action/Project	Develop a purchasing plan/capital improvements plan that will include funding for mitigation projects if needed. By having a plan in place, the town will have a planning fiscal management tool that will help coordinate, time and finance capital improvement projects and equipment over a multi-year period.
Mitigation Action Type	Local Plans and Regulations (LPR)
Goals Met	Goal 1: Protect Life and Property Goal 4: Provide for Emergency Services
Applies to existing and or new development, or not applicable	N/A
Benefits (losses avoided)	High
Estimated Cost	Low
Priority*	High
Plan for Implementation	
Responsible Organization	Town Board, Town Highway Department
Local Planning Mechanism	Hazard Mitigation
Potential Funding Sources	Local Budget
Timeline for Completion	Short
Reporting on Progress	
Date of Status Report/ Report of Progress	No progress; new project

Action Number: T. Easton - 5

Mitigation Action Name: Institute a purchasing plan/capital improvements plan to ensure greatest needs are addressed with available funding.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	0	
Fiscal	0	Town currently does not have a purchasing plan/capital improvements plan
Environmental	0	
Social	0	
Administrative	1	
Multi-Hazard	1	All hazards
Timeline	1	
Agency Champion	0	
Other Community Objectives	0	
Total	8	
Priority (H/M/L)	High	

Action Number: T. Easton - 6

Mitigation Action Name: Send local staff members to attend trainings and conferences.

Assessing the Risk	
Hazard(s) addressed:	Flood, severe storm
Specific problem being mitigated:	Staff members have not been formally trained on Floodplain Administration.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Hire trainers to come to Town to train staff on site - costly
Action/Project Intended for Implementation	
Description of Selected Action/Project	Send local Floodplain Administrator to County and State trainings and to complete certification programs with respect to floodplain management. Also provide continuing education and training to ensure code enforcement and proper inspections. This ensures the best understanding of floodplain management in the community and keeps staff up-to-date in their duties.
Mitigation Action Type	Education and Awareness Programs (EAP)
Goals Met	Goal 2: Increase Public Awareness
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	Medium
Estimated Cost	Low
Priority*	High
Plan for Implementation	
Responsible Organization	Town Board, County Public Safety
Local Planning Mechanism	Hazard Mitigation
Potential Funding Sources	Local Budget
Timeline for Completion	Short
Reporting on Progress	
Date of Status Report/ Report of Progress	No progress; new project

Action Number: T. Easton - 6

Mitigation Action Name: Send local staff members to attend trainings and conferences.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	0	
Fiscal	1	Municipal budget, staff time
Environmental	1	
Social	0	
Administrative	1	Staff who work in floodplain management
Multi-Hazard	1	
Timeline	1	
Agency Champion	0	
Other Community Objectives	0	
Total	10	
Priority (H/M/L)	High	

Action Number: T. Easton - 7

Mitigation Action Name: Send Town staff to county and state trainings.

Assessing the Risk	
Hazard(s) addressed:	All Hazards
Specific problem being mitigated:	Staff members have not been formally trained in these fields of Benefit Cost Analysis (BCA), Recovery Planning, Damage Estimates, or Debris Management. Without this knowledge, the town needs to rely on outside resources during and after a disaster strikes.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Hire trainers to come to Town to train staff on site - costly
Action/Project Intended for Implementation	
Description of Selected Action/Project	Send Town staff to county and state trainings on regulatory requirements for natural hazard risk management, and encourage certification programs with respect to hazard risk management in Benefit Cost Analysis (BCA), Recovery Planning, Damage Estimates, and Debris Management. Certifications and trainings for hazard risk management will allow for staff members to properly address hazards of concern, mitigation opportunities, and provide assistance to the community before, during and after a disaster.
Mitigation Action Type	Local Plans and Regulations (LPR) Education and Awareness Programs (EAP)
Goals Met	Goal 2: Increase Public Awareness Goal 3: Encourage Partnerships
Applies to existing and or new development, or not applicable	N/A
Benefits (losses avoided)	Medium
Estimated Cost	Low – Staff Time
Priority*	High
Plan for Implementation	
Responsible Organization	Town Highway Department, Code Enforcement, County
Local Planning Mechanism	Hazard Mitigation
Potential Funding Sources	Local Budget
Timeline for Completion	Ongoing
Reporting on Progress	
Date of Status Report/ Report of Progress	No progress; new project

Action Number: T. Easton - 7

Mitigation Action Name: Send Town staff to county and state trainings.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	0	
Legal	0	
Fiscal	0	Need to obtain funding
Environmental	0	
Social	0	
Administrative	1	Municipal staff who work with natural hazard risks and emergency management
Multi-Hazard	1	All hazards
Timeline	1	
Agency Champion	0	
Other Community Objectives	0	
Total	7	
Priority (H/M/L)	High	

9.8 TOWN OF FORT ANN

This section presents the jurisdictional annex for the Town of Fort Ann.

9.8.1 Hazard Mitigation Plan Point of Contact

The following individuals have been identified as the hazard mitigation plan's primary and alternate points of contact.

Primary Point of Contact	Alternate Point of Contact
Richard Moore - Supervisor 80 George Street, Fort Ann, NY Phone: 518-639-8929 Email: supervisorfortann@gmail.com	Paul Winchell – Highway Superintendent 80 George Street, Fort Ann, NY Phone: 518-639-8950 Email: pwinchell@townoffortann.com

9.8.2 Municipal Profile

The Town of Fort Ann is in the Adirondack Mountains in New York State and is located in the northern region of Washington County. The Town is bordered to the north by the Town of Dresden, to the south by the Towns of Granville, Hartford, and Kingsbury, to the east by the Towns of Whitehall and Granville, and to the west by the Towns of Queensbury and Bolton, which are located in Warren County. The following hamlets are found in the Town: Comstock, Fort Ann, Furnace Hollow, Hogtown, Johnnycake Corners, Kattskill Bay, Pilot Knob, Shelving Rock, South Bay, Tripoli, and West Fort Ann. Lake Nebo, Hadlock Pond, South Bay, and Lake George are major bodies of water found throughout the Town.

The Town, the largest in Washington County, has a total area of 110.8 square miles, of which, 109.5 square miles is land and 1.3 square miles is water. According to the 2010 Census, the community's population was 6,417 (inclusive of Fort Ann Village). The Town is governed by the Town Board consisting of the town council and the town supervisor.

Growth/Development Trends

The following table summarizes recent residential/commercial development since 2010 to present and any known or anticipated major residential/commercial development and major infrastructure development that has been identified in the next five years within the municipality.

Table 9.8-1. Growth and Development

Property or Development Name	Type (e.g. Res., Comm.)	# of Units / Structures	Location (address and/or Parcel ID)	Known Hazard Zone(s)	Description/Status of Development
Recent Development from 2010 to present					
Moose Hillock Campground	Comm.	287 campsites - 6 to 8 structures	Route 149	None	completed
Known or Anticipated Development in the Next Five (5) Years					
None identified by the Town.					

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

9.8.3 Natural Hazard Event History Specific to the Municipality

Washington County has a history of natural and non-natural hazard events as detailed in Volume I, Section 5.0 of this plan. 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. For the purpose of this plan update, events that have occurred in the County from 2008 to present were summarized to indicate the range and impact of hazard events in the community. Information regarding specific damages is included, if available, based on reference material or local sources. This information is presented in the table below. For details of these and additional events, refer to Volume I, Section 5.0 of this plan.

Table 9.8-2. Hazard Event History

Dates of Event	Event Type (FEMA Disaster Declaration if applicable)	Washington County Designated?	Summary of Damages/Losses
July 2-3, 2005	Flash Flooding	N/A	The Town noted that this event impacted the municipality; however, losses were not significant.
December 11-31, 2008	Severe Winter Storm DR-1827	Yes	The Town noted that this event impacted the municipality; however, losses were not significant.
August 26-September 5, 2011	Hurricane/T.S. Irene DR-4020	Yes	The Town noted that this event impacted the municipality; however, losses were not significant.
July 11, 2013	Beaver Dam Failure – Flooding DR-4129	No	The Town noted that this event impacted the municipality; however, losses were not significant.

Notes:

EM *Emergency Declaration (FEMA)*
FEMA *Federal Emergency Management Agency*
DR *Major Disaster Declaration (FEMA)*
IA *Individual Assistance*
N/A *Not applicable*
PA *Public Assistance*

9.8.4 Hazard Vulnerabilities and Ranking

The hazard profiles in Section 5.0 of this plan have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes the hazard vulnerabilities and their ranking in the Town of Fort Ann. For additional vulnerability information relevant to this jurisdiction, refer to Section 5.0. Refer to Figure 9.8-1 later in this annex for hazard vulnerable areas located in the Town of Fort Ann.

Natural Hazard Risk/Vulnerability Risk Ranking

As discussed in Section 5.3 (Hazard Ranking), each participating town or village may have differing degrees of risk exposure and vulnerability compared to Washington County as a whole. Therefore, each municipality 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 Fort Ann. Table 9.8-12 provides proposed mitigation initiatives for the high ranked hazards.

Table 9.8-3. Hazard Risk/Vulnerability Risk Ranking

Hazard type	Estimate of Potential Dollar Losses to Structures Vulnerable to the Hazard [a, c]	Probability of Occurrence	Risk Ranking Score (Probability x Impact)	Hazard Ranking [b]
Earthquake	100-Year GBS: $0	Occasional	28	Medium

Hazard type	Estimate of Potential Dollar Losses to Structures Vulnerable to the Hazard [a, c]	Probability of Occurrence	Risk Ranking Score (Probability x Impact)	Hazard Ranking [b]
	500-Year GBS: $3,877,453 2,500-Year GBS: $44,550,107			
Flood	Damage estimate not available.	Frequent	36	High
Severe Weather	100-Year MRP: $141,647 500-year MRP: $1,574,454 Annualized: $10,233	Frequent	48	High
Severe Winter Weather	1% GBS: $6,837,322 5% GBS: $34,186,608	Frequent	51	High
Wildfire	Estimated Value in the WUI Hazard Areas: $711,968,012	Frequent	48	High

Notes:

a. Building damage ratio estimates based on FEMA 386-2 (August 2001)

b. The valuation of general building stock and loss estimates was based on custom inventory for the municipality.
High = Total hazard priority risk ranking score of 31 and above
Medium = Total hazard priority risk ranking of 20-30+
Low = Total hazard risk ranking below 20

c. Loss estimates for the severe storm and severe winter storm hazards are structural values only and do not include the value of contents.

d Loss estimates for the flood and earthquake hazards represent both structure and contents.

e. The HAZUS-MH earthquake model results are reported by Census Tract.

f. Damage estimate for flood unavailable due to lack of digital floodplain data for Washington County.

National Flood Insurance Program (NFIP) Summary

The following table summarizes the NFIP statistics for the Town of Fort Ann.

Table 9.8-4. NFIP Summary

Municipality	# Policies (1)	# Claims (Losses) (1)	Total Loss Payments (2)	# Rep. Loss Prop. (1)	# Severe Rep. Loss Prop. (1)
Fort Ann (T)	13	3	$132,754	0	0

Source: FEMA, 2016

Note (1) Policies, claims, repetitive loss and severe repetitive loss statistics provided by FEMA and are current as of April 30, 2016 and are summarized by Community Name. Please note the total number of repetitive loss properties excludes the severe repetitive loss properties. The number of claims represents claims closed by 4/30/2016.

Note (2) Total building and content losses from the claims file provided by FEMA Region 2.

Note (3) The policies inside and outside of the flood zones are unavailable due to lack of digital floodplain for Washington County.

Note (4) FEMA noted that where there is more than one entry for a property, there may be more than one policy in force or more than one GIS possibility.

Critical Facilities

At the time of this HMP Update, digitized flood maps for Washington County are unavailable. In order to provide some level of beneficial analysis, a desktop analysis was performed to identify critical facilities located within the floodplain (refer to Section 5.1 [Methodology and Tools] for details). The following table identifies critical facilities located within the municipality and their exposure, if any, to the possible floodplain. This information is a resource for the municipality to determine if flood mitigation actions are appropriate based on historical events and proximity of the facility to a water body. At the time of this 2018 HMP Update, the municipality did not identify any actions associated with these facilities.

The Town of Fort Ann understands the limitation of the map data and once the updated maps are available, the municipality will work with Washington County to determine which critical facilities are located within the 1% and 0.2% annual chance flood zones. Once identified, the municipality will work with the property owners and develop mitigation actions for each of the critical facilities, ensuring they will be protected to the 500-year (or worst-case scenario) level.

Table 9.8-5. Potential Flood Losses to Critical Facilities

Name	Type	Potential Flood Exposure
West Fort Ann Fire Department	Fire	X
Golden Goal Sports Complex	Park & Rec	X
Champlain Canal Lock 11	Canal Lock	X
US Postal Service - Comstock	Post Office	X
Pilot Knob Volunteer Fire Association	Fire	X

Source: Washington County; NYS GIS Clearinghouse

Other Vulnerabilities Identified

The municipality has identified the following vulnerabilities within their community:

- None identified

9.8.5 Capability Assessment

This section identifies the following capabilities of the local jurisdiction:

- Planning and regulatory capability
- Administrative and technical capability
- Fiscal capability
- Community classification
- National Flood Insurance Program
- Integration of Mitigation Planning into Existing and Future Planning Mechanisms

Planning and Regulatory Capability

The table below summarizes the regulatory tools that are available to the Town of Fort Ann.

Table 9.8-6. Planning and Regulatory Tools

Tool / Program (code, ordinance, plan)	Do you have this? (Yes/No) If Yes, date of adoption or update	Authority (local, county, state, federal)	Dept. /Agency Responsible	Code Citation and Comments (Code Chapter, name of plan, explanation of authority, etc.)
Planning Capability				
Master Plan	No	-	-	-
Capital Improvements Plan	No	-	-	-
Floodplain Management / Basin Plan	No	-	-	-
Stormwater Management Plan	No	-	-	-
Open Space Plan	No	-	-	-
Stream Corridor Management Plan	No	-	-	-

Tool / Program (code, ordinance, plan)	Do you have this? (Yes/No) If Yes, date of adoption or update	Authority (local, county, state, federal)	Dept. /Agency Responsible	Code Citation and Comments (Code Chapter, name of plan, explanation of authority, etc.)
Watershed Management or Protection Plan	No	-	-	-
Local Waterfront Revitalization Plan	No	-	-	-
Economic Development Plan	No	-	-	-
Comprehensive Emergency Management Plan	Yes	County	County	Washington County CEMP
Emergency Operation Plan	No	-	-	-
Post-Disaster Recovery Plan	No	-	-	-
Transportation Plan	No	-	-	-
Strategic Recovery Planning Report	No	-	-	-
Other Plans:	No	-	-	-
Regulatory Capability				
Building Code	Yes	State and Local	Code Enforcement (County)	Building Code of New York State (NYS), Local Law #1
Zoning Ordinance	No	-	-	-
Subdivision Ordinance	Yes	Local	Code Enforcement (County)	Local Law #5 Of 1990
NFIP Flood Damage Prevention Ordinance	Yes	Federal, State, Local	Town Supervisor	Information not provided at the time of the 2018 HMP Update
NFIP: Freeboard	Yes	State, Local	Code Enforcement (County)	State mandated BFE+2 for single and two-family residential construction, BFE+1 for all other construction types
NFIP: Cumulative Substantial Damages	No	-	-	-
Growth Management Ordinances	No	-	-	-
Site Plan Review Requirements	Yes	Town	Planning Board	Information not provided at the time of the 2018 HMP Update
Stormwater Management Ordinance	No	-	-	-
Municipal Separate Storm Sewer System (MS4)	No	-	-	-
Natural Hazard Ordinance	No	-	-	-
Post-Disaster Recovery Ordinance	No	-	-	-
Real Estate Disclosure Requirement	Yes	State	NYS Department of State, Real Estate Agent	NYS mandate, Property Condition Disclosure Act, NY Code - Article 14 §460-467
Other [Special Purpose Ordinances (i.e., sensitive areas, steep slope)]	No	-	-	-

Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the Town of Fort Ann.

Table 9.8-7. Administrative and Technical Capabilities

Resources	Is this in place? (Yes or No)	Department/ Agency/Position
Administrative Capability		
Planning Board	Yes	Planning Board
Mitigation Planning Committee	No	-
Environmental Board/Commission	No	-
Open Space Board/Committee	No	-
Economic Development Commission/Committee	Yes	County
Maintenance Programs to Reduce Risk	No	-
Mutual Aid Agreements	Yes	Fire & Rescue
Technical/Staffing Capability		
Planner(s) or Engineer(s) with knowledge of land development and land management practices	Yes	Engineer for the Town
Engineer(s) or Professional(s) trained in construction practices related to buildings and/or infrastructure	Yes	Engineer for the Town
Planners or engineers with an understanding of natural hazards	Yes	Engineer for the Town
NFIP Floodplain Administrator	Yes	Town Supervisor
Surveyor(s)	No	
Personnel skilled or trained in GIS and/or HAZUS-MH applications	Yes	County
Scientist familiar with natural hazards	No	-
Emergency Manager	Yes	Supervisor
Grant Writer(s)	No	-
Staff with expertise or training in benefit/cost analysis	Yes	Engineer
Professionals trained in conducting damage assessments	No	-

Fiscal Capability

The table below summarizes financial resources available to the Town of Fort Ann.

Table 9.8-8. 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	Village – Water & Sewer
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

Financial Resources	Accessible or Eligible to Use (Yes/No)
Other Federal or State Funding Programs	Yes
Open Space Acquisition Funding Programs	No
Other	No

Community Classifications

The table below summarizes classifications for community program available to the Town of Fort Ann.

Table 9.8-9. Community Classifications

Program	Do you have this? (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	6/6X	9/17/15
NYSDEC Climate Smart Community	No	-	-
Storm Ready	No	-	-
Firewise	No	-	-
Disaster/Safety Programs in/for Schools	No	-	-
Organizations with Mitigation Focus (advocacy group, non-government)	No	-	-
Public Education Program/Outreach (through website, social media)	No	-	-
Public-Private Partnerships	No	-	-

N/A = Not applicable. NP = Not participating. - = Unavailable. TBD = To be determined.

The classifications listed above relate to the community's ability to provide effective services to lessen its vulnerability to the hazards identified. These classifications can be viewed as a gauge of the community's capabilities in all phases of emergency management (preparedness, response, recovery and mitigation) and are used as an underwriting parameter for determining the costs of various forms of insurance. The CRS class applies to flood insurance while the BCEGS and Public Protection classifications apply to standard property insurance. CRS classifications range on a scale of 1 to 10 with class 1 being the best possible classification, and class 10 representing no classification benefit. Firewise classifications include a higher classification when the subject property is located beyond 1000 feet of a creditable fire hydrant and is within 5 road miles of a recognized Fire Station.

Criteria for classification credits are outlined in the following documents:

- The Community Rating System Coordinators Manual
- The Building Code Effectiveness Grading Schedule website at: https://www.isomitigation.com/bcegs/
- The ISO Mitigation online ISO's Public Protection website at https://www.isomitigation.com/ppc/
- The National Weather Service Storm Ready website at https://www.weather.gov/stormready/
- The National Firewise Communities website at http://firewise.org/

Self-Assessment of Capability

The table below provides an approximate measure of the Town of Fort Ann's capability to work in a hazard-mitigation capacity and/or effectively implement hazard mitigation strategies to reduce hazard vulnerabilities.

Table 9.8-10. Self-Assessment Capability for the Municipality

Area	Degree of Hazard Mitigation Capability		
	Limited (If limited, what are your obstacles?) *	Moderate	High
Planning and Regulatory Capability	X – limited staff and funding		
Administrative and Technical Capability	X – limited staff and funding		
Fiscal Capability		X	
Community Political Capability	X – limited staff and funding		
Community Resiliency Capability	X – limited staff and funding		
Capability to Integrate Mitigation into Municipal Processes and Activities.	X – limited staff and funding		

National Flood Insurance Program

NFIP Floodplain Administrator (FPA)

While the Flood Damage Prevention Ordinance indicates that the town supervisor is the FPA; Mark Miller, Enforcement Officer, provided the following information.

Flood Vulnerability Summary

The Town does not currently maintain a list of properties that have been flood damaged or a list of property owners who are interested in some sort of mitigation action. No properties were identified as having been damaged during a storm event, such as Hurricane Floyd or Hurricane Irene. The Town does not make Substantial Damage estimates, and none have been declared as a result of a past storm event.

Resources

The FPA is the sole person assuming the responsibilities of floodplain administration for the Town. The NFIP administration services provided by the FPA include permit review, while the County is responsible for inspection. The Town does not provide any education and outreach to the community in regard to flood hazards/risk and flood risk reduction through NFIP insurance and mitigation. The FPA indicated he is currently training to adequately fulfill his responsibility as the municipal floodplain administrator and would attend continuing education and/or certification training on floodplain management if it were offered locally.

Compliance History

The community is in good standing with the NFIP. According to the NYS DEC, the Town has not had a compliance visit conducted.

Regulatory

The Town's floodplain management regulations and ordinances meet the FEMA and State minimum requirements. The Town's site plan review considers efforts to reduce flood risk when reviewing variances. At the time of this plan update, the Town is in the process of joining the CRS program.

Integration of Hazard Mitigation into Existing and Future Planning Mechanisms

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 this planning effort, each community was surveyed to obtain a better understanding of their community's progress in plan integration. A summary is provided below. In addition, the community identified specific integration activities that will be incorporated into municipal procedures.

Planning

Land Use Planning: The Planning Board reviews applications for site development, land subdivisions, and other permits as authorized in the Town code. It also advises the Town Board on zoning change and special use permit applications and develops short- and long-range land use planning policies.

The Town of Fort Ann falls under the jurisdiction of the Adirondack Park Agency (APA), and therefore is subject to the APA Land Area Use Classification. In addition, Lake George Park Commission (LGPC) is a State agency that issues construction permits in and adjacent to Lake George that may apply to projects/ properties in the Town of Fort Ann. LGPC permits, SEQRA Review or other approvals may be needed for Stormwater management Docks, wharfs and moorings, projects in a wetland, fish spawning areas or other environmentally sensitive areas, and excavation and fill (cribs and seawalls).

Lake Champlain Watershed Water Quality Management Planning: Roadside Erosion Assessment and Inventory: The Lake Champlain Watershed Water Quality Management Planning project was one of 11 projects in New York State that was funded through the Federal Government's American Recovery and Reinvestment Act Initiative. The goal of the project was to identify critically eroding roadside banks that have contributed significant sediment loads to the high-quality streams throughout the Champlain Watershed (Clinton, Essex, Franklin, Warren and Washington Counties). The plan identified 319 roadside erosion sites in need to remediation. In Washington County, 31 sites were identified (12 high priority, 11 moderate priority, and 8 low priority). Seven sites were located in the Town of Fort Ann.

Public Safety and Emergency Management: The Town contracts for fire protection services with the West Fort Ann and the Pilot Knob Fire Districts.

Regulatory and Enforcement

Code Enforcement: Washington County provides code enforcement duties and responsibilities to the Town of Fort Ann.

Construction Codes, Uniform: The building codes are strictly enforced to make new and renovated buildings as prepared as possible for hazard related incidents. The Town complies with New York State Uniform Fire Prevention and Building Code (the Uniform Code) and the State Energy Conservation Construction Code (the Energy Code). Washington County handles all building, septic and chimney permits for the Town of Fort Ann.

Flood Damage Prevention: This ordinance promotes the public health, safety, and general welfare of residents and seeks to minimize public and private losses due to flood conditions. It regulates development to promote flood resistant structures and controls the alteration of floodplains to prevent increased vulnerability.

Sewers: The Town abides by the County-wide Sanitary Code, which protects and regulates its sewage collection and treatment facilities as a matter of public health and environmental safety. It seeks to prohibit the introduction of stormwater, surface, or sub-surface waters into sanitary sewers and to control the quantity and quality of wastes in the sewage system.

Subdivision of Land: The Town's Planning Board is tasked with site plan/subdivision review. The Planning Board pays special attention to ensure that developments mitigate the issues associated natural hazards.

Dams: The Town engineer inspects the dams in the municipality annually and maintenance is performed as needed.

Fiscal

Operating Budget: The Town's operating budget contains minimal provisions for expected repairs like snow removal, leaf pickup, and infrastructure repair after a storm or natural disaster. The Town also allots funding for maintaining Town roads and town property grounds, equipment used by the highway department, and contractual expenses as needed to supplement highway department staff capabilities. The tentative 2015 budget allocated $240,000 under Capital Outlay.

Education and Outreach

The Town Supervisor posts safety information, including a list of resources available to Senior Citizens, on the Town bulletin board. The town website provides address and phone numbers for local emergency resources, including the Fort Ann Rescue Squad, Fort Ann Volunteer Fire Department, West Fort Ann Volunteer Fire Department, and Pilot Knob Volunteer Fire Department.

9.8.6 Mitigation Strategy and Prioritization

This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and prioritization.

Past Mitigation Initiative Status

The following table indicates progress on the community's mitigation strategy identified in the 2010 Plan. It should be noted that during the 2010 planning process, only general, countywide actions were identified for each municipality. The Town of Fort Ann reviewed the previous actions and selected actions they chose to carry forward as part of this plan update. Previous actions that are now on-going programs and capabilities are indicated as such in the following table and may also be found under 'Capability Assessment' presented previously in this annex.

Table 9.8-11. Status of Previous Mitigation Actions

2010 Mitigation Action	Responsible Party	Status (In progress, No progress, Complete)	Describe Status	Next Step (Include in 2018 HMP or Discontinue)	Describe Next Step
Improve drainage at sites where roads have washed out due to natural hazards in the past	County and NYS DHSES	In progress	Larger culverts & more ditching	Include in 2018 HMP	Replace undersized culverts and improve drainage at sites where roads have washed out.
Purchase equipment to provide for local personnel to conduct the drainage improvement	County and NYS DHSES	In progress	Larger culverts & more ditching	Include in 2018 HMP	Replace undersized culverts and improve drainage at sites where roads have washed out.
Engineering assessment to determine feasibility of each site improvement	County and NYS DHSES	In progress	Larger culverts & more ditching	Include in 2018 HMP	Replace undersized culverts and improve drainage at sites where roads have washed out.
Improve dams to prevent flooding causing roads to wash out.	County and NYS DHSES	In Progress	100% Hadlock Pond dam repair	Discontinue	Annual inspection by engineer & maintenance – ongoing capability for the Town
Improve identified sites where slope stability is subject to land subsidence and where excavation or planting could mitigate future damage.	County and NYS DHSES	No progress	0% Mattison Rd	Include in 2018 HMP	Possible grant money 2017

Completed Mitigation Initiatives Not Identified in the Previous Mitigation Strategy

The Town of Fort Ann has identified the following mitigation projects/activities that have also been completed but were not identified in the previous mitigation strategy in the 2010 Plan:

- Culverts on Goodman Rd replaced by a bridge
- Larger culverts installed on Lake Nebo Rd
- Additional culvert added to Mattison Rd
- Larger culvert added to Shelving Rock Rd
- Bridge replaced on Joe Green Rd
- Bridge replaced on County Rt-16
- Larger culverts installed at Shelving Rock Rd & Sly Pond Rd

Proposed Hazard Mitigation Initiatives for the Plan Update

The Town of Fort Ann participated in a mitigation action workshop in September 2016 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).

Table 9.8-12 summarizes the comprehensive-range of specific mitigation initiatives the Town of Fort Ann would like to pursue in the future to reduce the effects of hazards. Some of these initiatives may be previous actions carried forward for this plan update. These 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. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table below to further demonstrate the wide-range of activities and mitigation measures selected.

As discussed in Section 6, 14 evaluation/prioritization criteria are used 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 your actions as 'High', 'Medium', or 'Low.' The table below summarizes the evaluation of each mitigation initiative, listed by Action Number.

Table 9.8-13 provides a summary of the prioritization of all proposed mitigation initiatives for the Plan update.

Table 9.8-12. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
T. Fort Ann-1 (previous action)	Lake Nebo Road - stabilize with erosion and sediment control blankets and stone and hydroseed with soil amendments	Existing	Flood, Erosion	1	Town with support from Lake Champlain-Lake George Regional Planning Board	Medium	Low	County Soil & Water Conservation district, municipal budget, Water Quality Improvement Project Grants	Short Term	High	SIP	PP, NR
T. Fort Ann-2 (previous action)	Hogtown Road – • install erosion and sediment control blankets and hydroseed with conservation mix and soil amendments • re-grade slope, stabilize with erosion and sediment control blankets and hydroseeding with conservation mix and soil amendments											
	See above	Existing	Flood, Erosion	1	Town with support from Lake Champlain-Lake George Regional Planning Board	Medium	Low	County Soil & Water Conservation district, municipal budget, Water Quality Improvement Project Grants	Short Term	Medium to High	SIP	PP, NR
T. Fort Ann-3 (previous action)	Burquist Road – hydroseed with conservation mix, soluble fertilizers and tackifier	Existing	Flood, Erosion	1	Town with support from Lake Champlain-Lake George Regional Planning Board	Medium	Low	County Soil & Water Conservation district, municipal budget, Water Quality Improvement Project Grants	Short Term	Medium	SIP	PP, NR
T. Fort Ann-4 (previous action)	Copeland Pond Road - re-grade slope, stabilize with erosion and sediment control blankets and hydroseeding with conservation mix and soil amendments	Existing	Flood, Erosion	1	Town with support from Lake Champlain-Lake George Regional Planning Board	Medium	Low	County Soil & Water Conservation district, municipal budget, Water Quality Improvement Project Grants	Short Term	Medium	SIP	PP, NR
T. Fort Ann-5	Kelsey Pond Road - re-grade slope, stabilize with	Existing	Flood, Erosion	1	Town with support from	Medium	Low	County Soil & Water	Short Term	Medium	SIP	PP, NR

Table 9.8-12. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
(previous action)	erosion and sediment control blankets and hydroseeding with conservation mix and soil amendments				Lake Champlain-Lake George Regional Planning Board			Conservation district, municipal budget, Water Quality Improvement Project Grants				
T. Fort Ann-6	Consider becoming a New York State certified Climate Smart Community	N/A	All	1, 5	Town with support from NYSDEC	Medium	Low	Municipal Budget	Short Term	Medium	LPR, EAP	PR, PI
T. Fort Ann-7 (previous action)	Improve stormwater drainage capacity throughout the Town. • Identify roads that wash out during heavy rain events. Once identified, improve drainage by replacing culverts or install additional culverts. • Purchase equipment to assist with increasing the capacity of the culverts throughout the town											
	See above	Existing	Flood, Severe Storm	1	Town Highway Department	Medium	Medium	Municipal Budget, Bridge NY	Short Term	Medium	SIP	PP

Notes:

Not all acronyms and abbreviations defined below are included in the table.

**Does this mitigation initiative reduce the effects of hazards on new and/or existing buildings and/or infrastructure? Not applicable (N/A) is inserted if this does not apply.*

Acronyms and Abbreviations:

CAV	*Community Assistance Visit*
CRS	*Community Rating System*
DPW	*Department of Public Works*
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*
PDM	*Pre-Disaster Mitigation Grant Program*
RFC	*Repetitive Flood Claims Grant Program (discontinued in 2015)*
SRL	*Severe Repetitive Loss Grant Program (discontinued in 2015)*

Timeline:

Short	*1 to 5 years*
Long Term	*5 years or greater*
OG	*On-going program*
DOF	*Depending on funding*

Costs:

Where actual project costs have been reasonably estimated:

Low	*< $10,000*
Medium	*$10,000 to $100,000*
High	*> $100,000*

Benefits:

Where possible, an estimate of project benefits (per FEMA's benefit calculation methodology) has been evaluated against the project costs, and is presented as:

Low=	*< $10,000*
Medium	*$10,000 to $100,000*
High	*> $100,000*

Costs:

Where actual project costs cannot reasonably be established at this time:

Low — *Possible to fund under existing budget. Project is part of, or can be part of an existing on-going program.*

Medium — *Could budget for under existing work plan, but would require a reapportionment of the budget or a budget amendment, or the cost of the project would have to be spread over multiple years.*

High — *Would require an increase in revenue via an alternative source (i.e., bonds, grants, fee increases) to implement. Existing funding levels are not adequate to cover the costs of the proposed project.*

Benefits:

Where numerical project benefits cannot reasonably be established at this time:

Low — *Long-term benefits of the project are difficult to quantify in the short term.*

Medium — *Project will have a long-term impact on the reduction of risk exposure to life and property, or project will provide an immediate reduction in the risk exposure to property.*

High — *Project will have an immediate impact on the reduction of risk exposure to life and property.*

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*

Table 9.8-13. Summary of Prioritization of Actions

Mitigation Action / Project Number	Mitigation Action / Initiative	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
T. Fort Ann-1	Lake Nebo Road	1	1	1	1	1	0	0	1	0	1	1	1	1	0	10	High
T. Fort Ann-2	Hogtown Road	1	1	1	1	1	0	0	1	0	1	1	1	0	0	9	Medium
T. Fort Ann-3	Burquist Road	1	1	1	1	1	0	0	1	0	1	1	1	0	0	9	Medium
T. Fort Ann-4	Copeland Pond Road	1	1	1	1	1	0	0	1	0	1	1	1	0	0	9	Medium
T. Fort Ann-5	Kelsey Pond Road	1	1	1	1	1	0	0	1	0	1	1	1	0	0	9	Medium
T. Fort Ann-6	Consider becoming a New York State certified Climate Smart Community	1	1	0	1	0	1	0	1	0	1	1	0	0	0	7	Medium
T. Fort Ann-7	Improve stormwater drainage capacity throughout the Town	1	1	1	1	1	0	0	1	0	1	1	1	0	0	9	Medium

Note: Refer to Section 6 which contains the guidance on conducting the prioritization of mitigation actions.

9.8.7 Future Needs To Better Understand Risk/Vulnerability

None at this time.

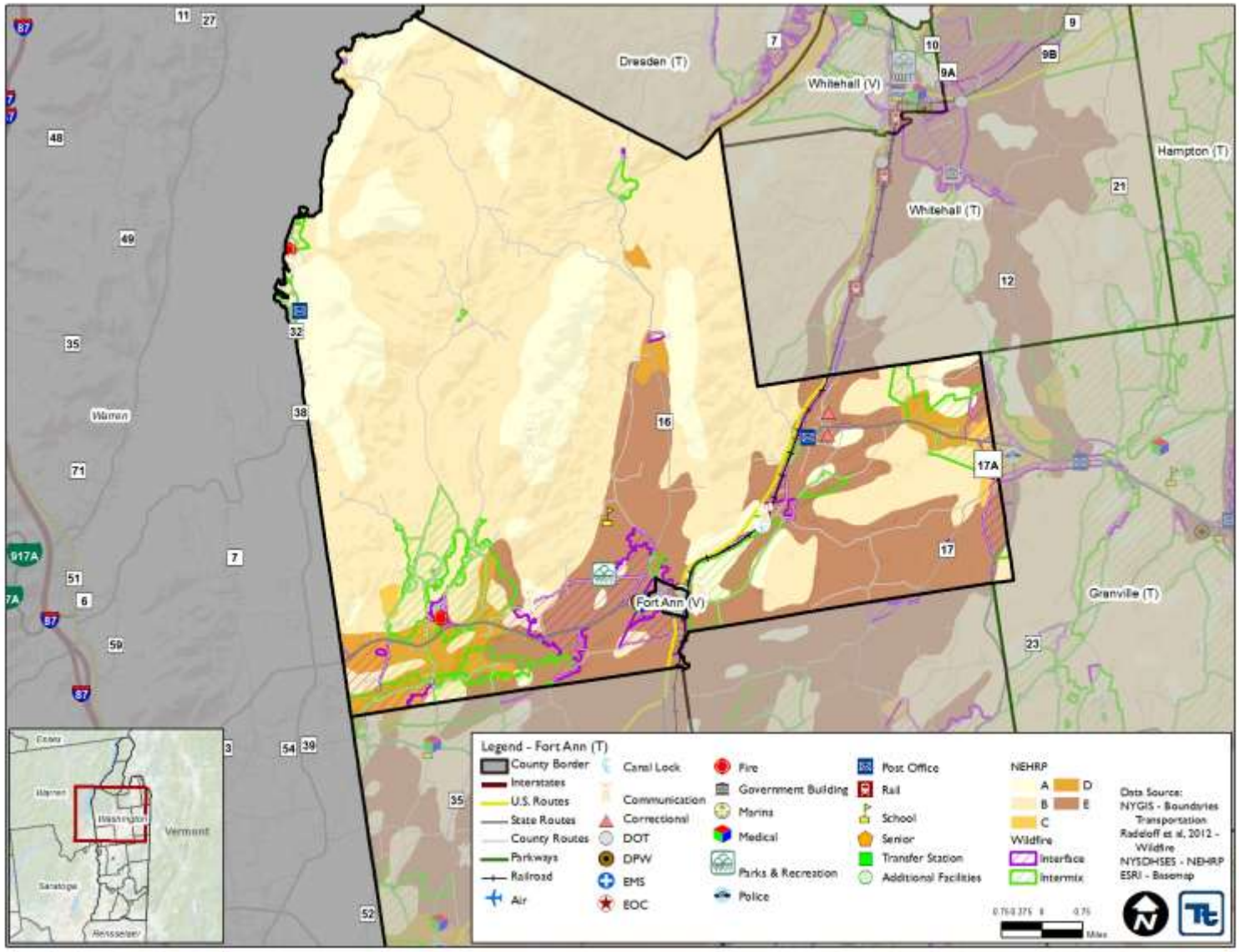
9.8.8 Hazard Area Extent and Location

Hazard area extent and location maps have been generated for the Town of Fort Ann that illustrate the probable areas impacted within the municipality. These maps are based on the best available data at the time of the preparation of this plan, and are considered to be adequate for planning purposes. Maps have only been generated for those hazards that can be clearly identified using mapping techniques and technologies, and for which the Town of Fort Ann has significant exposure. These maps are illustrated in the hazard profiles within Section 5.4, Volume I of this Plan.

9.8.9 Additional Comments

None at this time.

Figure 9.8-1. Town of Fort Ann Hazard Area Extent and Location



Action Number: T. Fort Ann - 1

Mitigation Action Name: Lake Nebo Road.

Assessing the Risk	
Hazard(s) addressed:	Flood, Erosion
Specific problem being mitigated:	Steep slopes along the bank adjacent to Lake Nebo Road are subject to erosion as they are not stabilized and exposed to the elements.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - current problem persists. Hard stabilization of bank – not environmentally friendly, costly
Action/Project Intended for Implementation	
Description of Selected Action/Project	Stabilize with erosion and sediment control blankets and stone and hydroseed with soil amendments. This will alleviate the erosion along the Lake Nebo Road.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	Goal 1: Protect Life and Property
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	Medium
Estimated Cost	Low
Priority*	High
Plan for Implementation	
Responsible Organization	Town with support from Lake Champlain-Lake George Regional Planning Board
Local Planning Mechanism	Hazard Mitigation
Potential Funding Sources	County Soil & Water Conservation district, municipal budget, Water Quality Improvement Project Grants
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	

Action Number: T. Fort Ann - 1
Mitigation Action Name: Lake Nebo Road.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	Protect area from erosion and flooding – reduce or prevent damage to properties
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	0	
Fiscal	0	Need to obtain funding
Environmental	1	Improve stream channel functionality
Social	0	
Administrative	1	
Multi-Hazard	1	
Timeline	1	
Agency Champion	1	
Other Community Objectives	0	
Total	10	
Priority (H/M/L)	High	

Action Number: T. Fort Ann - 2

Mitigation Action Name: Hogtown Road.

Assessing the Risk	
Hazard(s) addressed:	Flood, Erosion
Specific problem being mitigated:	Steep slopes along the bank adjacent to Hogtown Road are critically eroding and contribute to significant sediment loads in adjacent streams.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - current problem persists. Build retention wall – costly.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Improvements include installation of erosion and sediment control blankets and hydroseed with conservation mix and soil amendments, including re-grading slope, stabilizing with erosion and sediment control blankets, and hydroseeding with conservation mix and soil amendments. This will provide protection along Hogstown Road from erosion during periods of heavy rain.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	Goal 1: Protect Life and Property
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	Medium
Estimated Cost	Low
Priority*	Medium to High
Plan for Implementation	
Responsible Organization	Town with support from Lake Champlain-Lake George Regional Planning Board
Local Planning Mechanism	Hazard Mitigation
Potential Funding Sources	County Soil & Water Conservation district, municipal budget, Water Quality Improvement Project Grants
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	

Action Number: T. Fort Ann - 2
Mitigation Action Name: Hogtown Road.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	Protect area from erosion and flooding – reduce or prevent damage to properties
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	0	
Fiscal	0	Need to obtain funding
Environmental	1	
Social	0	
Administrative	1	
Multi-Hazard	1	
Timeline	1	
Agency Champion	0	
Other Community Objectives	0	
Total	9	
Priority (H/M/L)	Medium	

Action Number: T. Fort Ann - 3

Mitigation Action Name: Burquist Road.

Assessing the Risk	
Hazard(s) addressed:	Flood, Erosion
Specific problem being mitigated:	Steep slopes along the bank adjacent to Burquist Road are subject to erosion as they are not stabilized properly and exposed to the elements, such as heavy rain and flooding.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - current problem persists. Build retention wall - costly
Action/Project Intended for Implementation	
Description of Selected Action/Project	Soil amendments (hydroseed with conservation mix, soluble fertilizers and tackifier) to Burquist Road to help with flooding and erosion. This will reduce the impacts heavy rain events can have in this section of the town and reduce the impacts of flooding and erosion.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	Goal 1: Protect Life and Property
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	Medium
Estimated Cost	Low
Priority*	Medium
Plan for Implementation	
Responsible Organization	Town with support from Lake Champlain-Lake George Regional Planning Board
Local Planning Mechanism	Hazard Mitigation
Potential Funding Sources	County Soil & Water Conservation district, municipal budget, Water Quality Improvement Project Grants
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	

Action Number: T. Fort Ann - 3
Mitigation Action Name: Burquist Road.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	Protect area from erosion and flooding – reduce or prevent damage to properties
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	0	
Fiscal	0	Need to obtain funding
Environmental	1	
Social	0	
Administrative	1	
Multi-Hazard	1	
Timeline	1	
Agency Champion	0	
Other Community Objectives	0	
Total	9	
Priority (H/M/L)	Medium	

Action Number: T. Fort Ann - 4

Mitigation Action Name: Copeland Pond Road.

Assessing the Risk	
Hazard(s) addressed:	Flood, Erosion
Specific problem being mitigated:	Steep slopes along the bank adjacent to Copeland Pond Road are critically eroding and contribute to significant sediment loads in adjacent streams.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - current problem persists. Build retention wall - costly
Action/Project Intended for Implementation	
Description of Selected Action/Project	Improvements include installation of erosion and sediment control blankets and hydroseed with conservation mix and soil amendments, including re-grading slope, stabilizing with erosion and sediment control blankets, and hydroseeding with conservation mix and soil amendments, to improve soil conditions and mitigate erosion and flooding. This will reduce the impacts heavy rain events can have in this section of the town and reduce the impacts of flooding and erosion.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	Goal 1: Protect Life and Property
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	Medium
Estimated Cost	Low
Priority*	Medium
Plan for Implementation	
Responsible Organization	Town with support from Lake Champlain-Lake George Regional Planning Board
Local Planning Mechanism	Hazard Mitigation
Potential Funding Sources	Municipal Budget or Grant Funding
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	

Action Number: T. Fort Ann - 4
Mitigation Action Name: Copeland Pond Road.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Provide additional protection to surrounding residential areas in the area of Copeland Pond Road
Property Protection	1	Provide additional protection to surrounding properties and buildings in the area of Copeland Pond Road
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	0	
Fiscal	0	Need to obtain funding – municipal budget or grants
Environmental	1	
Social	0	
Administrative	1	
Multi-Hazard	1	
Timeline	1	
Agency Champion	0	
Other Community Objectives	0	
Total	9	
Priority (H/M/L)	Medium	

Action Number: T. Fort Ann - 5

Mitigation Action Name: Kelsey Pond Road.

Assessing the Risk	
Hazard(s) addressed:	Flood, Erosion
Specific problem being mitigated:	Steep slopes along the bank adjacent to Kelsey Pond Road are critically eroding and contribute to significant sediment loads in adjacent streams.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - current problem persists. Build retention wall - costly
Action/Project Intended for Implementation	
Description of Selected Action/Project	Improvements include installation of erosion and sediment control blankets and hydroseed with conservation mix and soil amendments along Kelsey Pond Road, including re-grading slope, stabilizing with erosion and sediment control blankets, and hydroseeding with conservation mix and soil amendments. This will reduce the impacts heavy rain events can have in this section of the town and reduce the impacts of flooding and erosion.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	Goal 1: Protect Life and Property
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	Medium
Estimated Cost	Low
Priority*	Medium
Plan for Implementation	
Responsible Organization	Town with support from Lake Champlain-Lake George Regional Planning Board
Local Planning Mechanism	Hazard Mitigation
Potential Funding Sources	County Soil & Water Conservation district, municipal budget, Water Quality Improvement Project Grants
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	

Action Number: T. Fort Ann - 5

Mitigation Action Name: Kelsey Pond Road.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Provide additional protection to surrounding residential areas in the area of Kelsey Pond Road
Property Protection	1	Provide additional protection to surrounding properties and buildings in the area of Kelsey Pond Road
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	0	
Fiscal	0	Need to obtain funding – municipal budget or grants
Environmental	1	
Social	0	
Administrative	1	
Multi-Hazard	1	
Timeline	1	
Agency Champion	0	
Other Community Objectives	0	
Total	9	
Priority (H/M/L)	Medium	

Action Number: T. Fort Ann - 6

Mitigation Action Name: Consider becoming a New York State certified Climate Smart Community.

Assessing the Risk	
Hazard(s) addressed:	All
Specific problem being mitigated:	Currently not a Climate Smart Community.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - current problem persists. Adopt Climate Smart Community Actions but do not apply for certification – missed opportunity for public outreach
Action/Project Intended for Implementation	
Description of Selected Action/Project	Determine the benefits of becoming a New York State-certified Climate Smart Community. By joining, the Town will become engaged in reducing greenhouse gas emissions and improving climate resilience. The Town also will identify policies, measures, planning goals, actions, funding, responsibility, and schedules.
Mitigation Action Type	Local Plans and Regulations (LPR) Education and Awareness Programs (EAP)
Goals Met	Goal 1: Protect Life and Property 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.
Applies to existing and or new development, or not applicable	N/A
Benefits (losses avoided)	Medium
Estimated Cost	Low
Priority*	Medium
Plan for Implementation	
Responsible Organization	Town with support from NYSDEC
Local Planning Mechanism	Hazard Mitigation
Potential Funding Sources	Municipal Budget
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	

Action Number: T. Fort Ann - 6

Mitigation Action Name: Consider becoming a New York State certified Climate Smart Community.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	0	
Technical	1	
Political	0	
Legal	1	
Fiscal	0	Municipal time
Environmental	0	
Social	0	
Administrative	1	
Multi-Hazard	1	All hazards
Timeline	0	
Agency Champion	0	
Other Community Objectives	0	
Total	6	
Priority (H/M/L)	Medium	

Action Number: T. Fort Ann - 7

Mitigation Action Name: Improve stormwater drainage capacity throughout the Town.

Assessing the Risk	
Hazard(s) addressed:	Flood, Severe Storm
Specific problem being mitigated:	Many areas in the town have inadequate drainage and roadways become inundated during periods of heavy rain. This creates access issues for emergency vehicles and personnel in the event of an emergency.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - current problem persists. Elevate all roadways - costly
Action/Project Intended for Implementation	
Description of Selected Action/Project	Improve stormwater drainage capacity throughout the Town by 1) Identifying roads that wash out during heavy rain events. Once identified, improve drainage by replacing culverts or install additional culverts. 2) Purchase equipment to assist with increasing the capacity of the culverts throughout the town.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	Goal 1: Protect Life and Property
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	Medium
Estimated Cost	Low
Priority*	Medium
Plan for Implementation	
Responsible Organization	Town Highway Department
Local Planning Mechanism	Hazard Mitigation
Potential Funding Sources	Municipal budget, Bridge NY
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	

Action Number: T. Fort Ann - 7

Mitigation Action Name: Improve stormwater drainage capacity throughout the Town.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Reduce the amount of standing water on roadways during periods of heavy rain and allow emergency personnel to access all portions of the town
Property Protection	1	Provide additional protection to surrounding residential areas of inadequate drainage
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	0	
Fiscal	0	Municipal budget
Environmental	1	
Social	0	
Administrative	1	
Multi-Hazard	1	
Timeline	1	
Agency Champion	0	
Other Community Objectives	0	
Total	9	
Priority (H/M/L)	Medium	

9.9 VILLAGE OF FORT ANN

This section presents the jurisdictional annex for the Village of Fort Ann.

9.9.1 Hazard Mitigation Plan Point of Contact

The following individuals have been identified as the hazard mitigation plan's primary and alternate points of contact.

Primary Point of Contact	Alternate Point of Contact
TBD	TBD

9.9.2 Municipal Profile

The Village of Fort Ann is in the Adirondack Mountains in New York State and is located in the northern region of Washington County. The Village is located within the Town of Fort Ann. The Champlain Canal is a major body of water found along the eastern border of the Village.

The Village has a total area of 0.3 square miles, all of which is land. According to the 2010 Census, the community's population was 471. The village is governed by the Village Council consisting of the council members and the supervisor.

Growth/Development Trends

The Village of Fort Ann did not note any recent residential/commercial development since 2010 or any major residential or commercial development, or major infrastructure development planned for the next five years in the municipality.

Table 9.9-1. Growth and Development

Property or Development Name	Type (e.g. Res., Comm.)	# of Units / Structures	Location (address and/or Parcel ID)	Known Hazard Zone(s)	Description/Status of Development
Recent Development from 2010 to present					
None identified					
Known or Anticipated Development in the Next Five (5) Years					
None identified					

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

9.9.3 Natural Hazard Event History Specific to the Municipality

Washington County has a history of natural and non-natural hazard events as detailed in Volume I, Section 5.0 of this plan. 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. For the purpose of this plan update, events that have occurred in the County from 2008 to present were summarized to indicate the range and impact of hazard events in the community. Information regarding specific damages is included, if available, based on reference material or local sources. This information is presented in the table below. For details of these and additional events, refer to Volume I, Section 5.0 of this plan.

Table 9.9-2. Hazard Event History

Dates of Event	Event Type (Disaster Declaration if applicable)	Washington County Designated?	Summary of Damages/Losses
None identified			

Notes:

EM *Emergency Declaration (FEMA)*
FEMA *Federal Emergency Management Agency*
DR *Major Disaster Declaration (FEMA)*
IA *Individual Assistance*
N/A *Not applicable*
PA *Public Assistance*

9.9.4 Hazard Vulnerabilities and Ranking

The hazard profiles in Section 5.0 of this plan have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes the hazard vulnerabilities and their ranking in the Village of Fort Ann. For additional vulnerability information relevant to this jurisdiction, refer to Section 5.0. Refer to Figure 9.9-1 later in this annex for hazard vulnerable areas located in the Village of Fort Ann.

Natural Hazard Risk/Vulnerability Risk Ranking

As discussed in Section 5.3 (Hazard Ranking), each participating town or village may have differing degrees of risk exposure and vulnerability compared to Washington County as a whole. The Village of Fort Ann did not participate in the 2018 Plan Update; therefore, the County ranked the degree of risk to each hazard as it pertains to the community for informational purposes. The table below summarizes the hazard risk/vulnerability rankings of potential natural hazards for the Village of Fort Ann. It should be noted that the information presented in the table below is based on the risk ranking methodology discussed in Section 5.3 (Hazard Ranking) and is for informational purposes only.

Table 9.9-3. Hazard Risk/Vulnerability Risk Ranking

Hazard type	Estimate of Potential Dollar Losses to Structures Vulnerable to the Hazard [a, c]	Probability of Occurrence	Risk Ranking Score (Probability x Impact)	Hazard Ranking [b]
Earthquake	100-Year GBS: $0 500-Year GBS: $3,877,453 2,500-Year GBS: $44,550,107	Occasional	28	Medium
Flood	Damage estimate not available.	Frequent	36	High
Severe Weather	100-Year MRP: $227,207 500-year MRP: $1,955,312 Annualized: $13,840	Frequent	48	High
Severe Winter Weather	1% GBS: $1,127,359 5% GBS: $5,636,796	Frequent	51	High
Wildfire	Estimated Value in the WUI Hazard Areas: $185,991,954	Frequent	48	High

Notes:

a. *Building damage ratio estimates based on FEMA 386-2 (August 2001)*
b. *The valuation of general building stock and loss estimates was based on custom inventory for the municipality.*
High = Total hazard priority risk ranking score of 31 and above

Medium = Total hazard priority risk ranking of 20-30+

Low = Total hazard risk ranking below 20

c. Loss estimates for the severe storm and severe winter storm hazards are structural values only and do not include the value of contents.

d Loss estimates for the flood and earthquake hazards represent both structure and contents.

e. The HAZUS-MH earthquake model results are reported by Census Tract.

f. Damage estimate for flood unavailable due to lack of digital floodplain data for Washington County.

National Flood Insurance Program (NFIP) Summary

The following table summarizes the NFIP statistics for the Village of Fort Ann.

Table 9.9-4. NFIP Summary

Municipality	# Policies (1)	# Claims (Losses) (1)	Total Loss Payments (2)	# Rep. Loss Prop. (1)	# Severe Rep. Loss Prop. (1)
Fort Ann (V)	0	0	$0	0	0

Source: FEMA, 2016

Note (1) Policies, claims, repetitive loss and severe repetitive loss statistics provided by FEMA and are current as of April 30, 2016 and are summarized by Community Name. Please note the total number of repetitive loss properties excludes the severe repetitive loss properties. The number of claims represents claims closed by 4/30/2016.

Note (2) Total building and content losses from the claims file provided by FEMA Region 2.

Note (3) The policies inside and outside of the flood zones are unavailable due to lack of digital floodplain for Washington County.

Note (4) FEMA noted that where there is more than one entry for a property, there may be more than one policy in force or more than one GIS possibility.

Critical Facilities

At the time of this HMP Update, digitized flood maps for Washington County are unavailable. In order to provide some level of beneficial analysis, a desktop analysis was performed to identify critical facilities located within the floodplain (refer to Section 5.1 [Methodology and Tools] for details). The following table identifies critical facilities located within the municipality and their exposure, if any, to the possible floodplain. This information is a resource for the municipality to determine if flood mitigation actions are appropriate based on historical events and proximity of the facility to a water body. At the time of this 2018 HMP Update, the county did not identify any actions associated with these facilities.

Washington County understands the limitation of the map data and once the updated maps are available, the County will work with each municipality to determine which critical facilities are located within the 1% and 0.2% annual chance flood zones. Once identified, the municipality will work with the property owners and develop mitigation actions for each of the critical facilities, ensuring they will be protected to the 500-year (or worst-case scenario) level.

Table 9.9-5. Potential Flood Losses to Critical Facilities

Name	Type	Potential Flood Exposure
From the Heart Hotel	Hotel	X
Village of Fort Ann	Municipal Hall	X
Town of Fort Ann	Municipal Hall	X
Fort Ann Court	Court	X
US Postal Service - Fort Ann	Post Office	X
Fort Ann Volunteer Fire Company	Fire	X
Glens Falls National Bank	Bank	X

Source: Washington County; NYS GIS Clearinghouse

Other Vulnerabilities Identified

The municipality has identified the following vulnerabilities within their community:

- None identified

9.9.5 Capability Assessment

This section identifies the following capabilities of the local jurisdiction:

- Planning and regulatory capability
- Administrative and technical capability
- Fiscal capability
- Community classification
- National Flood Insurance Program
- Integration of Mitigation Planning into Existing and Future Planning Mechanisms

Planning and Regulatory Capability

The table below summarizes the regulatory tools that are available to the Village of Fort Ann.

Table 9.9-6. Planning and Regulatory Tools

Tool / Program (code, ordinance, plan)	Do you have this? (Yes/No) If Yes, date of adoption or update	Authority (local, county, state, federal)	Dept. /Agency Responsible	Code Citation and Comments (Code Chapter, name of plan, explanation of authority, etc.)
Planning Capability				
Master Plan				
Capital Improvements Plan				
Floodplain Management / Basin Plan				
Stormwater Management Plan				
Open Space Plan				
Stream Corridor Management Plan				
Watershed Management or Protection Plan				
Economic Development Plan				
Comprehensive Emergency Management Plan				
Emergency Response Plan				
Post-Disaster Recovery Plan				
Transportation Plan				
Strategic Recovery Planning Report				
Other Plans:				
Regulatory Capability				
Building Code	Yes	State & Local	Code Enforcement (county)	Building Code of New York State (NYS)
Zoning Ordinance				

Tool / Program (code, ordinance, plan)	Do you have this? (Yes/No) If Yes, date of adoption or update	Authority (local, county, state, federal)	Dept. /Agency Responsible	Code Citation and Comments (Code Chapter, name of plan, explanation of authority, etc.)
Subdivision Ordinance				
NFIP Flood Damage Prevention Ordinance				
NFIP: Cumulative Substantial Damages				
NFIP: Freeboard	Yes	State, Local	Code Enforcement	State mandated BFE+2 for single and two-family residential construction, BFE+1 for all other construction types
Growth Management Ordinances				
Site Plan Review Requirements				
Stormwater Management Ordinance				
Municipal Separate Storm Sewer System (MS4)				
Natural Hazard Ordinance				
Post-Disaster Recovery Ordinance				
Real Estate Disclosure Requirement	Yes	State	NYS Department of State, Real Estate Agent	NYS mandate, Property Condition Disclosure Act, NY Code - Article 14 §460-467
Other [Special Purpose Ordinances (i.e., sensitive areas, steep slope)]				

Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the Village of Fort Ann.

Table 9.9-7. Administrative and Technical Capabilities

Resources	Is this in place? (Yes or No)	Department/ Agency/Position
Administrative Capability		
Planning Board		
Mitigation Planning Committee		
Environmental Board/Commission		
Open Space Board/Committee		
Economic Development Commission/Committee		
Maintenance Programs to Reduce Risk		
Mutual Aid Agreements		
Technical/Staffing Capability		
Planner(s) or Engineer(s) with knowledge of land development and land management practices		
Engineer(s) or Professional(s) trained in construction practices related to buildings and/or infrastructure		
Planners or engineers with an understanding of natural		

Resources	Is this in place? (Yes or No)	Department/ Agency/Position
hazards		
NFIP Floodplain Administrator	Yes	Village Board
Surveyor(s)		
Personnel skilled or trained in GIS and/or HAZUS-MH applications		
Scientist familiar with natural hazards		
Emergency Manager		
Grant Writer(s)		
Staff with expertise or training in benefit/cost analysis		
Professionals trained in conducting damage assessments		

Fiscal Capability

The table below summarizes financial resources available to the Village of Fort Ann.

Table 9.9-8. Fiscal Capabilities

Financial Resources	Accessible or Eligible to Use (Yes/No)
Community development Block Grants (CDBG, CDBG-DR)	
Capital Improvements Project Funding	
Authority to Levy Taxes for specific purposes	
User fees for water, sewer, gas or electric service	
Impact Fees for homebuyers or developers of new development/homes	
Stormwater Utility Fee	
Incur debt through general obligation bonds	
Incur debt through special tax bonds	
Incur debt through private activity bonds	
Withhold public expenditures in hazard-prone areas	
Other Federal or State Funding Programs	
Open Space Acquisition Funding Programs	
Other	

Community Classifications

The table below summarizes classifications for community program available to the Village of Fort Ann.

Table 9.9-9. Community Classifications

Program	Do you have this? (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	9/10	4/21/17

Program	Do you have this? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
NYSDEC Climate Smart Community	No		
Storm Ready	No		
Firewise	No		
Disaster/Safety Programs in/for Schools			
Organizations with Mitigation Focus (advocacy group, non-government)			
Public Education Program/Outreach (through website, social media)			
Public-Private Partnerships			

N/A = Not applicable. NP = Not participating. - = Unavailable. TBD = To be determined.

The classifications listed above relate to the community's ability to provide effective services to lessen its vulnerability to the hazards identified. These classifications can be viewed as a gauge of the community's capabilities in all phases of emergency management (preparedness, response, recovery and mitigation) and are used as an underwriting parameter for determining the costs of various forms of insurance. The CRS class applies to flood insurance while the BCEGS and Public Protection classifications apply to standard property insurance. CRS classifications range on a scale of 1 to 10 with class 1 being the best possible classification, and class 10 representing no classification benefit. Firewise classifications include a higher classification when the subject property is located beyond 1000 feet of a creditable fire hydrant and is within 5 road miles of a recognized Fire Station.

Criteria for classification credits are outlined in the following documents:

- The Community Rating System Coordinators Manual
- The Building Code Effectiveness Grading Schedule website at https://www.isomitigation.com/bcegs/
- The ISO Mitigation online ISO's Public Protection website at https://www.isomitigation.com/ppc/
- The National Weather Service Storm Ready website at https://www.weather.gov/stormready/
- The National Firewise Communities website at https://www.nfpa.org/Public-Education/By-topic/Wildfire/Firewise-USA

Self-Assessment of Capability

The table below provides an approximate measure of the Village of Fort Ann's capability to work in a hazard-mitigation capacity and/or effectively implement hazard mitigation strategies to reduce hazard vulnerabilities.

Table 9.9-10. Self-Assessment Capability for the Municipality

Area	Degree of Hazard Mitigation Capability		
	Limited (If limited, what are your obstacles?)	Moderate	High
Planning and Regulatory Capability			
Administrative and Technical Capability			
Fiscal Capability			
Community Political Capability			
Community Resiliency Capability			
Capability to Integrate Mitigation into			

Area	Degree of Hazard Mitigation Capability		
	Limited (If limited, what are your obstacles?)	Moderate	High
Municipal Processes and Activities.			

National Flood Insurance Program

According to the most recent FEMA Community Status Book Report, the Village of Fort Ann is in good stanking with the NFIP. As of the date of this plan update, information provided by the New York State Department of Environmental Conservation (NYS DEC), the Village of Fort Ann has not had a compliance audit conducted.

Integration of Hazard Mitigation into Existing and Future Planning Mechanisms

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 this planning effort, each community was surveyed to obtain a better understanding of their community's progress in plan integration. A summary is provided below. In addition, the community identified specific integration activities that will be incorporated into municipal procedures.

Regulatory and Enforcement

Code Enforcement: Washington County provides code enforcement duties and responsibilities to the Village of Fort Ann.

Construction Codes, Uniform: The building codes are strictly enforced to make new and renovated buildings as prepared as possible for hazard related incidents. The Village complies with New York State Uniform Fire Prevention and Building Code (the Uniform Code) and the State Energy Conservation Construction Code (the Energy Code).

Sewers: The Village abides by the County-wide Sanitary Code, which protects and regulates its sewage collection and treatment facilities as a matter of public health and environmental safety. It seeks to prohibit the introduction of stormwater, surface, or sub-surface waters into sanitary sewers and to control the quantity and quality of wastes in the sewage system.

9.9.6 Mitigation Strategy and Prioritization

This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and prioritization.

Past Mitigation Initiative Status

The following table indicates progress on the community's mitigation strategy identified in the 2010 Plan. It should be noted that during the 2010 planning process, only general, countywide actions were identified for each municipality. Previous actions that are now on-going programs and capabilities are indicated as such in the following table and may also be found under 'Capability Assessment' presented previously in this annex.

Table 9.9-11. Status of Previous Mitigation Actions

2010 Mitigation Action	Responsible Party	Status (In progress, No progress, Complete)	Describe Status	Next Step (Include in 2016 HMP or Discontinue)	Describe Next Step
Improve drainage at sites where roads have washed out due to natural hazards in the past	County and NYS DHSES				
Purchase equipment to provide for local personnel to conduct the drainage improvement	County and NYS DHSES				
Engineering assessment to determine feasibility of each site improvement	County and NYS DHSES				
Improve dams to prevent flooding causing roads to wash out.	County and NYS DHSES				
Improve identified sites where slope stability is subject to land subsidence and where excavation or planting could mitigate future damage.	County and NYS DHSES				

Completed Mitigation Initiatives Not Identified in the Previous Mitigation Strategy

The Village of Fort Ann has identified the following mitigation projects/activities that have also been completed but were not identified in the previous mitigation strategy in the 2010 Plan:

- None identified

Proposed Hazard Mitigation Initiatives for the Plan Update

In September 2016, a mitigation action workshop was held and the municipalities were 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).

Table 9.9-12 summarizes the comprehensive-range of specific mitigation initiatives the Village of Fort Ann would like to pursue in the future to reduce the effects of hazards. Some of these initiatives may be previous actions carried forward for this plan update. These 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. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table below to further demonstrate the wide-range of activities and mitigation measures selected.

As discussed in Section 6, 14 evaluation/prioritization criteria are used 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 your actions as 'High', 'Medium', or 'Low.' The table below summarizes the evaluation of each mitigation initiative, listed by Action Number.

Table 9.9-13 provides a summary of the prioritization of all proposed mitigation initiatives for the Plan update.

Table 9.9-12. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals and Objectives Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category

Notes:

Not all acronyms and abbreviations defined below are included in the table.

**Does this mitigation initiative reduce the effects of hazards on new and/or existing buildings and/or infrastructure? Not applicable (N/A) is inserted if this does not apply.*

Acronyms and Abbreviations:

CAV	*Community Assistance Visit*
CRS	*Community Rating System*
DPW	*Department of Public Works*
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*
PDM	*Pre-Disaster Mitigation Grant Program*
RFC	*Repetitive Flood Claims Grant Program (discontinued in 2015)*
SRL	*Severe Repetitive Loss Grant Program (discontinued in 2015)*

Timeline:

Short	*1 to 5 years*
Long Term	*5 years or greater*
OG	*On-going program*
DOF	*Depending on funding*

Costs:

Where actual project costs have been reasonably estimated:

Low	*< $10,000*
Medium	*$10,000 to $100,000*
High	*> $100,000*

Where actual project costs cannot reasonably be established at this time:

Low	*Possible to fund under existing budget. Project is part of, or can be part of an existing on-going program.*
Medium	*Could budget for under existing work plan, but would require a reapportionment of the budget or a budget amendment, or the cost of the project would have to be spread over multiple years.*
High	*Would require an increase in revenue via an alternative source (i.e., bonds,*

Benefits:

Where possible, an estimate of project benefits (per FEMA's benefit calculation methodology) has been evaluated against the project costs, and is presented as:

Low=	*< $10,000*
Medium	*$10,000 to $100,000*
High	*> $100,000*

Where numerical project benefits cannot reasonably be established at this time:

Low	*Long-term benefits of the project are difficult to quantify in the short term.*
Medium	*Project will have a long-term impact on the reduction of risk exposure to life and property, or project will provide an immediate reduction in the risk exposure to property.*
High	*Project will have an immediate impact on the reduction of risk exposure to*

Costs:

grants, fee increases) to implement. Existing funding levels are not adequate to cover the costs of the proposed project.

Benefits:

life and property.

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*

Table 9.9-13. Summary of Prioritization of Actions

Mitigation Action/Project Number	Mitigation Action/Initiative	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

Note: Refer to Section 6 which contains the guidance on conducting the prioritization of mitigation actions.

9.9.7 Future Needs to Better Understand Risk/Vulnerability

None at this time.

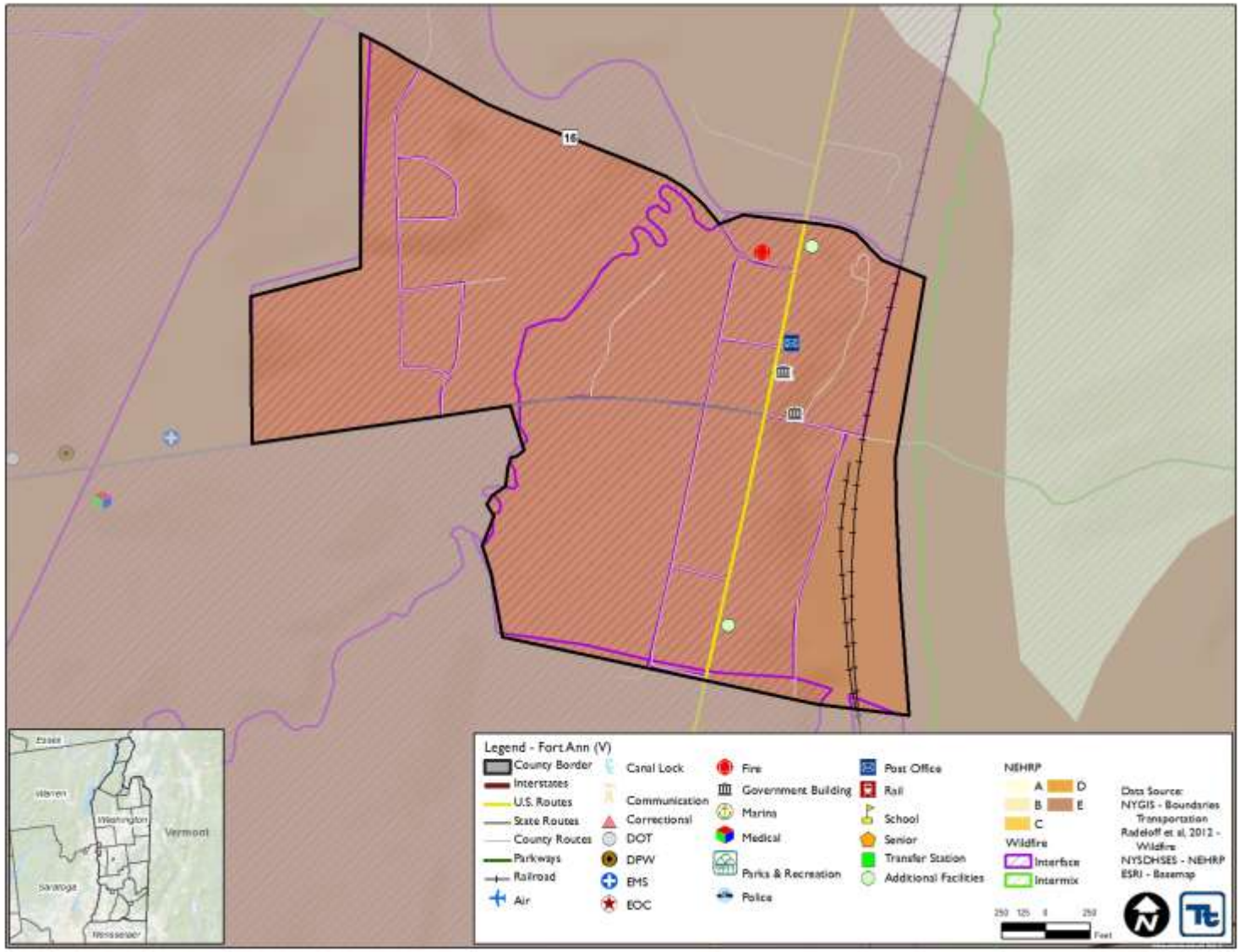
9.9.8 Hazard Area Extent and Location

Hazard area extent and location maps have been generated for the Village of Fort Ann that illustrate the probable areas impacted within the municipality. These maps are based on the best available data at the time of the preparation of this plan, and are considered to be adequate for planning purposes. Maps have only been generated for those hazards that can be clearly identified using mapping techniques and technologies, and for which the Village of Fort Ann has significant exposure. These maps are illustrated in the hazard profiles within Section 5.4, Volume I of this Plan.

9.9.9 Additional Comments

None at this time.

Figure 9.9-1. Village of Fort Ann Hazard Area Extent and Location


16
Legend - Fort Ann (V)
County Border
Interstates
U.S. Routes
State Routes
County Routes
Parkways
Railroad
Air
Canal Lock
Communication
Correctional
DOT
DPW
EMS
EOC
Fire
Government Building
Marina
Medical
Parks & Recreation
Police
Post Office
Rail
School
Senior
Transfer Station
Additional Facilities
NEHRP
A
B
C
D
E
Wildfire
Interface
Intermix
Data Source:
NYGIS - Boundaries
Transportation
Radeloff et al, 2012 - Wildfire
NYSDHSES - NEHRP
ESRI - Basemap
Feet
Vermont

9.10 TOWN OF FORT EDWARD

This section presents the jurisdictional annex for the Town of Fort Edward.

9.10.1 Hazard Mitigation Plan Point of Contact

The following individuals have been identified as the hazard mitigation plan's primary and alternate points of contact.

Primary Point of Contact	Alternate Point of Contact
Mitchell Suprenant, Town Supervisor 118 Broadway, Fort Edward, NY 518-744-7595 supervisor@fortedward.net	Brian Brockway, Highway Superintendent 118 Broadway, Fort Edward, NY 518-747-5561 FEFD2701@yahoo.com

9.10.2 Municipal Profile

The Town of Fort Edward is in western Washington County, with its west town line defined by the Hudson River and the border of Saratoga County, New York. The Town contains the Village of Fort Edward and is home to the Washington County seat. The Village of Hudson Falls and Town of Kingsbury lie to the north, the Town of Argyle is to the east, and the Town of Greenwich lies to the south.

The Town has a total area of 27.4 square miles. Significant waterways in the town include Old Champlain Creek, Dead Creek, Black House Creek, Slocum Creek, Moses Kill River, Frog Pond and the Hudson River, which is 13 miles long within the Town. There is also a pond along Route 4 in the Town. The Champlain Canal runs through the Town for approximately six miles. According to the 2010 Census, the community's population was 6,371.

Growth/Development Trends

The following table summarizes recent residential/commercial development since 2010 to present and any known or anticipated major residential/commercial development and major infrastructure development that has been identified in the next five years within the municipality.

Table 9.10-1. Growth and Development

Property or Development Name	Type (e.g. Res., Comm.)	# of Units / Structures	Location (address and/or Parcel ID)	Known Hazard Zone(s)	Description/Status of Development
Recent Development from 2010 to present					
18 residential homes	Res	18	Killian Lane (163.13-.1-1.1)	None	In Progress
Market 32	Comm	1	Upper Broadway	None	Completed
McDonalds	Comm	1	Upper Broadway	None	Completed
Expansion of several companies	Comm/Industrial	Unknown	Sullivan Parkway industrial park	None	In Progress
Known or Anticipated Development in the Next Five (5) Years					
14 lot subdivision	Res	14	SR 197	None	Possibly several more behind this subdivision
Preliminary plans for a senior housing complex	Res	70	Behind the Fort Hudson Health Center	None	-
Company expansion	Comm/Industrial	Unknown	Sullivan Parkway	None	Under consideration

Property or Development Name	Type (e.g. Res., Comm.)	# of Units / Structures	Location (address and/or Parcel ID)	Known Hazard Zone(s)	Description/Status of Development
			industrial park		for spring 2017
Water District 3	Comm/Res	Unknown	Black House Road, Lamos Lane, Fitzpatrick Lane and part of County Route 46	None	Under consideration

Note: Only location-specific hazard zones or vulnerabilities identified.

In addition to the development mentioned above, the Town is seeking to turn the GE dewatering facility into a thriving industrial park. It is on the banks of the Champlain canal with a 1500-foot wharf. This site also includes almost 6 miles of rail line on the Montreal to New York City corridor.

The Town is also in the process (2016) of forming another water district, Water District # 3, to serve the area south of the Village of Fort Edward on SR 4 to black house road, including Fitzpatrick Lane, Lamos Lane and County Route 46 from Black House Road to the Drafting Ridge development. The water in this area is undrinkable; it corrodes water tanks, faucets and anything else it runs though. The establishment of Water District #3 is a long process and an expensive one, and the Town is trying to secure some funding for the district. If the funding materializes and the district is formed, it will bring more residential development to that area.

9.10.3 Natural Hazard Event History Specific to the Municipality

Washington County has a history of natural and non-natural hazard events as detailed in Volume I, Section 5.0 of this plan. 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. For the purpose of this plan update, events that have occurred in the County from 2008 to present were summarized to indicate the range and impact of hazard events in the community. Information regarding specific damages is included, if available, based on reference material or local sources. This information is presented in the table below. For details of these and additional events, refer to Volume I, Section 5.0 of this plan.

Table 9.10-2. Hazard Event History

Dates of Event	Event Type (FEMA Disaster Declaration if applicable)	Washington County Designated?	Summary of Damages/Losses
December 11-31, 2008	Severe winter storm	Yes	Flooding was reported in the town, and snow-related road closures occurred on East Rd., Patterson Rd., and Black House Rd. Floods caused damage to North River Rd., East Rd., and Woodward Rd. The Town requested assistance from the local Fire Department and EMS.
April 28-30, 2011	Flooding DR-1993	No	The Indian River near Hudson River at Fort Edward stream gage recorded new period-of-record maximum discharges during this event. Flooding damaged several houses and buildings in the Town. Flood waters inundated homes on Rogers Island, Bridge Street, and on north River road in the Fort Miller hamlet. The Fort Edward Idle Hour Club located on the southern end of Rogers Island had over $150,000 flood damage. Flooding was also reported on Broadway Street. Numerous NFIP claims were issued as a result of the flood damage, and FEMA assisted with the recovery.
August 26-September 5,	Hurricane/T.S. Irene	Yes	The Town incurred very little damage, mostly downed trees and debris in the roadways.

Dates of Event	Event Type (FEMA Disaster Declaration if applicable)	Washington County Designated?	Summary of Damages/Losses
2011	DR-4020		

Notes:
EM *Emergency Declaration (FEMA)*
FEMA *Federal Emergency Management Agency*
DR *Major Disaster Declaration (FEMA)*

9.10.4 Hazard Vulnerabilities and Ranking

The hazard profiles in Section 5.0 of this plan have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes the hazard vulnerabilities and their ranking in the Town of Fort Edward. For additional vulnerability information relevant to this jurisdiction, refer to Section 5.0. Refer to Figure 9.10-1 later in this annex for hazard vulnerable areas located in the Town of Fort Edward.

Natural Hazard Risk/Vulnerability Risk Ranking

As discussed in Section 5.3 (Hazard Ranking), each participating town or village may have differing degrees of risk exposure and vulnerability compared to Washington County as a whole. Therefore, each municipality 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 Fort Edward, which reflects hazard ranking adjustments made by the Town. Table 9.10-12 provides proposed mitigation initiatives for the high ranked hazards.

Table 9.10-3. Hazard Risk/Vulnerability Risk Ranking

Hazard type	Estimate of Potential Dollar Losses to Structures Vulnerable to the Hazard [a, c]	Probability of Occurrence	Risk Ranking Score (Probability x Impact)	Hazard Ranking [b]
Earthquake	100-Year GBS: $9,062,247 500-Year GBS: $118,968,187 2,500-Year GBS: $866,945,901	Occasional	32	Low*
Flood	Damage estimate not available.	Frequent	36	Medium*
Severe Weather	100-Year MRP: $169,219 500-year MRP: $908,528 Annualized: $8,445	Frequent	48	Medium*
Severe Winter Weather	1% GBS: $5,898,283 5% GBS: $29,491,417	Frequent	51	Medium*
Wildfire	Estimated Value in the WUI Hazard Areas: $750,136,827	Frequent	48	Medium*

Notes:
* *The municipality adjusted the overall hazard ranking*
a. *Building damage ratio estimates based on FEMA 386-2 (August 2001)*
b. *The valuation of general building stock and loss estimates was based on custom inventory for the municipality.*
High = Total hazard priority risk ranking score of 31 and above
Medium = Total hazard priority risk ranking of 20-30+
Low = Total hazard risk ranking below 20
c. *Loss estimates for the severe storm and severe winter storm hazards are structural values only and do not include the value of contents.*

d *Loss estimates for the flood and earthquake hazards represent both structure and contents.*
e. *The HAZUS-MH earthquake model results are reported by Census Tract.*
f. *Damage estimate for flood unavailable due to lack of digital floodplain data for Washington County.*

National Flood Insurance Program (NFIP) Summary

The following table summarizes the NFIP statistics for the Town of Fort Edward.

Table 9.10-4. NFIP Summary

Municipality	# Policies (1)	# Claims (Losses) (1)	Total Loss Payments (2)	# Rep. Loss Prop. (1)	# Severe Rep. Loss Prop. (1)
Fort Edward (T)	6	3	$134,205	0	0

Source: *FEMA, 2016*
Note (1) *Policies, claims, repetitive loss and severe repetitive loss statistics provided by FEMA and are current as of April 30, 2016 and are summarized by Community Name. Please note the total number of repetitive loss properties excludes the severe repetitive loss properties. The number of claims represents claims closed by 4/30/2016.*
Note (2) *Total building and content losses from the claims file provided by FEMA Region 2.*
Note (3) *The policies inside and outside of the flood zones are unavailable due to lack of digital floodplain for Washington County.*
Note (4) *FEMA noted that where there is more than one entry for a property, there may be more than one policy in force or more than one GIS possibility.*

Critical Facilities

At the time of this HMP Update, digitized flood maps for Washington County are unavailable. In order to provide some level of beneficial analysis, a desktop analysis was performed to identify critical facilities located within the floodplain (refer to Section 5.1 [Methodology and Tools] for details). The following table identifies critical facilities located within the municipality and their exposure, if any, to the possible floodplain. This information is a resource for the municipality to determine if flood mitigation actions are appropriate based on historical events and proximity of the facility to a water body. At the time of this 2018 HMP Update, the municipality did not identify any actions associated with these facilities.

The Town of Fort Edward understands the limitation of the map data and once the updated maps are available, the municipality will work with Washington County to determine which critical facilities are located within the 1% and 0.2% annual chance flood zones. Once identified, the municipality will work with the property owners and develop mitigation actions for each of the critical facilities, ensuring they will be protected to the 500-year (or worst-case scenario) level.

Table 9.10-5. Potential Flood Losses to Critical Facilities

Name	Type	Potential Flood Exposure
Fort Edward Fire Department - Station 2	Fire	X

Source: *Washington County; NYS GIS Clearinghouse*

Other Vulnerabilities Identified

The municipality has identified the following vulnerabilities within their community:

- Problematic snow drifts have been reported along SR-197, East Road, Black Horse Road, and Patterson Road.
- Past washouts have occurred on Woodward Road and Moore Road.
- Flooding has occurred on North River Road, East Road, and Woodward Road.

9.10.5 Capability Assessment

This section identifies the following capabilities of the local jurisdiction:

- Planning and regulatory capability
- Administrative and technical capability
- Fiscal capability
- Community classification
- National Flood Insurance Program
- Integration of mitigation planning into existing and future planning mechanisms

Planning and Regulatory Capability

The table below summarizes the regulatory tools that are available to the Town of Fort Edward.

Table 9.10-6. Planning and Regulatory Tools

Tool / Program (code, ordinance, plan)	Do you have this? (Yes/No) If Yes, date of adoption or update	Authority (local, county, state, federal)	Dept. /Agency Responsible	Code Citation and Comments (Code Chapter, name of plan, explanation of authority, etc.)
Planning Capability				
Master Plan	Yes	Local	Planning Board	In process of updating
Capital Improvements Plan	No	-	-	-
Floodplain Management / Basin Plan	No	-	-	-
Stormwater Management Plan	Yes	Local	Highway Department	The Town is a "Regulated Small MS4" community
Open Space Plan	No	-	-	-
Stream Corridor Management Plan	No	-	-	-
Watershed Management or Protection Plan	No	-	-	-
Local Waterfront Revitalization Plan	No	-	-	-
Economic Development Plan	No	-	-	-
Comprehensive Emergency Management Plan	No	-	-	-
Emergency Response/Operations Plan	No	-	-	-
Post-Disaster Recovery Plan	No	-	-	-
Transportation Plan	No	-	-	-
Strategic Recovery Planning Report	No	-	-	-
Other Plans:	No	-	-	-
Regulatory Capability				
Building Code	Yes	State, Local	Code Enforcement Officer	New York State Uniform Fire Prevention and Building Code and State Energy Conservation Construction Code
Zoning Ordinance	Yes	Local	Zoning Administrator	Adopted 8/7/1963
Subdivision Ordinance	Yes	Local		Local Law #8 Of 1988
NFIP Flood Damage Prevention Ordinance	Yes	Federal, State, Local	Code Enforcement	Flood Damage Prevention Chapter 54

Tool / Program (code, ordinance, plan)	Do you have this? (Yes/No) If Yes, date of adoption or update	Authority (local, county, state, federal)	Dept. /Agency Responsible	Code Citation and Comments (Code Chapter, name of plan, explanation of authority, etc.)
NFIP: Freeboard	Yes	State, Local	State	State mandated BFE+2 for single and two-family residential construction, BFE+1 for all other construction types
NFIP: Cumulative Substantial Damages	No	-	-	-
Growth Management Ordinances	No	-	-	-
Site Plan Review Requirements	Yes	Local	Planning Board	Site Plan Review Chapter 81
Stormwater Management Ordinance	Yes	Local	Code Enforcement Officer, Supervisor	Erosion and Sediment Control Chapter 56
Municipal Separate Storm Sewer System (MS4)	Yes	Local	Highway Department	Storm Sewers Chapter 57
Natural Hazard Ordinance	No	-	-	-
Post-Disaster Recovery Ordinance	No	-	-	-
Real Estate Disclosure Requirement	Yes	State		NYS mandate, Property Condition Disclosure Act, NY Code - Article 14 §460-467
Other (Special Purpose Ordinances [i.e., sensitive areas, steep slope])	No	-	-	-

Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the Town of Fort Edward.

Table 9.10-7. Administrative and Technical Capabilities

Resources	Is this in place? (Yes or No)	Department/ Agency/Position
Administrative Capability		
Planning Board	Yes	Planning Board
Mitigation Planning Committee	No	-
Environmental Board/Commission	No	-
Open Space Board/Committee	No	-
Economic Development Commission/Committee	No	-
Maintenance programs to reduce risk	No	-
Mutual aid agreements	Yes	Neighboring communities
Technical/Staffing Capability		
Planner(s) or engineer(s) with knowledge of land development and land management practices	Yes	Planning Board
Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Yes	Code Enforcement
Planners or engineers with an understanding of natural hazards	Yes	Planning Board
NFIP Floodplain Administrator (FPA)	Yes	Code Enforcement

Resources	Is this in place? (Yes or No)	Department/ Agency/Position
Surveyor(s)	No	-
Personnel skilled or trained in GIS and/or Hazards United States (HAZUS) – Multi-Hazards (MH) applications	No	-
Scientist familiar with natural hazards	No	-
Emergency Manager	No	-
Grant writer(s)	Yes	Supervisor Grant Writer/Coordinator
Staff with expertise or training in benefit/cost analysis	Yes	Supervisor and Supervisor Clerk, contractor support from C.T. Male
Professionals trained in conducting damage assessments	Yes	C.T. Male

Fiscal Capability

The table below summarizes financial resources available to the Town of Fort Edward.

Table 9.10-8. 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
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	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	No

Community Classifications

The table below summarizes classifications for community program available to the Town of Fort Edward.

Table 9.10-9. Community Classifications

Program	Do you have this? (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	3/3Y	8/27/15

Program	Do you have this? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
NYSDEC Climate Smart Community	No		
Storm Ready	No	-	-
Firewise	No	-	-
Disaster/safety programs in/for schools	No	-	-
Organizations with mitigation focus (advocacy group, non-government)	No	-	-
Public education program/outreach (through website, social media)	No	-	-
Public-Private Partnerships	No	-	-

Note:
N/A *Not applicable*
NP *Not participating*
- *Unavailable*

The classifications listed above relate to the community's ability to provide effective services to lessen its vulnerability to the hazards identified. These classifications can be viewed as a gauge of the community's capabilities in all phases of emergency management (preparedness, response, recovery and mitigation) and are used as an underwriting parameter for determining the costs of various forms of insurance. The CRS class applies to flood insurance while the BCEGS and Public Protection classifications apply to standard property insurance. CRS classifications range on a scale of 1 to 10 with class 1 being the best possible classification, and class 10 representing no classification benefit. Firewise classifications include a higher classification when the subject property is located beyond 1000 feet of a creditable fire hydrant and is within 5 road miles of a recognized Fire Station.

Criteria for classification credits are outlined in the following documents:

- The Community Rating System Coordinators Manual
- The Building Code Effectiveness Grading Schedule website at: https://www.isomitigation.com/bcegs/
- The ISO Mitigation online ISO's Public Protection website at https://www.isomitigation.com/ppc/
- The National Weather Service Storm Ready website at https://www.weather.gov/stormready/
- The National Firewise Communities website at http://firewise.org/

Self-Assessment of Capability

The table below provides an approximate measure of the Town of Fort Edward's capability to work in a hazard-mitigation capacity and/or effectively implement hazard mitigation strategies to reduce hazard vulnerabilities.

Table 9.10-10. Self-Assessment Capability for the Municipality

Area	Degree of Hazard Mitigation Capability		
	Limited (If limited, what are your obstacles?)	Moderate	High
Planning and regulatory capability		X	
Administrative and technical capability		X	
Fiscal capability		X	
Community political capability		X	

Area	Degree of Hazard Mitigation Capability		
	Limited (If limited, what are your obstacles?)	Moderate	High
Community resiliency capability		X	
Capability to integrate mitigation into municipal processes and activities		X	

National Flood Insurance Program

NFIP Floodplain Administrator (FPA)

Matthew French, Code Enforcement Officer

Flood Vulnerability Summary

The Town does not maintain lists/inventories of properties that have been flood damaged or make substantial damage estimates. There are no properties in Town currently in the process of mitigation, and no Town residents have approached the FPA with interest in mitigation activities.

Resources

The current FPA is supported in the responsibilities of floodplain administration by contract staff on an as-needed basis. There are currently no education or outreach programs to the community regarding flood hazards/risk, and flood risk reduction through NFIP insurance, mitigation, etc.

The Town reports insufficient staffing as a barrier to running an effective floodplain management program. The Town FPA does not feel adequately supported and trained to fulfill the responsibilities of a municipal floodplain administrator, and would attend continuing education and/or certification training on floodplain management if it were offered in the County for all local floodplain administrators.

Compliance History

The Town is good standing with the NFIP. According to the NYS DEC, the most recent compliance audit of the town was conducted on September 3, 1991.

Regulatory

The Town Flood Damage Prevention ordinance meets, but does not exceed the FEMA and State minimum requirements. There are other local ordinances, plans, and programs in the town that support floodplain management, including the Master Plan and Zoning Code. The planning board also considers reducing flood risk when reviewing plans.

The community is not interested in joining the Community Rating System (CRS) program to reduce flood insurance premiums for their insured.

Integration of Hazard Mitigation into Existing and Future Planning Mechanisms

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 this planning effort, each community was surveyed to obtain a better understanding of their community's progress in plan integration. A summary is provided below. In addition, the community identified specific integration activities that will be incorporated into municipal procedures.

Planning

Land Use Planning: The Town of Fort Edward has a Planning Board and Zoning Board of Appeals which review all applications for development and consider natural hazard risk areas in their review. Many development activities require additional levels of environmental review, specifically NYS SEQR and Federal NEPA requirements. The Town also has several committees, including a Drainage Committee, which assists in monitoring and making recommendations for improvements in the Town's drainage district, and a Traffic and Safety Committee, which assists resident's concerns on traffic and safety issues. The Town also has a Master Plan that they are presently updating. The current plan does not refer to a local or County-wide HMP, but the updated plan will include or consider areas of natural hazard risk.

Stormwater Management Plan: The Town has a stormwater management plans that specifies projects/actions/initiatives to reduce the volume of stormwater, or otherwise mitigate stormwater flooding.

Emergency Management Plan: The Town maintains and regularly updates an Emergency Management Plan.

Regulatory and Enforcement

Construction Codes, Uniform: The building codes are strictly enforced to make new and renovated buildings as prepared as possible for hazard related incidents. The Town complies with New York State Uniform Fire Prevention and Building Code (the Uniform Code) and the State Energy Conservation Construction Code (the Energy Code).

Flood Damage Prevention Chapter 54: This chapter (adopted by the Town Board 8-10-87 as L.L. No. 2-1987) promotes the public health, safety, and general welfare of residents and seeks to minimize public and private losses due to flood conditions. The chapter regulates development to promote flood resistant structures and controls the alteration of floodplains to prevent increased vulnerability. The Town also has a Floodplain Management Plan, FIS, and other studies related to reducing flood damages.

Sewers: The Town abides by the County-wide Sanitary Code, which protects and regulates its sewage collection and treatment facilities as a matter of public health and environmental safety. It seeks to prohibit the introduction of stormwater, surface, or sub-surface waters into sanitary sewers and to control the quantity and quality of wastes in the sewage system. All the Town's Sewer infrastructure is maintained and owned by Washington County Sewer District #2.

Storm Sewers Chapter 57: The Town protects and regulates its sewage collection and treatment facilities through the regulation of non-stormwater discharges to the municipal separate storm sewer system (MS4). It seeks to prohibit the introduction of stormwater, surface, or sub-surface waters into sanitary sewers and to control the quantity and quality of wastes in the sewage system.

Erosion and Sediment Control Chapter 56: The Town's stormwater management chapter seeks to mediate the adverse impacts of stormwater runoff, sedimentation, and erosion caused by existing drainage systems. It also serves to control the degradation of water quality in the Town.

Site Plan Review Chapter 81: The Town's Planning Board is tasked with site plan/subdivision review. The Planning Board pays special attention to ensure that developments are compatible with the intent of the Master Plan and mitigate the issues associated natural hazards.

Zoning: The Town of Fort Edwards' zoning code divides the Town into seven zones, differentiated according to use and building regulations. Protection of the Agriculture-Residential Zone and Low-Density Residential

Zone may serve to mitigate future hazards related to decreased groundwater recharge and increased stormwater runoff flooding.

Fiscal

Operating Budget: The Town's operating budget contains minimal provisions for expected repairs like snow removal, machinery, and general repair after a storm or natural disaster. The Town also allots funding for maintaining equipment used by the highway department, and contractual expenses as needed to supplement highway department staff capabilities.

Education and Outreach

The town provides contact information for local emergency resources on its website's home page, including the Police-Fire-Ambulance, Fort Edward Volunteer Fire Department, Fort Edward Village Police, and Fort Edward Volunteer Rescue Squad.

The Town Code Enforcement office participates in associations that support natural hazard risk reduction and build hazard management capabilities.

9.10.6 Mitigation Strategy and Prioritization

This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and prioritization.

Past Mitigation Initiative Status

The following table indicates progress on the community's mitigation strategy identified in the 2010 Plan. It should be noted that during the 2010 planning process, only general, countywide actions were identified for each municipality. The Town of Fort Edward reviewed the previous actions and selected actions they chose to carry forward as part of this plan update. Previous actions that are now on-going programs and capabilities are indicated as such in the following table and may also be found under 'Capability Assessment' presented previously in this annex.

Table 9.10-11. Status of Previous Mitigation Actions

2010 Mitigation Action	Responsible Party	Status (In progress, No progress, Complete)	Describe Status	Next Step (Include in 2018 HMP or Discontinue)	Describe Next Step
CR 46, landslide. Habitual slope stability issues compromise the south bound lanes at this location annually. Propose a slope stabilization project at this location.	County and NYS DHSES	No Progress	N/A	Include	CR 46, landslide. Habitual slope stability issues compromise the south bound lanes at this location annually. Propose a slope stabilization project at this location.
The equipment required to excavate drainage ditches and roadways to increase culvert pipe size is not available for local municipal use unless it is contracted. Local highway departments have the expertise to do the work, but not the equipment. A suggestion was made to purchase with mitigation funding five (5) excavators for Towns with the greatest need. (MOA b/t Fort Edward, Argyle, Kingsbury)	County and NYS DHSES	No Progress	This action is not relevant to the Town	Discontinue	At the time of this plan update, this action does not pertain to the Town; therefore, it will not be included in the 2018 HMP Update.

Completed Mitigation Initiatives Not Identified in the Previous Mitigation Strategy

The Town of Fort Edward has identified the following mitigation projects/activities that have also been completed but were not identified in the previous mitigation strategy in the 2010 Plan:

- None identified

Proposed Hazard Mitigation Initiatives for the Plan Update

The Town of Fort Edward participated in a mitigation action workshop in September 2016 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).

Table 9.10-12 summarizes the comprehensive-range of specific mitigation initiatives the Town of Fort Edward would like to pursue in the future to reduce the effects of hazards. Some of these initiatives may be previous actions carried forward for this plan update. These 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. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table below to further demonstrate the wide-range of activities and mitigation measures selected.

As discussed in Section 6, 14 evaluation/prioritization criteria are used 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 your actions as 'High', 'Medium', or 'Low.' The table below summarizes the evaluation of each mitigation initiative, listed by Action Number.

Table 9.10-13 provides a summary of the prioritization of all proposed mitigation initiatives for the Plan update.

Table 9.10-12. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
T. Fort Edward-1	Use the results and guidance from the Hazard Mitigation Plan to steer future Master Plan updates to incorporate mitigation into the goals and objectives, as well as in future planning decisions. Additionally, integrating hazard mitigation into the master plan promotes collaboration between planners and emergency managers, ensuring that hazard assessment information is incorporated into future land use and other elements of the master plan.	N/A	All hazards	1, 2, 3	Town Planning Board	Medium	Low	Local budget	Short-term	High	LPR	PR
T. Fort Edward-2	Improve drainage by increasing the culvert sizes at sites where roads have washed out due to natural hazards in the past to meet 50-year storm requirements and reduce flooding overflow at the following locations: • East Road By improving these sites reduces the potential of roadway flooding and washouts, allowing emergency personnel full access to the town in the event of an emergency.	N/A	Flood, severe storm	1, 4	Town Public Works / Highway	High	Medium	Local Budget, FEMA (HMGP, FMA, PDM), CDBG	Short	Medium	SIP	PP, PR, SP
T. Fort Edward-3	Send local Floodplain Administrator to County and State trainings and to complete certification programs with respect to floodplain management. Also provide continuing education and training to ensure code enforcement and proper inspections. Becoming certified in floodplain management lays the foundation for ensuring that highly qualified individuals are available to meet the challenge of	Existing	Flood, severe storm	1, 2, 4	Town Board, County Public Safety	Medium	Low	Local Budget	Short	Medium	EAP	PR PI

Table 9.10-12. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
	breaking the damage cycle and stopping its negative drain on the nation's human, financial and natural resources.											
T. Fort Edward-4	Evaluate North River Road, East Road, and Woodward Road for flooding issues. Identify solutions to alleviate flooding and address those solutions. By identifying floodprone areas, the Town can gain a better of understanding on ways to protect properties from flood damage. Once protected, this will reduce or eliminate the damages caused by flooding.	Existing	Flood, severe storm	1, 4	Town Public Works / Highway	Medium	Medium	FEMA (HMGP, FMA, PDM), County, Local Budget	Short	High	SIP	PP, PR, SP
T. Fort Edward-5 (previous action)	Stabilize slope at CR 46 where south bound lanes are annually compromised. To do this, the town will use proper bank stabilization methods including planting vegetation on the slope and installing riprap. This project will reduce future losses to the roadway and hindrance to transportation system are greater than the cost to implement the project.	Existing	Flood, Severe Storm, Landslide	1, 4, 5	Town Public Works / Highway	Medium	Medium	Local Budget	Short	High	SIP	PP, PR, SP
T. Fort Edward-6	Improve drainage by increasing the culvert sizes at sites where roads have washed out due to natural hazards in the past to meet 50-year storm requirements and reduce flooding overflow at the following locations: • Black Horse Road By improving these sites reduces the potential of roadway flooding and washouts, allowing emergency personnel full access to the town in the event of an emergency.	N/A	Flood, severe storm	1, 4	Town Public Works / Highway	High	Medium	Local Budget, FEMA (HMGP, FMA, PDM), CDBG	Short	Medium	SIP	PP, PR, SP

Table 9.10-12. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
T. Fort Edward-7	Improve drainage by increasing the culvert sizes at sites where roads have washed out due to natural hazards in the past to meet 50-year storm requirements and reduce flooding overflow at the following locations: • Patterson Road. By improving these sites reduces the potential of roadway flooding and washouts, allowing emergency personnel full access to the town in the event of an emergency.	N/A	Flood, severe storm	1, 4	Town Public Works / Highway	High	Medium	Local Budget, FEMA (HMGP, FMA, PDM), CDBG	Short	Medium	SIP	PP, PR, SP

Notes:

Not all acronyms and abbreviations defined below are included in the table.

**Does this mitigation initiative reduce the effects of hazards on new and/or existing buildings and/or infrastructure? Not applicable (N/A) is inserted if this does not apply.*

Acronyms and Abbreviations:

CAV	*Community Assistance Visit*
CRS	*Community Rating System*
DPW	*Department of Public Works*
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*
PDM	*Pre-Disaster Mitigation Grant Program*
RFC	*Repetitive Flood Claims Grant Program (discontinued in 2015)*
SRL	*Severe Repetitive Loss Grant Program (discontinued in 2015)*

Timeline:

Short	*1 to 5 years*
Long Term	*5 years or greater*
OG	*On-going program*
DOF	*Depending on funding*

Costs:

Where actual project costs have been reasonably estimated:

Low	*< $10,000*
Medium	*$10,000 to $100,000*
High	*> $100,000*

Where actual project costs cannot reasonably be established at this time:

Benefits:

Where possible, an estimate of project benefits (per FEMA's benefit calculation methodology) has been evaluated against the project costs, and is presented as:

Low=	*< $10,000*
Medium	*$10,000 to $100,000*
High	*> $100,000*

Costs:

Low — *Possible to fund under existing budget. Project is part of, or can be part of an existing on-going program.*

Medium — *Could budget for under existing work plan, but would require a reapportionment of the budget or a budget amendment, or the cost of the project would have to be spread over multiple years.*

High — *Would require an increase in revenue via an alternative source (i.e., bonds, grants, fee increases) to implement. Existing funding levels are not adequate to cover the costs of the proposed project.*

Benefits:

Where numerical project benefits cannot reasonably be established at this time:

Low — *Long-term benefits of the project are difficult to quantify in the short term.*

Medium — *Project will have a long-term impact on the reduction of risk exposure to life and property, or project will provide an immediate reduction in the risk exposure to property.*

High — *Project will have an immediate impact on the reduction of risk exposure to life and property.*

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*

Table 9.10-13. Summary of Prioritization of Actions

Mitigation Action / Project Number	Mitigation Action/Initiative	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
T. Fort Edward-1	Include reference to 2017 Washington County HMP Update in the update of the Town's Master Plan	1	1	1	1	1	0	0	0	0	1	1	1	1	0	9	High
T. Fort Edward-2	Drainage Improvements on East Road	1	0	1	1	0	1	0	0	0	1	1	1	0	0	7	Medium
T. Fort Edward-3	Send local staff members to attend trainings and conferences to become educated on how to efficiently run a local Floodplain Administration program.	1	1	1	1	1	0	1	1	0	1	1	1	0	0	10	Medium
T. Fort Edward-4	Evaluate North River Road, East Road, and Woodward Road for flooding issues. Identify solutions to alleviate flooding and address those solutions.	1	1	1	1	1	0	0	0	0	1	1	1	1	0	9	High
T. Fort Edward-5 (previous action)	Slope stabilization project at CR 46, landslide.	1	0	1	1	0	1	0	0	0	1	1	1	0	0	7	Medium
T. Fort Edward-6	Drainage Improvements on Black Horse Road	1	0	1	1	0	1	0	0	0	1	1	1	0	0	7	Medium
T. Fort Edward-7	Drainage Improvements on Patterson Road	1	0	1	1	0	1	0	0	0	1	1	1	0	0	7	Medium

Note: Refer to Section 6, which conveys guidance on prioritizing mitigation actions.

9.10.7 Future Needs to Better Understand Risk/Vulnerability

None at this time.

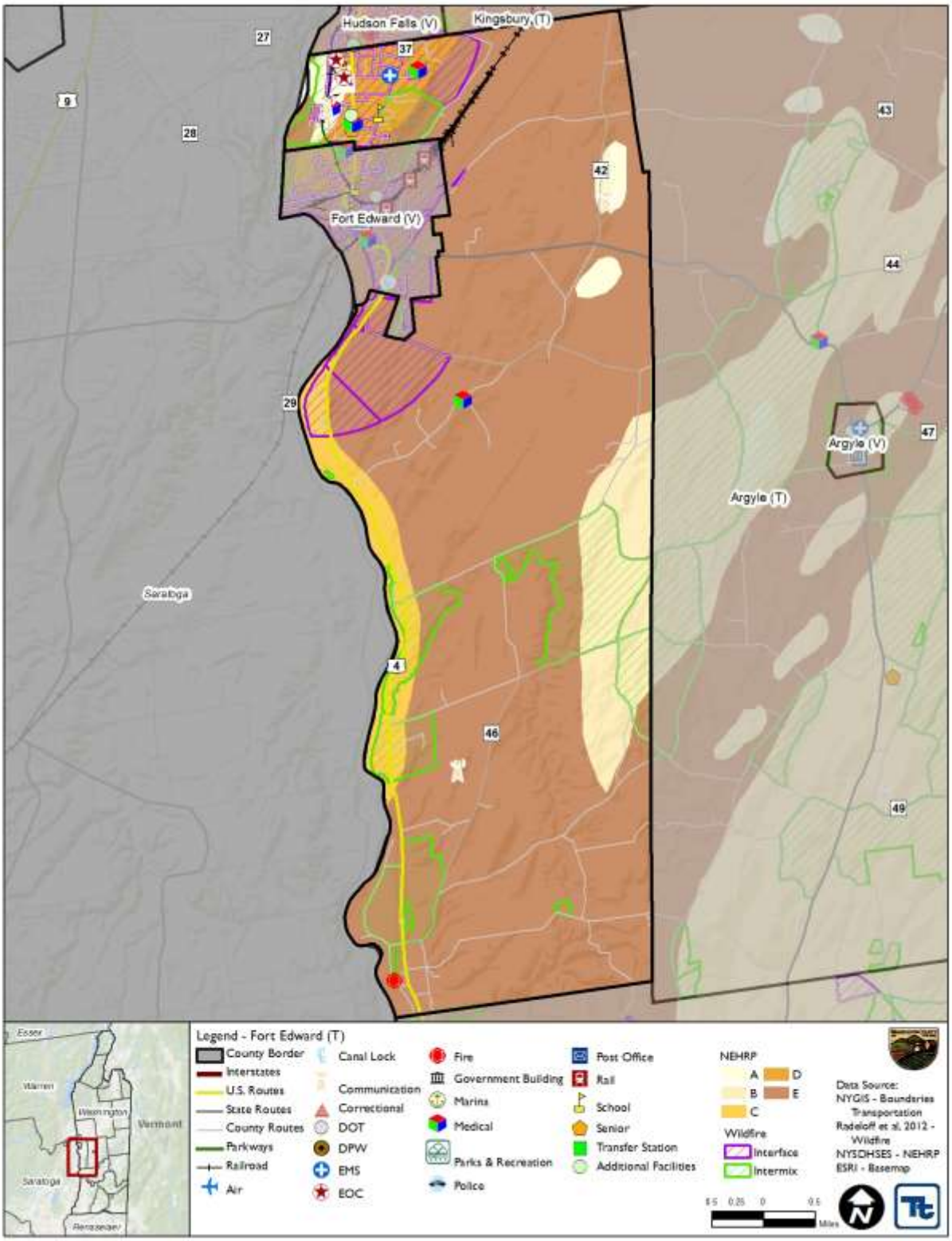
9.10.8 Hazard Area Extent and Location

Hazard area extent and location maps have been generated for the Town of Fort Edward that illustrate the probable areas impacted within the municipality. These maps are based on the best available data at the time of the preparation of this plan, and are considered to be adequate for planning purposes. Maps have only been generated for those hazards that can be clearly identified using mapping techniques and technologies, and for which the Town of Fort Edward has significant exposure. These maps are illustrated in the hazard profiles within Section 5.4, Volume I of this Plan.

9.10.9 Additional Comments

None at this time.

Figure 9.10-1. Town of Fort Edward Hazard Area Extent and Location



Action Number: T. Fort Edward - 1

Mitigation Action Name: Include reference to 2018 Washington County HMP Update in the update of the Town's Master Plan.

Assessing the Risk	
Hazard(s) addressed:	All hazards
Specific problem being mitigated:	The Master Plan does not currently address hazard identification and risk assessment or mitigation goals. By not addressing hazards and risk in the master plan, it is uncertain if hazard assessment information will be incorporated into future land use and other elements of the master plan.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Update Master Plan without referencing HMP – hazard assessment information is most likely not incorporated into future land use and other elements of the plan.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Use the results and guidance from the Hazard Mitigation Plan to steer future Master Plan updates to incorporate mitigation into the goals and objectives, as well as in future planning decisions. Additionally, integrating hazard mitigation into the master plan promotes collaboration between planners and emergency managers, ensuring that hazard assessment information is incorporated into future land use and other elements of the master plan.
Mitigation Action Type	Local Plans and Regulations (LPR)
Goals Met	Goal 1: Protect Life and Property Goal 2: Increase Public Awareness Goal 3: Encourage Partnerships
Applies to existing and or new development, or not applicable	N/A
Benefits (losses avoided)	Medium
Estimated Cost	Low
Priority*	High
Plan for Implementation	
Responsible Organization	Town Planning Board
Local Planning Mechanism	Hazard Mitigation, Master Plan
Potential Funding Sources	Local budget
Timeline for Completion	Short-term
Reporting on Progress	
Date of Status Report/ Report of Progress	No progress; New project

Action Number: T. Fort Edward - 1

Mitigation Action Name: Include reference to 2018 Washington County HMP Update in the update of the Town's Master Plan.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	0	
Legal	1	
Fiscal	1	Municipal budget and staff time
Environmental	0	
Social	0	
Administrative	1	
Multi-Hazard	1	All hazards
Timeline	1	
Agency Champion	0	
Other Community Objectives	0	
Total	9	
Priority (H/M/L)	High	

Action Number:	T. Fort Edward-2
Mitigation Action Name:	Drainage Improvements on East Road.

Assessing the Risk	
Hazard(s) addressed:	Flood, Severe Storm
Specific problem being mitigated:	Roads have washed out due to natural hazards in the past including: • East Road. • Black Horse Road. • Patterson Road. When they wash out, roads are closed which prevent vehicles accessing those areas of the town. This impacts the health and safety of residents as it prevents emergency personnel from getting to those residents in the event of an emergency.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	If left unimproved, flooding will persist, leading to roadway washout and increasing risk to life and safety. Relocate roadways that have previously washed out – not feasible
Action/Project Intended for Implementation	
Description of Selected Action/Project	Improve drainage by increasing the culvert sizes at sites where roads have washed out due to natural hazards in the past to meet 50-year storm requirements and reduce flooding overflow at East Road. By improving these sites reduces the potential of roadway flooding and washouts, allowing emergency personnel full access to the town in the event of an emergency.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	Goal 1: Protect Life and Property Goal 4: Provide for Emergency Services
Applies to existing and or new development, or not applicable	N/A
Benefits (losses avoided)	High – reduce risk of washout, and improve public safety on roadway
Estimated Cost	Medium to High
Priority*	Medium
Plan for Implementation	
Responsible Organization	Town Highway Department
Local Planning Mechanism	Hazard Mitigation, Capital Improvement
Potential Funding Sources	Local Budget, FEMA (HMGP, FMA, PDM), CDBG
Timeline for Completion	Short (1 to 5 years)
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

Action Number: T. Fort Edward-2
Mitigation Action Name: Drainage Improvements on East Road

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Will ensure through access for motorists, including emergency services personnel
Property Protection	0	
Cost-Effectiveness	1	Reduced future losses to the roadway and hindrance to transportation system are greater than the cost to implement the project
Technical	1	Project is technically feasible
Political	0	
Legal	1	Town has legal jurisdiction over the physical project location
Fiscal	0	
Environmental	0	No known environmental impacts
Social	0	No known social impacts
Administrative	1	Town has administrative capability to manage the work
Multi-Hazard	1	Flood, Severe Storm
Timeline	1	Can be completed within 5 years
Agency Champion	0	
Other Community Objectives	0	
Total	7	
Priority (High, Medium, or Low)	Medium	

Action Number: T. Fort Edward - 3

Mitigation Action Name: Send local staff members to attend trainings and conferences.

Assessing the Risk	
Hazard(s) addressed:	Flood, severe storm
Specific problem being mitigated:	Staff members have not been formally trained on Floodplain Administration; therefore, they may not fully understand floodplain management in the State, county and town.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Hire trainers to come to Town to conduct trainings – costly.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Send local Floodplain Administrator to County and State trainings and to complete certification programs with respect to floodplain management. Also provide continuing education and training to ensure code enforcement and proper inspections. Becoming certified in floodplain management lays the foundation for ensuring that highly qualified individuals are available to meet the challenge of breaking the damage cycle and stopping its negative drain on the nation's human, financial, and natural resources.
Mitigation Action Type	Education and Awareness Programs (EAP)
Goals Met	Goal 1: Protect Life and Property Goal 2: Increase Public Awareness Goal 4: Provide for Emergency Services
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	Medium
Estimated Cost	Low
Priority*	Medium
Plan for Implementation	
Responsible Organization	Town Board, Code Enforcement, County Public Safety
Local Planning Mechanism	Hazard Mitigation
Potential Funding Sources	Local Budget
Timeline for Completion	Short
Reporting on Progress	
Date of Status Report/ Report of Progress	No progress; new project

Action Number: T. Fort Edward - 3

Mitigation Action Name: Send local staff members to attend trainings and conferences to become educated on how to efficiently run a local Floodplain Administration program.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	0	
Fiscal	1	Municipal budget / staff time
Environmental	1	
Social	0	
Administrative	1	Staff that works with floodplain management will benefit
Multi-Hazard	1	Flood, Severe Storm
Timeline	1	
Agency Champion	0	
Other Community Objectives	0	
Total	10	
Priority (H/M/L)	Medium	

Action Number: T. Fort Edward - 4

Mitigation Action Name: Evaluate and address local flooding issues.

Assessing the Risk	
Hazard(s) addressed:	Flood, severe storm
Specific problem being mitigated:	At the time of this plan update, North River Road, East Road, and Woodward Road flooding during periods of rain. It is uncertain as to what needs to be done to alleviate the flooding along these roadways. When flooded, the roads need to be closed, impacted the continuity of operations for emergency and essential personnel.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Relocate roadways where flooding occurs – not feasible.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Evaluate North River Road, East Road, and Woodward Road for flooding issues. Identify solutions to alleviate flooding and address those solutions. By identifying floodprone areas, the Town can gain a better of understanding on ways to protect properties from flood damage. Once protected, this will reduce or eliminate the damages caused by flooding.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	Goal 1: Protect Life and Property Goal 4: Provide for Emergency Services
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	Medium
Estimated Cost	Medium
Priority*	High
Plan for Implementation	
Responsible Organization	Town Public Works / Highway
Local Planning Mechanism	Hazard Mitigation
Potential Funding Sources	FEMA (HMGP, FMA, PDM), County, Local Budget
Timeline for Completion	Short
Reporting on Progress	
Date of Status Report/ Report of Progress	No progress; new project

Action Number: T. Fort Edward - 4

Mitigation Action Name: Evaluate and address local flooding issues.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	By identifying floodprone areas, the Town can gain a better of understanding on ways to protect properties from flood damage
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	0	
Fiscal	0	Need to obtain funding to complete
Environmental	0	
Social	0	
Administrative	1	
Multi-Hazard	1	
Timeline	1	
Agency Champion	1	
Other Community Objectives	0	
Total	9	
Priority (H/M/L)	High	

Action Number:	T. Fort Edward-5
Mitigation Action Name:	Slope Stabilization.

Assessing the Risk	
Hazard(s) addressed:	Flood, Severe Storm, Landslide
Specific problem being mitigated:	Slope failure at CR 46. Habitual slope stability issues compromise the south bound lanes at this location annually. The slope failures lead to road closures which impacts the continuity of operations of emergency and essential personnel in the town.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	If left unimproved, flooding and slope failures will persist, leading to roadway washout and increasing risk to life and safety. Move CR 46 away from areas with slope stability issues – costly/not feasible.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Stabilize slope at CR 46 where south bound lanes are annually compromised. To do this, the town will use proper bank stabilization methods including planting vegetation on the slope and installing riprap. This project will reduce future losses to the roadway and hindrance to transportation system are greater than the cost to implement the project.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	Goal 1: Protect Life and Property Goal 4: Provide for Emergency Services
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	High – reduce risk of road failure, and improve public safety
Estimated Cost	Medium
Priority*	Medium
Plan for Implementation	
Responsible Organization	Town Public Works / Highway
Local Planning Mechanism	N/A
Potential Funding Sources	Local Budget
Timeline for Completion	Short (1 to 5 years)
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

Action Number: T. Fort Edward-5
Mitigation Action Name: Slope Stabilization.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Will ensure through access for motorists, including emergency services personnel
Property Protection	0	
Cost-Effectiveness	1	Reduced future losses to the roadway and hindrance to transportation system are greater than the cost to implement the project
Technical	1	Project is technically feasible
Political	0	
Legal	1	Town has legal jurisdiction over the physical project location
Fiscal	0	
Environmental	0	No known environmental impacts
Social	0	No known social impacts
Administrative	1	Town has administrative capability to manage the work
Multi-Hazard	1	Severe Storm, Flood, Landslide
Timeline	1	Can be completed within 5 years
Agency Champion	0	
Other Community Objectives	0	
Total	7	
Priority (High, Medium, or Low)	Medium	

Action Number:	T. Fort Edward-6
Mitigation Action Name:	Drainage Improvements on Black Horse Road.

Assessing the Risk	
Hazard(s) addressed:	Flood, Severe Storm
Specific problem being mitigated:	Roads have washed out due to natural hazards in the past including: • East Road. • Black Horse Road. • Patterson Road. When they wash out, roads are closed which prevent vehicles accessing those areas of the town. This impacts the health and safety of residents as it prevents emergency personnel from getting to those residents in the event of an emergency.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	If left unimproved, flooding will persist, leading to roadway washout and increasing risk to life and safety. Relocate roadways that have previously washed out – not feasible
Action/Project Intended for Implementation	
Description of Selected Action/Project	Improve drainage by increasing the culvert sizes at sites where roads have washed out due to natural hazards in the past to meet 50-year storm requirements and reduce flooding overflow at Black Horse Road. By improving these sites reduces the potential of roadway flooding and washouts, allowing emergency personnel full access to the town in the event of an emergency.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	Goal 1: Protect Life and Property Goal 4: Provide for Emergency Services
Applies to existing and or new development, or not applicable	N/A
Benefits (losses avoided)	High – reduce risk of washout, and improve public safety on roadway
Estimated Cost	High
Priority*	Medium
Plan for Implementation	
Responsible Organization	Town Highway Department
Local Planning Mechanism	Hazard Mitigation, Capital Improvement
Potential Funding Sources	Local Budget, FEMA (HMGP, FMA, PDM), CDBG
Timeline for Completion	Short (1 to 5 years)
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

Action Number: T. Fort Edward-6

Mitigation Action Name: Drainage Improvements on Black Horse Road.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Will ensure through access for motorists, including emergency services personnel
Property Protection	0	
Cost-Effectiveness	1	Reduced future losses to the roadway and hindrance to transportation system are greater than the cost to implement the project
Technical	1	Project is technically feasible
Political	0	
Legal	1	Town has legal jurisdiction over the physical project location
Fiscal	0	
Environmental	0	No known environmental impacts
Social	0	No known social impacts
Administrative	1	Town has administrative capability to manage the work
Multi-Hazard	1	Flood, Severe Storm
Timeline	1	Can be completed within 5 years
Agency Champion	0	
Other Community Objectives	0	
Total	7	
Priority (High, Medium, or Low)	Medium	

Action Number:	T. Fort Edward-7
Mitigation Action Name:	Drainage Improvements on Patterson Road.

Assessing the Risk	
Hazard(s) addressed:	Flood, Severe Storm
Specific problem being mitigated:	Roads have washed out due to natural hazards in the past including: • East Road. • Black Horse Road. • Patterson Road. When they wash out, roads are closed which prevent vehicles accessing those areas of the town. This impacts the health and safety of residents as it prevents emergency personnel from getting to those residents in the event of an emergency.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	If left unimproved, flooding will persist, leading to roadway washout and increasing risk to life and safety. Relocate roadways that have previously washed out – not feasible.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Improve drainage by increasing the culvert sizes at sites where roads have washed out due to natural hazards in the past to meet 50-year storm requirements and reduce flooding overflow at Patterson Road. By improving these sites reduces the potential of roadway flooding and washouts, allowing emergency personnel full access to the town in the event of an emergency.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	Goal 1: Protect Life and Property Goal 4: Provide for Emergency Services
Applies to existing and or new development, or not applicable	N/A
Benefits (losses avoided)	High – reduce risk of washout, and improve public safety on roadway
Estimated Cost	High
Priority*	Medium
Plan for Implementation	
Responsible Organization	Town Highway Department
Local Planning Mechanism	Hazard Mitigation, Capital Improvement
Potential Funding Sources	Local Budget, FEMA (HMGP, FMA, PDM), CDBG
Timeline for Completion	Short (1 to 5 years)
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

Action Number: T. Fort Edward-7

Mitigation Action Name: Drainage Improvements on Patterson Road.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Will ensure through access for motorists, including emergency services personnel
Property Protection	0	
Cost-Effectiveness	1	Reduced future losses to the roadway and hindrance to transportation system are greater than the cost to implement the project
Technical	1	The project is technically feasible
Political	0	
Legal	1	The Town has legal jurisdiction over the physical project location
Fiscal	0	
Environmental	0	No known environmental impacts
Social	0	No known social impacts
Administrative	1	Town has administrative capability to manage the work
Multi-Hazard	1	Flood, Severe Storm
Timeline	1	Can be completed within 5 years
Agency Champion	0	
Other Community Objectives	0	
Total	7	
Priority (High, Medium, or Low)	Medium	

9.11 VILLAGE OF FORT EDWARD

This section presents the jurisdictional annex for the Village of Fort Edward.

9.11.1 Hazard Mitigation Plan Point of Contact

The following individuals have been identified as the hazard mitigation plan's primary and alternate points of contact.

Primary Point of Contact	Alternate Point of Contact
Matthew Traver, Mayor 11 Broadway, Fort Edward, NY (518) 747-4023 mayor@villageoffortedward.com	Bryan Etu, Highway Superintendent 11 Broadway, Fort Edward, NY (518) 747-6432 highway@villageoffortedward.com

9.11.2 Municipal Profile

The Village of Fort Edwards is in western Washington County, within the Town of Fort Edward, and is on the opposite shore of the Hudson River from the town of Moreau in Saratoga County.

The village has a total area of 1.9 square miles of which only 0.1 square miles is water. The Champlain Canal, which links the Hudson River to the south end of Lake Champlain, joins the Hudson River south of the village.

According to the 2010 Census, the community's population was 3,375.

Growth/Development Trends

The following table summarizes recent residential/commercial development since 2010 to present and any known or anticipated major residential/commercial development and major infrastructure development that has been identified in the next five years within the municipality.

Table 9.11-1. Growth and Development

Property or Development Name	Type (e.g. Res., Comm.)	# of Units / Structures	Location (address and/or Parcel ID)	Known Hazard Zone(s)	Description/Status of Development
Recent Development from 2010 to present					
GE Dewatering Facility	Industrial	123 acres	381 Broadway	None	Being dismantled
Hudson Headwaters	Public	1	48 East Street	None	Open
Historic Train Station	Commercial	2	73 East Street	None	Open
Canal Street Marketplace	Public	1	11 Canal Street	None	Open
Water, Sewer and Stormwater projects	All	Infrastructure	Phase I: (water and half sewer) Bascom Drive, Griffin Ave, Marion St, Beverly St., Pickett Dr. Phase II/III (Water half storm) Factory St, Culver St, McIntyre St, Wing St, Taylor St Phase IV: Complete, Liberty St, Keating Ave, Washington St,	None	Complete

Property or Development Name	Type (e.g. Res., Comm.)	# of Units / Structures	Location (address and/or Parcel ID)	Known Hazard Zone(s)	Description/Status of Development
			Spruce St		
Known or Anticipated Development in the Next Five (5) Years					
Redevelopment of the dewatering facility	Industrial	123 acres	381 Broadway (163.15-1-14, 163.19-1-1)	None	Planning and DEIS Engineering are underway
Water, Sewer and Stormwater projects	Residential	Infrastructure	McCea St, Browns Ln, Bright St, River St, Teffs Ln	None	Planning and Engineering are underway
Oak Ridge Subdivision Drifting Ridge Tori Trice William Farm	Residential	180	Oak Ridge Subdivision 60 home, Drifting Ridge 60 home, Tori Trice 10-12 more lots, and William farm 163.13.-1-1.1 up to 50 units	None	Applications under review

Note: Only location-specific hazard zones or vulnerabilities identified.

9.11.3 Natural Hazard Event History Specific to the Municipality

Washington County has a history of natural and non-natural hazard events as detailed in Volume I, Section 5.0 of this plan. 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. For the purpose of this plan update, events that have occurred in the County from 2008 to present were summarized to indicate the range and impact of hazard events in the community. Information regarding specific damages is included, if available, based on reference material or local sources. This information is presented in the table below. For details of these and additional events, refer to Volume I, Section 5.0 of this plan.

Table 9.11-2. Hazard Event History

Dates of Event	Event Type (FEMA Disaster Declaration if applicable)	Washington County Designated?	Summary of Damages/Losses
April 28-30, 2011	Flooding DR-1993	No	The Indian River near Hudson River at Fort Edward stream gage recorded new period-of-record maximum discharges during this event. Flooding damaged several buildings in the Village. Flooding was reported on Satterlee Lane, Montgomery Street, and on Broadway. The first floor of a house on Riverside St on the shoreline of the Hudson River was inundated. Residents in the Village of Fort Edward were evacuated due to dangerous conditions. Numerous NFIP claims were issued as a result of the flood damage, and FEMA assisted with the recovery.

Notes:
EM Emergency Declaration (FEMA)
FEMA Federal Emergency Management Agency
DR Major Disaster Declaration (FEMA)

9.11.4 Hazard Vulnerabilities and Ranking

The hazard profiles in Section 5.0 of this plan have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes the hazard vulnerabilities and their ranking in the Village of Fort Edward. For additional vulnerability information relevant to this jurisdiction, refer to

Section 5.0. Refer to Figure 9.11-1 later in this annex for hazard vulnerable areas located in the Village of Fort Edward.

Natural Hazard Risk/Vulnerability Risk Ranking

As discussed in Section 5.3 (Hazard Ranking), each participating town or village may have differing degrees of risk exposure and vulnerability compared to Washington County as a whole. Therefore, each municipality 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 Fort Edward. Table 9.11-12 provides proposed mitigation initiatives for the high ranked hazards.

Table 9.11-3. Hazard Risk/Vulnerability Risk Ranking

Hazard type	Estimate of Potential Dollar Losses to Structures Vulnerable to the Hazard [a, c]	Probability of Occurrence	Risk Ranking Score (Probability x Impact)	Hazard Ranking [b]
Earthquake	100-Year GBS: $9,062,247 500-Year GBS: $118,968,187 2,500-Year GBS: $866,945,901	Occasional	32	High
Flood	Damage estimate not available.	Frequent	30	Medium
Severe Weather	100-Year MRP: $167,978 500-year MRP: $2,248,401 Annualized: $13,957	Frequent	48	High
Severe Winter Weather	1% GBS: $7,980,080 5% GBS: $39,900,398	Frequent	51	High
Wildfire	Estimated Value in the WUI Hazard Areas: $1,284,730,888	Frequent	48	High

Notes:

a. Building damage ratio estimates based on FEMA 386-2 (August 2001)

b. The valuation of general building stock and loss estimates was based on custom inventory for the municipality.
High = Total hazard priority risk ranking score of 31 and above
Medium = Total hazard priority risk ranking of 20-30+
Low = Total hazard risk ranking below 20

c. Loss estimates for the severe storm and severe winter storm hazards are structural values only and do not include the value of contents.

d Loss estimates for the flood and earthquake hazards represent both structure and contents.

e. The HAZUS-MH earthquake model results are reported by Census Tract.

f. Damage estimate for flood unavailable due to lack of digital floodplain data for Washington County.

National Flood Insurance Program (NFIP) Summary

The following table summarizes the NFIP statistics for the Village of Fort Edward.

Table 9.11-4. NFIP Summary

Municipality	# Policies (1)	# Claims (Losses) (1)	Total Loss Payments (2)	# Rep. Loss Prop. (1)	# Severe Rep. Loss Prop. (1)
Fort Edward (V)	4	2	$9,953	0	0

Source: FEMA, 2016

Note (1) Policies, claims, repetitive loss and severe repetitive loss statistics provided by FEMA and are current as of April 30, 2016 and are summarized by Community Name. Please note the total number of repetitive loss properties excludes the severe repetitive loss properties. The number of claims represents claims closed by 4/30/2016.

Note (2) Total building and content losses from the claims file provided by FEMA Region 2.

Note (3) The policies inside and outside of the flood zones are unavailable due to lack of digital floodplain for Washington County.

Note (4) FEMA noted that where there is more than one entry for a property, there may be more than one policy in force or more than one GIS possibility.

Critical Facilities

At the time of this HMP Update, digitized flood maps for Washington County are unavailable. In order to provide some level of beneficial analysis, a desktop analysis was performed to identify critical facilities located within the floodplain (refer to Section 5.1 [Methodology and Tools] for details). The following table identifies critical facilities located within the municipality and their exposure, if any, to the possible floodplain. This information is a resource for the municipality to determine if flood mitigation actions are appropriate based on historical events and proximity of the facility to a water body. At the time of this 2018 HMP Update, the municipality did not identify any actions associated with these facilities.

The Village of Fort Edward understands the limitation of the map data and once the updated maps are available, the municipality will work with Washington County to determine which critical facilities are located within the 1% and 0.2% annual chance flood zones. Once identified, the municipality will work with the property owners and develop mitigation actions for each of the critical facilities, ensuring they will be protected to the 500-year (or worst-case scenario) level.

Table 9.11-5. Potential Flood Losses to Critical Facilities

Name	Type	Potential Flood Exposure
Boces - St Joseph's School	School	X
Champlain Canal Lock 7	Canal Lock	X
Fort Edward Court	Court	X
Fort Edward Fire Department - Station 1	Fire	X
Fort Edward Post Office	Post Office	X
Fort Edward Village Police	Police	X
Glens Falls National Bank	Bank	X
Town/Village of Fort Edward	Municipal Hall	X
Warren Washington ARC (Wing	Medical	X

Source: Washington County; NYS GIS Clearinghouse

Other Vulnerabilities Identified

The municipality has identified the following vulnerabilities within their community:

- The Village of Fort Edward has undergone four evacuations in the past 20 years for chemical leaks on railcars, derailments, exploding sewer lines from a fuel spill, and the flooding in April 2011.

9.11.5 Capability Assessment

This section identifies the following capabilities of the local jurisdiction:

- Planning and regulatory capability
- Administrative and technical capability
- Fiscal capability
- Community classification
- National Flood Insurance Program
- Integration of mitigation planning into existing and future planning mechanisms

Planning and Regulatory Capability

The table below summarizes the regulatory tools that are available to the Village of Fort Edward.

Table 9.11-6. Planning and Regulatory Tools

Tool / Program (code, ordinance, plan)	Do you have this? (Yes/No) If Yes, date of adoption or update	Authority (local, county, state, federal)	Dept. /Agency Responsible	Code Citation and Comments (Code Chapter, name of plan, explanation of authority, etc.)
Planning Capability				
Master Plan	Yes	Local	Boards	2009
Capital Improvements Plan	No	-	-	-
Floodplain Management / Basin Plan	No	-	-	-
Stormwater Management Plan	Yes	Local	Boards, DPW	2016 - The Village is a "Regulated Small MS4" community
Open Space Plan	No	-	-	-
Stream Corridor Management Plan	No	-	-	-
Watershed Management or Protection Plan	No	-	-	-
Local Waterfront Revitalization Plan	Yes	Local	Planning and Zoning Boards	2009 - focuses on Rogers Island and potential development
Economic Development Plan	Yes	Local	Planning and Zoning Boards	Yes, SEQR is required for all commercial and industrial development
Comprehensive Emergency Management Plan	No	-	-	-
Emergency Response/Operations Plan	No	-	-	-
Post-Disaster Recovery Plan	No	-	-	-
Transportation Plan	No	-	-	-
Strategic Recovery Planning Report	No	-	-	-
Other Plans:	No	-	-	-
Regulatory Capability				
Building Code	Yes	State, Local	Code Enforcement Officer	New York State Uniform Fire Prevention and Building Code and State Energy Conservation Construction Code
Zoning Ordinance	Yes	Local	Zoning	Local Law #2 Of 1986
Subdivision Ordinance	Yes	Local	Planning	Subdivision of Land, Chapter 77, Local Law 5 of 2009
NFIP Flood Damage Prevention Ordinance	Yes	Federal, State, Local	Building Inspector	Flood Damage Prevention, Chapter 52
NFIP: Freeboard	Yes	State, Local	Building Inspector	State mandated BFE+2 for single and two-family residential construction, BFE+1 for all other construction types
NFIP: Cumulative Substantial Damages	No	-	-	-
Growth Management Ordinances	No	-	-	-

Tool / Program (code, ordinance, plan)	Do you have this? (Yes/No) If Yes, date of adoption or update	Authority (local, county, state, federal)	Dept. /Agency Responsible	Code Citation and Comments (Code Chapter, name of plan, explanation of authority, etc.)
Site Plan Review Requirements	Yes	Local	Planning	2012
Stormwater Management Ordinance	Yes	Local	DPW Superintendent	Stormwater Management and Erosion & Sediment Control, adopted 2007/ Village of Fort Edward Stormwater Regulation
Municipal Separate Storm Sewer System (MS4)	Yes	State, Local	DPW	2016
Natural Hazard Ordinance	No	-	-	-
Post-Disaster Recovery Ordinance	No	-	-	-
Real Estate Disclosure Requirement	Yes	State	Planning	NYS mandate, Property Condition Disclosure Act, NY Code - Article 14 §460-467
Other (Special Purpose Ordinances [i.e., sensitive areas, steep slope])	Yes	State, Local	Planning and Zoning Boards	-

Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the Village of Fort Edward.

Table 9.11-7. Administrative and Technical Capabilities

Resources	Is this in place? (Yes or No)	Department/ Agency/Position
Administrative Capability		
Planning Board	Yes	Planning
Mitigation Planning Committee	No	-
Environmental Board/Commission	No	-
Open Space Board/Committee	No	-
Economic Development Commission/Committee	No	-
Maintenance programs to reduce risk	No	-
Mutual aid agreements	Yes	DPW, Police
Technical/Staffing Capability		
Planner(s) or engineer(s) with knowledge of land development and land management practices	No	Consulting
Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Yes	Code
Planners or engineers with an understanding of natural hazards	No	Consulting
NFIP Floodplain Administrator (FPA)	Yes	Building Inspector
Surveyor(s)	No	Consultants
Personnel skilled or trained in GIS and/or Hazards United States (HAZUS) – Multi-Hazards (MH) applications	Yes	Water
Scientist familiar with natural hazards	No	-
Emergency Manager	No	-

Resources	Is this in place? (Yes or No)	Department/ Agency/Position
Grant writer(s)	No	Consultants
Staff with expertise or training in benefit/cost analysis	No	Consultants
Professionals trained in conducting damage assessments	No	Consultants

Fiscal Capability

The table below summarizes financial resources available to the Village of Fort Edward.

Table 9.11-8. 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	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	Yes

Community Classifications

The table below summarizes classifications for community program available to the Village of Fort Edward.

Table 9.11-9. Community Classifications

Program	Do you have this? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Community Rating System (CRS)	No	-	-
Building Code Effectiveness Grading Schedule (BCEGS)	Yes	Not Available	Not Available
Public Protection (ISO Fire Protection Classes 1 to 10)	Yes	Not Available	Not Available
NYSDEC Climate Smart Community	No		
Storm Ready	No	-	-
Firewise	No	-	-
Disaster/safety programs in/for schools	No	-	-
Organizations with mitigation focus (advocacy group, non-government)	Yes	The Village is a member of NYCOM which gives general support to municipal officials in each state, serving as a way to improve local government by facilitating cooperation, the exchange of	-

Program	Do you have this? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
		information and ideas on best practices, and the discussion of new solutions to common municipal problems.	
Public education program/outreach (through website, social media)	Yes	Municipal website and social media	-
Public-Private Partnerships	No	-	-

Note:
N/A *Not applicable*
NP *Not participating*
TBD *To be determined*
- *Unavailable*

The classifications listed above relate to the community's ability to provide effective services to lessen its vulnerability to the hazards identified. These classifications can be viewed as a gauge of the community's capabilities in all phases of emergency management (preparedness, response, recovery and mitigation) and are used as an underwriting parameter for determining the costs of various forms of insurance. The CRS class applies to flood insurance while the BCEGS and Public Protection classifications apply to standard property insurance. CRS classifications range on a scale of 1 to 10 with class 1 being the best possible classification, and class 10 representing no classification benefit. Firewise classifications include a higher classification when the subject property is located beyond 1000 feet of a creditable fire hydrant and is within 5 road miles of a recognized Fire Station.

Criteria for classification credits are outlined in the following documents:

- The Community Rating System Coordinators Manual
- The Building Code Effectiveness Grading Schedule website at: https://www.isomitigation.com/bcegs/
- The ISO Mitigation online ISO's Public Protection website at https://www.isomitigation.com/ppc/
- The National Weather Service Storm Ready website at https://www.weather.gov/stormready/
- The National Firewise Communities website at http://firewise.org/

Self-Assessment of Capability

The table below provides an approximate measure of the Village of Fort Edward's capability to work in a hazard-mitigation capacity and/or effectively implement hazard mitigation strategies to reduce hazard vulnerabilities.

Table 9.11-10. Self-Assessment Capability for the Municipality

Area	Degree of Hazard Mitigation Capability		
	Limited (If limited, what are your obstacles?)	Moderate	High
Planning and regulatory capability		X	
Administrative and technical capability		X	
Fiscal capability		X	
Community political capability			X
Community resiliency capability			X
Capability to integrate mitigation into municipal			X

Area	Degree of Hazard Mitigation Capability		
	Limited (If limited, what are your obstacles?)	Moderate	High
processes and activities			

National Flood Insurance Program

NFIP Floodplain Administrator (FPA)

Chapter 52 of the municipal code identifies the building inspector as the appointed floodplain administrator; however, the village Clerk/Treasurer, Liann Lyon, provided the following information.

Flood Vulnerability Summary

The Village of Fort Edward does not maintain lists/inventories of properties that have been damaged by floods. No structures were damaged during Irene or other recent flood events. There is currently no interest within the Village regarding mitigation (elevation or acquisition) of properties.

Resources

Floodplain administration for the Village is performed by the Village's building inspector. The FPA is responsible for provided building permit reviews. The Village did not indicate any specific educational or outreach programs to residents regarding flooding or floodplain management.

Compliance History

According to the most recent FEMA Community Status Book Report, the community is in good standing with the NFIP. Per NYS DEC, the Village's last compliance visit was September 3, 1991.

Regulatory

Chapter 52 of the municipal code is the flood damage prevention ordinance. The ordinance meets, but does not exceed, the FEMA and State minimum requirements. Other local ordinances, plans or programs (e.g. site plan review) that support floodplain management and meeting the NFIP requirements in the Village include planning board activities, site plan review, special use permits and subdivision process, as well as the variance process.

Integration of Hazard Mitigation into Existing and Future Planning Mechanisms

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 this planning effort, each community was surveyed to obtain a better understanding of their community's progress in plan integration. A summary is provided below. In addition, the community identified specific integration activities that will be incorporated into municipal procedures.

Planning

NOTE: The village code book has been updated over the last several years. These local laws have not yet been incorporated into the code book. The village is in the process of reviewing and updating this book. Contact the village office to request updated information.

Emergency Management: The Village is capable and experienced when it comes to emergency management. Village Police and Fire Departments worked swiftly with the community leaders in the wake of previous

hazard events to formulate the plans necessary to mitigate the potential risks to our residents and business owners. When available, safety classes and emergency management classes are attended by any employee available.

Land Use Planning: The Village of Fort Edward has a Planning Board and Zoning Board of Appeals which review all applications for development and consider natural hazard risk areas in their review. The planning board plays a crucial role in the proper planning and development of the community. Decisions made can have a great impact upon both the present and future appearance of the municipality and the quality of life of its residents. Both the Planning Board and Zoning Board of Appeals utilize SEQR and strong Village codes to determine whether the project is okay as designed by the applicant or if action must be taken to mitigate a potential impact. All Village Boards are served by professional legal and engineering services, and the Village contracts for planning services, as needed.

The powers most commonly conferred upon this planning board include: subdivision review, site plan review and issuance of special permits. Many development activities require additional levels of environmental review, specifically NYS SEQR and Federal NEPA requirements. Natural Hazard identification and mitigation recommendations are incorporated, where necessary, into proposed projects.

Village of Fort Edward 2006 Master Plan: The Village of Fort Edward 2006 Master Plan identifies and establishes the community's goals, objectives, and recommendations in order to guide future growth, development, and/or preservation. The plan identifies sensitive environmental areas including floodplains as well as specific environmental issues facing the village. In the plan's goals, the Village identifies the need to develop lasting and affordable solutions for community water and wastewater needs, and ensure the protection of other natural resources. Some of the relevant goals, objectives, and recommendations in the Master Plan include the following:

- Continue to deliver emergency services by supporting and investing the necessary resources to the Village's Fire, Police, and Rescue Squads in order to maintain a high level of public safety and security.
- Improve and enhance the storm drainage system throughout the Village.
- Review and update where necessary the existing Village Laws, Codes and Regulations. Consider the feasibility of publishing the Code with General Code Publishers.
- Enforce the building code to ensure the structural integrity of buildings in the Village. Hire a full time Code Enforcement Officer/Building Inspector.

The plan was updated in 2009, but does not refer to a local or Countywide Hazard Mitigation Plan.

Village of Fort Edward Stormwater Management Plan: The Village of Fort Edward is an MS4 Regulated Community, and has a formal Stormwater Management Plan. This plan specifies projects/actions/initiatives to reduce the volume of stormwater, or otherwise mitigate stormwater flooding.

Regulatory and Enforcement

Construction Codes, Uniform: The building codes are strictly enforced to make new and renovated buildings as prepared as possible for hazard related incidents. The Village complies with New York State Uniform Fire Prevention and Building Code (the Uniform Code) and the State Energy Conservation Construction Code (the Energy Code). The Village 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. This department will conduct building consultations and site visits for zoning and planning application assistance.

Flood Damage Prevention: The Village Flood Damage Prevention Law meets the minimum Federal and State NFIP regulatory requirements. The purpose of the Village's Flood Damage Prevention Law is to promote the public health, safety, and general welfare and to minimize public and private losses due to flood conditions in the Village.

Site Plan Review, Local Law No. 6 of 2009: The purpose of the site plan review in the Village is to allow the proper integration of uses into the community based on their characteristics, or the special characteristics of the area in which they are to be located; to allow the Village to accommodate growth without creating an adverse effect on the Village and its citizens and taxpayers; to protect the health, safety and welfare of the citizens; and to promote consistency with the goals and objectives of the Village of Fort Edward Master Plan.

Sewers: The Village abides by the County-wide Sanitary Code, which protects and regulates its sewage collection and treatment facilities as a matter of public health and environmental safety. It seeks to prohibit the introduction of stormwaters, surface, or sub-surface waters into sanitary sewers and to control the quantity and quality of wastes in the sewage system.

The Washington County Wastewater Treatment Facility is located in the Village of Fort Edward and is a combined sewer/stormwater system with activated sludge, secondary treatment of wastewater. The facility has a permitted rolling capacity to treat 2.5 million gallons of wastewater per day and is presently ranging in capacity from 1.3 to 1.5 MGD during dry weather months and 2.0 to 2.46 MGD during wet weather months. According to a compliance plan put forth by the NYSDEC the Washington County Sewer District is responsible for resolving inflow and infiltrations (I & I) issues within their existing sewer system.

Stormwater Management and Erosion and Sediment Control, Local Law #3 of 2007: The Village's stormwater management chapter establishes minimum stormwater management requirements and controls. It seeks to mediate the adverse impacts of stormwater runoff, sedimentation, and erosion caused by existing drainage systems, and to minimize increases in stormwater runoff from land development activities in order to reduce flooding, siltation, and other adverse effects to stream function. It also serves to control the degradation of water quality in the Village.

Subdivision of Land, Chapter 77, Local Law 5 of 2009: The Village Planning Board is tasked with subdivision permitting and site plan review. The Planning Board pays special attention to ensure that developments meet the requirements of the stormwater management and erosion and sediment control provisions set by NYS DEC, and mitigate the issues associated with flood, fire, or other natural hazards.

Zoning Chapter 100: The Village of Fort Edward has an adopted zoning ordinance that is used to promote the public interest, health, comfort, convenience, safety, morals, order and public interest of the Village residents. The Village is divided into 9 districts. The Village zoning and subdivision regulations, and/or site plan review process considers natural hazard risk (e.g. the presence of floodplains, steep slopes, etc.), and requires developers to take additional actions to mitigate natural hazard risk (e.g. undergrounding utilities, stormwater detention, creating easements in areas/zones of hazard risk).

Fiscal

Operating Budget: Local funding for mitigation projects/activities are included in department budgets, rather than the village operating budget. The Village continuously invests in capital improvements for mitigation-related projects (e.g. improved stormwater management/drainage, hardening of critical facilities and infrastructure) through grants, loans, and property taxes. The Village also has strong borrowing power to fiscally support hazard mitigation projects.

Grants: The Village is partnered with several communities in the region for Stormwater Management small grants.

Education and Outreach

The Village utilizes radio, television, internet, and 911 reverse calling through the County to get important information to residents. In addition, the Village website has links to Emergency Services including Fort Edward Fire, Ambulance, and Police Department, along with other local, regional, and state agencies and organizations.

The Village is capable and experienced when it comes to emergency management. Village Police and Fire Departments worked swiftly with the community leaders in the wake of previous hazard events to formulate the plans necessary to mitigate the potential risks to our residents and business owners.

9.11.6 Mitigation Strategy and Prioritization

This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and prioritization.

Past Mitigation Initiative Status

The following table indicates progress on the community's mitigation strategy identified in the 2010 Plan. It should be noted that during the 2010 planning process, only general, countywide actions were identified for each municipality. The Village of Fort Edward reviewed the previous actions and selected actions they chose to carry forward as part of this plan update. Previous actions that are now on-going programs and capabilities are indicated as such in the following table and may also be found under 'Capability Assessment' presented previously in this annex.

Table 9.11-11. Status of Previous Mitigation Actions

2010 Mitigation Action	Responsible Party	Status (In progress, No progress, Complete)	Describe Status	Next Step (Include in 2018 HMP or Discontinue)	Describe Next Step
The equipment required to excavate drainage ditches and roadways to increase culvert pipe size is not available for local municipal use unless it is contracted. Local highway departments have the expertise to do the work, but not the equipment. A suggestion was made to purchase with mitigation funding five (5) excavators for Towns with the greatest need. (MOA b/t Fort Edward, Argyle, Kingsbury)	N/A	N/A	None needed. Not applicable to the Village.	Discontinue	This action is not applicable to the Village; therefore, it will not be included in the 2018 HMP Update.

Completed Mitigation Initiatives Not Identified in the Previous Mitigation Strategy

The Village of Fort Edward has not identified any mitigation projects/activities that have been completed but were not identified in the previous mitigation strategy in the 2010 Plan.

Proposed Hazard Mitigation Initiatives for the Plan Update

The Village of Fort Edward participated in a mitigation action workshop in September 2016 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).

Table 9.11-12 summarizes the comprehensive-range of specific mitigation initiatives the Village of Fort Edward would like to pursue in the future to reduce the effects of hazards. Some of these initiatives may be previous actions carried forward for this plan update. These 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. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table below to further demonstrate the wide-range of activities and mitigation measures selected.

As discussed in Section 6, 14 evaluation/prioritization criteria are used 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 your actions as 'High', 'Medium', or 'Low.' The table below summarizes the evaluation of each mitigation initiative, listed by Action Number.

Table 9.11-13 provides a summary of the prioritization of all proposed mitigation initiatives for the Plan update.

Table 9.11-12. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
V. Fort Edward-1	Send Village staff to county and state trainings on regulatory requirements for natural hazard risk management, and encourage certification programs with respect to hazard risk management in Benefit Cost Analysis (BCA), Recovery Planning, Damage Estimates, and Debris Management.	N/A	All Hazards	1, 2, 4	Village Board, Highway Department, Code Enforcement, Planning	Medium	Low – Staff Time	Municipal Budget	Short term	Medium	LPR EAP	PI
V. Fort Edward-2	Purchase and install outdoor warning siren in the Village.	N/A	All Hazards	1, 4	Village Planning Board, Emergency Management	High	Low-Medium	FEMA HMGP, municipal budget	Short Term	Medium	EAP	PI, ES
V. Fort Edward--3	Send local staff members to attend trainings and conferences to become educated on how to efficiently run a local Floodplain Administration program.	N/A	All Hazards	2, 5	Village FPA, County	Medium	Low – Staff Time	Municipal Budget	Short Term	High	EAP	PI
V. Fort Edward-4	During the next update of the Village's Master Plan, the Village will review the 2018 County HMP and incorporate hazard mitigation principles into the Master Plan by incorporating relevant information into each element of the plan.	New and Existing	All	All	Village Planning and Zoning Board	Medium	Low	Municipal Budget	Short Term	High	LPR, EAP	PR, PI
V. Fort Edward-5	Evaluate the stormwater system of the Village, identify areas of the system that need to be enhanced, and increase the capacity of the identified areas.	New and Existing	Flood, Severe Storm	1, 4	Village Street and Water Departments	Medium	Low to medium	Municipal Budget, CDBG, FEMA HMGP or FMA	Short Term	Medium	LPR, SIP	PR, PR

Notes:

Not all acronyms and abbreviations defined below are included in the table.

**Does this mitigation initiative reduce the effects of hazards on new and/or existing buildings and/or infrastructure? Not applicable (N/A) is inserted if this does not apply.*

Acronyms and Abbreviations:

CAV	Community Assistance Visit
CRS	Community Rating System
DPW	Department of Public Works
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
PDM	Pre-Disaster Mitigation Grant Program
RFC	Repetitive Flood Claims Grant Program (discontinued in 2015)
SRL	Severe Repetitive Loss Grant Program (discontinued in 2015)

Timeline:

Short	1 to 5 years
Long Term	5 years or greater
OG	On-going program
DOF	Depending on funding

Costs:

Where actual project costs have been reasonably estimated:

Low	< $10,000
Medium	$10,000 to $100,000
High	> $100,000

Where actual project costs cannot reasonably be established at this time:

Low	Possible to fund under existing budget. Project is part of, or can be part of an existing on-going program.
Medium	Could budget for under existing work plan, but would require a reapportionment of the budget or a budget amendment, or the cost of the project would have to be spread over multiple years.
High	Would require an increase in revenue via an alternative source (i.e., bonds, grants, fee increases) to implement. Existing funding levels are not adequate to cover the costs of the proposed project.

Benefits:

Where possible, an estimate of project benefits (per FEMA's benefit calculation methodology) has been evaluated against the project costs, and is presented as:

Low=	< $10,000
Medium	$10,000 to $100,000
High	> $100,000

Where numerical project benefits cannot reasonably be established at this time:

Low	Long-term benefits of the project are difficult to quantify in the short term.
Medium	Project will have a long-term impact on the reduction of risk exposure to life and property, or project will provide an immediate reduction in the risk exposure to property.
High	Project will have an immediate impact on the reduction of risk exposure to life and property.

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*

Table 9.11-13. Summary of Prioritization of Actions

Mitigation Action / Project Number	Mitigation Action/Initiative	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
V. Fort Edward-1	Send Village staff to county and state trainings on regulatory requirements for natural hazard risk management, and encourage certification programs with respect to hazard risk management in Benefit Cost Analysis (BCA), Recovery Planning, Damage Estimates, and Debris Management.	1	1	1	1	0	0	0	0	0	1	1	1	0	0	7	Medium
V. Fort Edward-2	Install outdoor siren warning systems for rapid evacuation or shelter-in-place.	1	1	1	1	0	0	0	0	1	1	1	0	0	0	7	Medium
V. Fort Edward--3	Send local staff members to attend trainings and conferences to become educated on how to efficiently run a local Floodplain Administration program.	1	1	1	1	1	0	1	1	0	1	1	1	0	0	10	High
V. Fort Edward-4	During the next update of the municipal master plan, incorporate the 2017 Washington County HMP Update where appropriate	1	1	1	1	0	1	1	0	0	1	1	1	0	0	9	High
V. Fort Edward-5	Evaluate the stormwater system of the Village, identify areas of the system that need to be enhanced, and increase the capacity of the identified areas.	1	1	1	1	0	0	0	0	1	1	1	0	0	0	7	Medium

Note: Refer to Section 6, which conveys guidance on prioritizing mitigation actions.

9.11.7 Future Needs to Better Understand Risk/Vulnerability

None at this time.

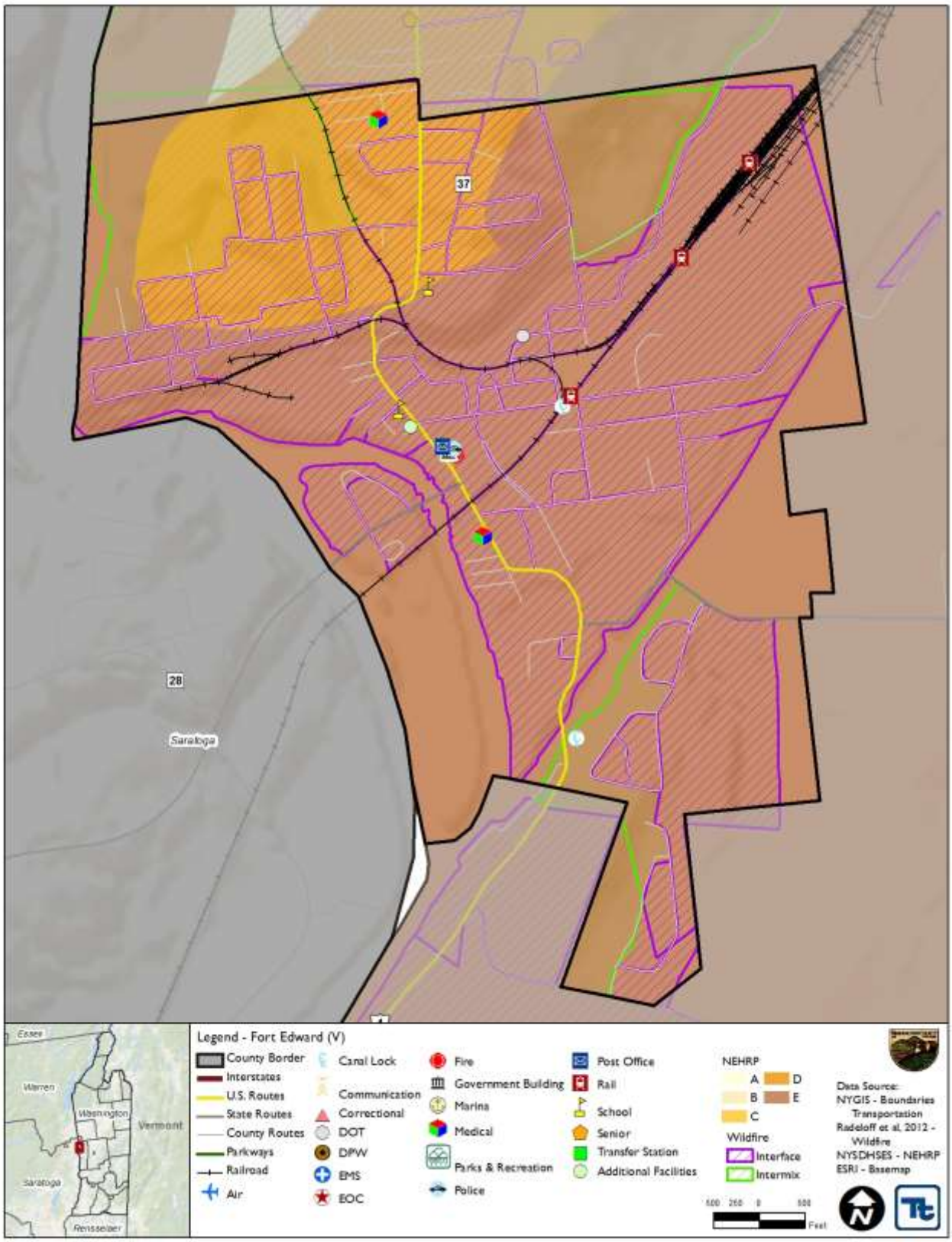
9.11.8 Hazard Area Extent and Location

Hazard area extent and location maps have been generated for the Village of Fort Edward that illustrate the probable areas impacted within the municipality. These maps are based on the best available data at the time of the preparation of this plan, and are considered to be adequate for planning purposes. Maps have only been generated for those hazards that can be clearly identified using mapping techniques and technologies, and for which the Village of Fort Edward has significant exposure. These maps are illustrated in the hazard profiles within Section 5.4, Volume I of this Plan.

9.11.9 Additional Comments

None at this time.

Figure 9.11-1. Village of Fort Edward Hazard Area Extent and Location



Action Number: V. Fort Edward -1

Mitigation Action Name: Village staff trainings on natural hazard risk management.

Assessing the Risk	
Hazard(s) addressed:	All Hazards
Specific problem being mitigated:	Staff members have not been formally trained in the fields of Benefit Cost Analysis (BCA), Recovery Planning, Damage Estimates, and Debris Management.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists; staff are not up-to-date on training. Hire trainers to come to Village to educate staff – costly.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Send Village staff to county and state trainings on regulatory requirements for natural hazard risk management and encourage certification programs with respect to hazard risk management in Benefit Cost Analysis (BCA), Recovery Planning, Damage Estimates, and Debris Management. Certifications and trainings for hazard risk management will allow for staff members to properly address hazards of concern and mitigation opportunities. The training will provide procedures and guidelines for conducting BCAs, recovery planning, conducting damage assessments, and manage debris during emergencies.
Mitigation Action Type	Local Plans and Regulations (LPR) Education and Awareness Programs (EAP)
Goals Met	Goal 1: Protect Life and Property Goal 2: Increase Public Awareness Goal 4: Provide for Emergency Services
Applies to existing and or new development, or not applicable	N/A
Benefits (losses avoided)	Medium
Estimated Cost	Low – Staff Time
Priority*	Medium
Plan for Implementation	
Responsible Organization	Village Board, Highway Department, Code Enforcement, Planning
Local Planning Mechanism	Hazard Mitigation
Potential Funding Sources	Municipal Budget
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	No progress; new project

Action Number: V. Fort Edward -1

Mitigation Action Name: Village staff trainings on natural hazard risk management.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	This action is technically feasible
Political	0	
Legal	0	
Fiscal	0	
Environmental	0	No known environmental impacts
Social	0	No known social impacts
Administrative	1	Village has administrative capability to manage the work
Multi-Hazard	1	All hazards
Timeline	1	
Agency Champion	0	
Other Community Objectives	0	
Total	7	
Priority (H/M/L)	Medium	

Action Number: V. Fort Edward -2

Mitigation Action Name: Purchase and install outdoor warning siren.

Assessing the Risk	
Hazard(s) addressed:	All Hazards
Specific problem being mitigated:	There is currently no outdoor warning siren in the Village of Fort Edward, which leads to a lack of widespread communication in the event of an emergency. In the past 20 years, the Village has undergone evacuations for chemical leaks on railcars, derailments, exploding sewer lines, and flooding.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Purchase mobile signage for emergency warnings – not as effective and would not reach all residents.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Purchase and install outdoor warning siren which would notify residents of imminent danger and allow them to take shelter either in their homes, place of work, or one of the identified shelters.
Mitigation Action Type	Education and Awareness Programs (EAP)
Goals Met	Goal 1: Protect Life and Property Goal 4: Provide for Emergency Services
Applies to existing and or new development, or not applicable	N/A
Benefits (losses avoided)	High
Estimated Cost	Low-Medium
Priority*	Medium
Plan for Implementation	
Responsible Organization	Village Planning Board, Emergency Management
Local Planning Mechanism	Hazard Mitigation
Potential Funding Sources	FEMA HMGP, municipal budget
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	No progress; new project

Action Number: V. Fort Edward -2

Mitigation Action Name: Install outdoor siren warning systems for rapid evacuation or shelter-in-place.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Provide warning system to residents when there is a need to evacuate
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	This action is technically feasible
Political	0	
Legal	0	
Fiscal	0	Village needs to seek grant funding to purchase system
Environmental	0	No known environmental impacts
Social	0	No known social impacts
Administrative	1	Village has administrative capability to manage the work
Multi-Hazard	1	
Timeline	1	
Agency Champion	0	
Other Community Objectives	0	
Total	7	
Priority (H/M/L)	Medium	

Action Number: V. Fort Edward -3

Mitigation Action Name: Send local staff members to attend trainings on Floodplain Administration.

Assessing the Risk	
Hazard(s) addressed:	All Hazards
Specific problem being mitigated:	Staff members have not been formally trained on Floodplain Administration.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists; staff will not be up-to-date on floodplain administration. Hire trainers to come to Village to educate staff – costly.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Send local Floodplain Administrator to County- and State-offered trainings and to complete certification programs with respect to floodplain management and running an effective local floodplain administration program in the Village. Also provide continuing education and training to ensure code enforcement and proper inspections.
Mitigation Action Type	Education and Awareness Programs (EAP)
Goals Met	Goal 2: Increase Public Awareness 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.
Applies to existing and or new development, or not applicable	N/A
Benefits (losses avoided)	Medium
Estimated Cost	Low – Staff Time
Priority*	High
Plan for Implementation	
Responsible Organization	Village FPA, County
Local Planning Mechanism	Hazard Mitigation
Potential Funding Sources	Municipal Budget
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	No progress; new project

Action Number: V. Fort Edward -3

Mitigation Action Name: Send local staff members to attend trainings on Floodplain Administration.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	This action is technically feasible
Political	1	
Legal	0	
Fiscal	1	
Environmental	1	No known environmental impacts
Social	0	No known social impacts
Administrative	1	Village has administrative capability to manage the work
Multi-Hazard	1	All hazards
Timeline	1	
Agency Champion	0	
Other Community Objectives	0	
Total	10	
Priority (H/M/L)	High	

Action Number: V. Fort Edward -4

Mitigation Action Name: Incorporate 2018 County HMP into update of Master Plan.

Assessing the Risk	
Hazard(s) addressed:	All
Specific problem being mitigated:	The Village's master plan does not currently address hazard identification or risk assessment or mitigation goals in any of the elements. There is little coordination between the two current planning processes which leads to disconnect and uncertainty whether or not hazard assessment information is incorporated into future land use and other elements of the master plan.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Update the municipal master plan without incorporating HMP – current problem persists and there is lack of coordination between the HMP and master plan.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Use the results and guidance from the Hazard Mitigation Plan to steer future Master Plan updates to incorporate mitigation into the goals and objectives, as well as in future planning decisions. Coordinating the hazard mitigation plan with the master plan can provide a mechanism for implementing the mitigation goals, objectives, policies, and actions in the hazard mitigation plan beyond federal mitigation grants and recovery operations.
Mitigation Action Type	Local Plans and Regulations (LPR) Education and Awareness Programs (EAP)
Goals Met	Goal 1: Protect Life and Property Goal 2: Increase Public Awareness Goal 3: Encourage Partnerships Goal 4: Provide for Emergency Services 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.
Applies to existing and or new development, or not applicable	New and Existing
Benefits (losses avoided)	Medium
Estimated Cost	Low
Priority*	High
Plan for Implementation	
Responsible Organization	Village Planning and Zoning Board
Local Planning Mechanism	Hazard Mitigation, Master Plan
Potential Funding Sources	Municipal Budget
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	No progress; New project

Action Number: V. Fort Edward -4

Mitigation Action Name: Incorporate 2018 County HMP into update of Master Plan.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	This action is technically feasible
Political	0	
Legal	1	
Fiscal	1	Municipal budget / staff time
Environmental	0	No known environmental impacts
Social	0	No known social impacts
Administrative	1	Village has administrative capability to manage the work
Multi-Hazard	1	
Timeline	1	
Agency Champion	0	
Other Community Objectives	0	
Total	9	
Priority (H/M/L)	High	

Action Number: V. Fort Edward -5

Mitigation Action Name: Village Stormwater System.

Assessing the Risk	
Hazard(s) addressed:	All Hazards
Specific problem being mitigated:	As the stormwater system in the Village ages, it is uncertain as to which areas are in need of updating. An inadequate sized system will lead to increase risk in flooding, siltation, erosion, and degradation of water quality in the Village.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Make repairs/upgrades when system fails – not cost effective; increase risk of flooding and erosion.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Evaluate the stormwater system of the Village, identify areas of the system that need to be enhanced, and increase the capacity of the identified areas.
Mitigation Action Type	Local Plans and Regulations (LPR) Structure and Infrastructure Project (SIP)
Goals Met	Goal 1: Protect Life and Property Goal 4: Provide for Emergency Services
Applies to existing and or new development, or not applicable	New and existing
Benefits (losses avoided)	Medium
Estimated Cost	Low to medium
Priority*	Medium
Plan for Implementation	
Responsible Organization	Village Street Department, Village Water Department
Local Planning Mechanism	Hazard Mitigation, Stormwater Management
Potential Funding Sources	Municipal Budget, CDBG, FEMA HMGP or FMA
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	No progress; new project

Action Number: V. Fort Edward -5
Mitigation Action Name: Village Stormwater System.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	This action is technically feasible
Political	0	
Legal	0	
Fiscal	0	
Environmental	0	No known environmental impacts
Social	0	No known social impacts
Administrative	1	Village has administrative capability to manage the work
Multi-Hazard	1	Flood, Severe Storm
Timeline	1	To be completed in five years once funding is obtained
Agency Champion	0	
Other Community Objectives	0	
Total	7	
Priority (H/M/L)	Medium	

9.12 TOWN OF GRANVILLE

This section presents the jurisdictional annex for the Town of Granville.

9.12.1 Hazard Mitigation Plan Point of Contact

The following individuals have been identified as the hazard mitigation plan's primary and alternate points of contact.

Primary Point of Contact	Alternate Point of Contact
Eric Towne, Highway Superintendent 42 Main Street, P.O. Box 177, Granville, NY 12832 518-642-2560 gvltownhwy@albany.twcbc.com	Mark Kretzer, Water Superintendent 42 Main Street, P.O. Box 177, Granville, NY 12832 518-642-2560 gvltownhwy@albany.twcbc.com

9.12.2 Municipal Profile

The Town of Granville is located in northeastern Washington County along its eastern border with Vermont. The Town is located in the Metowee River Valley. The Town is bordered to the north by the Towns of Whitehall and Hampton; to the south by the Town of Hebron; to the east by the State of Vermont; and to the west by the Towns of Fort Ann and Hartford. According to the 2010 Census, the Town's population was 6,669. The Town of Granville has a total area of 56.1 square miles.

Several communities make up the Town of Granville and include the following: Hillside, Middle Granville, North Granville, Raceville, Slyboro, South Granville, Truthville, West Granville and West Pawlett. Martins Pond is the largest of several ponds in the Town, located south of Slyboro. The Mettawee River and the Indian River both flow through the Town.

Growth/Development Trends

The Town of Granville did not note any recent residential/commercial development since 2010 or any major residential or commercial development, or major infrastructure development planned for the next five years in the municipality.

Table 9.12-1. Growth and Development

Property or Development Name	Type (e.g. Res., Comm.)	# of Units / Structures	Location (address and/or Parcel ID)	Known Hazard Zone(s)	Description/Status of Development
Recent Development from 2010 to present					
None identified					
Known or Anticipated Development in the Next Five (5) Years					
None Identified					

Note: Only location-specific hazard zones or vulnerabilities identified.

9.12.3 Natural Hazard Event History Specific to the Municipality

Washington County has a history of natural and non-natural hazard events as detailed in Volume I, Section 5.0 of this plan. 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. For the purpose of this plan update, events that have occurred in the County from 2008 to present were summarized to indicate the range and impact of hazard events in the community. Information regarding specific damages is included, if available,

based on reference material or local sources. This information is presented in the table below. For details of these and additional events, refer to Volume I, Section 5.0 of this plan.

Table 9.12-2. Hazard Event History

Dates of Event	Event Type (FEMA Disaster Declaration if applicable)	Washington County Designated?	Summary of Damages/Losses
August 26 – September 5, 2011	Hurricane Irene DR-4020	Yes	Major roadways and gravel roads were damaged throughout the Town which led to road closures (Cove Road and Searles Road). The culvert and header at Seales Road was damaged; the culvert on Cove Road washed out at the bridge. There was riverbank erosion on Riverside Drive.

Notes:

EM *Emergency Declaration (FEMA)*
FEMA *Federal Emergency Management Agency*
DR *Major Disaster Declaration (FEMA)*
IA *Individual Assistance*
N/A *Not applicable*
PA *Public Assistance*

9.12.4 Hazard Vulnerabilities and Ranking

The hazard profiles in Section 5.0 of this plan have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes the hazard vulnerabilities and their ranking in the Town of Granville. For additional vulnerability information relevant to this jurisdiction, refer to Section 5.0. Refer to Figure 9.12-1 later in this annex for hazard vulnerable areas located in the Town of Granville.

Natural Hazard Risk/Vulnerability Risk Ranking

As discussed in Section 5.3 (Hazard Ranking), each participating town or village may have differing degrees of risk exposure and vulnerability compared to Washington County as a whole. Therefore, each municipality 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 Granville. Table 9.12-12 provides proposed mitigation initiatives for the high ranked hazards.

Table 9.12-3. Hazard Risk/Vulnerability Risk Ranking

Hazard type	Estimate of Potential Dollar Losses to Structures Vulnerable to the Hazard [a, c]	Probability of Occurrence	Risk Ranking Score (Probability x Impact)	Hazard Ranking [b]
Earthquake	100-Year GBS: $0 500-Year GBS: $12,646,196 2,500-Year GBS: $132,879,223	Occasional	28	Medium
Flood	Damage estimate not available.	Frequent	21	Medium
Severe Weather	100-Year MRP: $376,990 500-year MRP: $2,250,551 Annualized: $21,546	Frequent	48	High
Severe Winter Weather	1% GBS: $7,267,264 5% GBS: $36,336,321	Frequent	51	High
Wildfire	Estimated Value in the WUI Hazard Areas: $1,013,717,507	Frequent	48	High

Notes:

a. Building damage ratio estimates based on FEMA 386-2 (August 2001)

b. The valuation of general building stock and loss estimates was based on custom inventory for the municipality.
High = Total hazard priority risk ranking score of 31 and above
Medium = Total hazard priority risk ranking of 20-30+
Low = Total hazard risk ranking below 20

c. Loss estimates for the severe storm and severe winter storm hazards are structural values only and do not include the value of contents.

d Loss estimates for the flood and earthquake hazards represent both structure and contents.

e. The HAZUS-MH earthquake model results are reported by Census Tract.

f. Damage estimate for flood unavailable due to lack of digital floodplain data for Washington County.

National Flood Insurance Program (NFIP) Summary

The following table summarizes the NFIP statistics for the Town of Granville.

Table 9.12-4. NFIP Summary

Municipality	# Policies (1)	# Claims (Losses) (1)	Total Loss Payments (2)	# Rep. Loss Prop. (1)	# Severe Rep. Loss Prop. (1)
Granville (T)	3	5	$156,319	0	0

Source: FEMA, 2016
Note (1) Policies, claims, repetitive loss and severe repetitive loss statistics provided by FEMA and are current as of April 30, 2016 and are summarized by Community Name. Please note the total number of repetitive loss properties excludes the severe repetitive loss properties. The number of claims represents claims closed by 4/30/2016.
Note (2) Total building and content losses from the claims file provided by FEMA Region 2.
Note (3) The policies inside and outside of the flood zones are unavailable due to lack of digital floodplain for Washington County.
Note (4) FEMA noted that where there is more than one entry for a property, there may be more than one policy in force or more than one GIS possibility.

Critical Facilities

At the time of this HMP Update, digitized flood maps for Washington County are unavailable. In order to provide some level of beneficial analysis, a desktop analysis was performed to identify critical facilities located within the floodplain (refer to Section 5.1 [Methodology and Tools] for details). The following table identifies critical facilities located within the municipality and their exposure, if any, to the possible floodplain. This information is a resource for the municipality to determine if flood mitigation actions are appropriate based on historical events and proximity of the facility to a water body. At the time of this 2018 HMP Update, the municipality did not identify any actions associated with these facilities.

The Town of Granville understands the limitation of the map data and once the updated maps are available, the municipality will work with Washington County to determine which critical facilities are located within the 1% and 0.2% annual chance flood zones. Once identified, the municipality will work with the property owners and develop mitigation actions for each of the critical facilities, ensuring they will be protected to the 500-year (or worst-case scenario) level.

Table 9.12-5. Potential Flood Losses to Critical Facilities

Name	Type	Potential Flood Exposure
Middle Granville Fire Co/Penrhyn	Fire	X
US Postal Service - Middle Granville	Post Office	X

Source: Washington County; NYS GIS Clearinghouse

Other Vulnerabilities Identified

According the 2010 Washington County HMP, the Town of Granville identified the following vulnerable areas in the municipality:

- DeKalb Road – in the 1980s, the road was completely washed out. During the 2005 flooding, the shoulder and partial lane washed out. The culverts are undersized which leads to the flooding issues.
- Cove Road – the single lane bridge floods from the Mettawee River.

9.12.5 Capability Assessment

This section identifies the following capabilities of the local jurisdiction:

- Planning and regulatory capability
- Administrative and technical capability
- Fiscal capability
- Community classification
- National Flood Insurance Program
- Integration of Mitigation Planning into Existing and Future Planning Mechanisms

Planning and Regulatory Capability

The table below summarizes the regulatory tools that are available to the Town of Granville.

Table 9.12-6. Planning and Regulatory Tools

Tool / Program (code, ordinance, plan)	Do you have this? (Yes/No) If Yes, date of adoption or update	Authority (local, county, state, federal)	Dept. /Agency Responsible	Code Citation and Comments (Code Chapter, name of plan, explanation of authority, etc.)
Planning Capability				
Master Plan	No	-	-	A plan is currently being prepared
Capital Improvements Plan	No	-	-	-
Floodplain Management / Basin Plan	No	-	-	-
Stormwater Management Plan	Yes	County and Town	DPW	2013
Open Space Plan	No	-	-	A plan is currently being prepared
Stream Corridor Management Plan	No	-	-	-
Watershed Management or Protection Plan	No	-	-	-
Economic Development Plan	No	-	-	-
Comprehensive Emergency Management Plan	Yes	County	County OEM	The Town utilizes the County CEMP
Emergency Response Plan	No	-	-	-
Post-Disaster Recovery Plan	No	-	-	-
Transportation Plan	No	-	-	-
Strategic Recovery Planning Report	No	-	-	-
Other Plans:	Yes	Local	Town Board and Farmland Protection Plan Committee	Agriculture and Farmland Protection Plan, April 2012

Tool / Program (code, ordinance, plan)	Do you have this? (Yes/No) If Yes, date of adoption or update	Authority (local, county, state, federal)	Dept. /Agency Responsible	Code Citation and Comments (Code Chapter, name of plan, explanation of authority, etc.)
Regulatory Capability				
Building Code	Yes	State & Local	Code Enforcement	Building Code of New York State (NYS), Local Law #1
Zoning Ordinance	No	-	-	-
Subdivision Ordinance	Yes	Local	Planning Board	Local Law #1 Of 2013
NFIP Flood Damage Prevention Ordinance	Yes	Local	Supervisor	Information not provided at the time of this plan update
NFIP: Cumulative Substantial Damages	No	-	-	-
NFIP: Freeboard	Yes	State, Local	Supervisor and Code Enforcement	State mandated BFE+2 for single and two-family residential construction, BFE+1 for all other construction types
Growth Management Ordinances	No	-	-	-
Site Plan Review Requirements	Yes	Local	Planning Board	Local Law #1 Of 2013
Stormwater Management Ordinance	No	-	-	-
Municipal Separate Storm Sewer System (MS4)	Yes	County	DPW	2006
Natural Hazard Ordinance	No	-	-	-
Post-Disaster Recovery Ordinance	No	-	-	-
Real Estate Disclosure Requirement	Yes	State	Planning Board	NYS mandate, Property Condition Disclosure Act, NY Code - Article 14 §460-467
Other (Special Purpose Ordinances [i.e., sensitive areas, steep slope])	No	-	-	-

Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the Town of Granville.

Table 9.12-7. Administrative and Technical Capabilities

Resources	Is this in place? (Yes or No)	Department/ Agency/Position
Administrative Capability		
Planning Board	Yes	Planning Board
Mitigation Planning Committee	No	-
Environmental Board/Commission	No	-
Open Space Board/Committee	Yes	-
Economic Development Commission/Committee	No	-
Maintenance programs to reduce risk	No	-
Mutual aid agreements	Yes	Surrounding municipalities
Technical/Staffing Capability		

Resources	Is this in place? (Yes or No)	Department/ Agency/Position
Planner(s) or engineer(s) with knowledge of land development and land management practices	No	-
Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	No	-
Planners or engineers with an understanding of natural hazards	No	-
NFIP Floodplain Administrator (FPA)	Yes	Supervisor
Surveyor(s)	No	-
Personnel skilled or trained in GIS and/or Hazards United States (HAZUS) – Multi-Hazards (MH) applications	No	-
Scientist familiar with natural hazards	No	-
Emergency Manager	No	-
Grant writer(s)	No	-
Staff with expertise or training in benefit/cost analysis	No	-
Professionals trained in conducting damage assessments	No	-

Fiscal Capability

The table below summarizes financial resources available to the Town of Granville.

Table 9.12-8. 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	No
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	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	No
Open space acquisition funding programs	No
Other	No

Community Classifications

The table below summarizes classifications for community program available to the Town of Granville.

Table 9.12-9. Community Classifications

Program	Do you have this? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)

Program	Do you have this? (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 (Granville) 5/5Y (Middle Granville) 6/6Y (North Granville)	9/15/15 (Granville) 9/14/15 (Middle Granville) 9/17/15 (North Granville)
NYSDEC Climate Smart Community	No	-	-
Storm Ready	No	-	-
Firewise	No	-	-
Disaster/safety programs in/for schools	No	-	-
Organizations with mitigation focus (advocacy group, non-government)	No	-	-
Public education program/outreach (through website, social media)	Yes	Municipal website and social media	-
Public-Private Partnerships	No	-	-

Note:
N/A *Not applicable*
NP *Not participating*
- *Unavailable*

The classifications listed above relate to the community's ability to provide effective services to lessen its vulnerability to the hazards identified. These classifications can be viewed as a gauge of the community's capabilities in all phases of emergency management (preparedness, response, recovery and mitigation) and are used as an underwriting parameter for determining the costs of various forms of insurance. The CRS class applies to flood insurance while the BCEGS and Public Protection classifications apply to standard property insurance. CRS classifications range on a scale of 1 to 10 with class 1 being the best possible classification, and class 10 representing no classification benefit. Firewise classifications include a higher classification when the subject property is located beyond 1000 feet of a creditable fire hydrant and is within 5 road miles of a recognized Fire Station.

Criteria for classification credits are outlined in the following documents:

- The Community Rating System Coordinators Manual
- The Building Code Effectiveness Grading Schedule website at https://www.isomitigation.com/bcegs/
- The ISO Mitigation online ISO's Public Protection website at https://www.isomitigation.com/ppc/
- The National Weather Service Storm Ready website at https://www.weather.gov/stormready/
- The National Firewise Communities website at https://www.nfpa.org/Public-Education/By-topic/Wildfire/Firewise-USA

Self-Assessment of Capability

The table below provides an approximate measure of the Town of Granville's capability to work in a hazard-mitigation capacity and/or effectively implement hazard mitigation strategies to reduce hazard vulnerabilities.

Table 9.12-10. Self-Assessment Capability for the Municipality

Area	Degree of Hazard Mitigation Capability		
	Limited (If limited, what are your obstacles?)	Moderate	High
Planning and regulatory capability		X	

Area	Degree of Hazard Mitigation Capability		
	Limited (If limited, what are your obstacles?)	Moderate	High
Administrative and technical capability	X – no staff		
Fiscal capability		X	
Community political capability	X – no staff		
Community resiliency capability	X – no staff		
Capability to integrate mitigation into municipal processes and activities	X – no staff		

National Flood Insurance Program

NFIP Floodplain Administrator (FPA)

According to the NYS DEC, the town supervisor is the FPA for the Town of Granville.

Flood Vulnerability Summary

The Town does not have a list/inventory of flood damaged properties available at the time of this plan update. However, during recent flooding events, a residential property on Cove Road was damaged due to flooding. The Town does not make substantial damage estimates. It is unknown if there is an interest in mitigation (elevation or acquisition) within the municipality.

Resources

The Town does not have an appointed floodplain administrator nor does the Town provide any education or outreach to the community regarding flood hazards/risk or flood risk reduction.

Compliance History

According to the most recent FEMA Community Status Book, the Town of Granville currently participates in the NFIP. However, according to NYS DEC, the Town has not had a compliance audit conducted.

Regulatory

The Town does not have local ordinances, plans or programs that support floodplain management in the community. The Town currently does not participate in the CRS program.

Integration of Hazard Mitigation into Existing and Future Planning Mechanisms

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 this planning effort, each community was surveyed to obtain a better understanding of their community's progress in plan integration. A summary is provided below. In addition, the community identified specific integration activities that will be incorporated into municipal procedures.

Planning

Land Use Planning: The Town has a Planning Board which reviews development and subdivision permit applications, Environmental Assessment Forms, and site plans. Town codes and planning documents, including the Subdivision Law and Solid Waste Law, are available on the town's website.

Town of Granville Agriculture and Farmland Protection Plan, April 2012: The Town of Granville Agriculture and Farmland Protection Plan (The Ag Plan) is designed to serve as a ten to fifteen-year long-range framework for sustaining and improving agriculture in the Town, which constituted 46% of all land area in 2012. The plan recommends adoption of a local law (or amendment to existing floodplain law) that would prohibit any kind of commercial or residential structure in the 100-year floodplain. This plan is available publicly on the Town's website. Relevant strategies from the Plan include:

- Work with the County, IDA, and adjacent municipalities and continue working with the Village of Granville to promote up-to-date communication facilities including cell services and high-speed internet and broadband services.
- Update the existing subdivision laws to strengthen the ability of the Planning Board to review and mitigate negative impacts of new development on farmland.
- Incorporate use of the conservation subdivision technique for major subdivisions. This will allow 50% of the parcel to be preserved for open space and agriculture when major subdivisions are proposed.
- Develop a town-wide comprehensive plan and integrate the agriculture and farmland protection plan into it as a major component.
- Consider adopting a local law for site plan review for commercial businesses
- Expand support and incentives for alternative energy production.

Lake Champlain Watershed Water Quality Management Planning: Roadside Erosion Assessment and Inventory: The Lake Champlain Watershed Water Quality Management Planning project was one of 11 projects in New York State that was funded through the Federal Government's American Recovery and Reinvestment Act Initiative. The goal of the project was to identify critically eroding roadside banks that have contributed significant sediment loads to the high-quality streams throughout the Champlain Watershed (Clinton, Essex, Franklin, Warren and Washington Counties). The plan identified 319 roadside erosion sites in need to remediation. In Washington County, 31 sites were identified (12 high priority, 11 moderate priority, and 8 low priority). Two sites were located in the Town of Granville.

Regulatory and Enforcement

Code Enforcement: Washington County provides code enforcement duties and responsibilities to the Town of Granville.

Construction Codes, Uniform: The building codes are strictly enforced to make new and renovated buildings as prepared as possible for hazard related incidents. The Town complies with New York State Uniform Fire Prevention and Building Code (the Uniform Code) and the State Energy Conservation Construction Code (the Energy Code).

Sewers: The Town abides by the County-wide Sanitary Code, which protects and regulates its sewage collection and treatment facilities as a matter of public health and environmental safety. It seeks to prohibit the introduction of stormwater, surface, or sub-surface waters into sanitary sewers and to control the quantity and quality of wastes in the sewage system.

Land Subdivision Law and Regulations Local Law #1 of 2013: Town of Granville Planning Board pays special attention to ensure that developments meet the requirements of the stormwater management and erosion and sediment control provisions set by NYS DEC, and mitigate the issues associated natural hazards.

Fiscal

Operating Budget: The Town's operating budget contains minimal provisions for expected repairs like snow removal, machinery, and general repair after a storm or natural disaster. The Town also allots funding for

maintaining equipment used by the highway department, and contractual expenses as needed to supplement highway department staff capabilities.

Capital Improvement Plan/Program: The Town Budget has Capital Improvement line items for Buildings-Equipment, Highway Garage and Capital Improvement, both of which were allocated $0 in the 2016 budget.

Education and Outreach

The Town utilizes MyEM App which allows local and county emergency managers to contact residents in the event of an emergency.

9.12.6 Mitigation Strategy and Prioritization

This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and prioritization.

Past Mitigation Initiative Status

The following table indicates progress on the community's mitigation strategy identified in the 2010 Plan. It should be noted that during the 2010 planning process, only general, countywide actions were identified for each municipality. The Town of Granville reviewed the previous actions and selected actions they chose to carry forward as part of this plan update. Previous actions that are now on-going programs and capabilities are indicated as such in the following table and may also be found under 'Capability Assessment' presented previously in this annex.

Table 9.12-11. Status of Previous Mitigation Actions

2010 Mitigation Action	Responsible Party	Status (In progress, No progress, Complete)	Describe Status	Next Step (Include in 2018 HMP or Discontinue)	Describe Next Step
Improve drainage at sites where roads have washed out due to natural hazards in the past	County and NYS DHSES	No Progress	No progress due to lack of funding	Include in 2018 HMP	Identified project in the Lake Champlain Watershed Water Quality Management Planning Roadside Erosion Assessment and Inventory; identified in Table 9.12-12 as T-Granville 1 and T-Granville-2
Purchase equipment to provide for local personnel to conduct the drainage improvement	County and NYS DHSES	No Progress	No progress due to lack of funding	Include in 2018 HMP	Identified project in the Lake Champlain Watershed Water Quality Management Planning Roadside Erosion Assessment and Inventory; identified in Table 9.12-12 as T-Granville 1 and T-Granville-2
Engineering assessment to determine feasibility of each site improvement	County and NYS DHSES	No Progress	No progress due to lack of funding	Include in 2018 HMP	Identified project in the Lake Champlain Watershed Water Quality Management Planning Roadside Erosion Assessment and Inventory; identified in Table 9.12-12 as T-Granville 1 and T-Granville-2
Improve dams to prevent flooding causing roads to wash out.	County and NYS DHSES	No Progress	Not relevant to the Town	Discontinue	This action is not relevant to the Town; therefore, it will not be included in the 2018 HMP Update
Improve identified sites where slope stability is subject to land subsidence and where excavation or planting could mitigate future damage.	County and NYS DHSES	No Progress	No progress due to lack of funding	Include in 2018 HMP	Identified project in the Lake Champlain Watershed Water Quality Management Planning Roadside Erosion Assessment and Inventory; identified in Table 9.12-12 as T-Granville 1 and T-Granville-2

Completed Mitigation Initiatives Not Identified in the Previous Mitigation Strategy

The Town of Granville has identified the following mitigation projects/activities that have also been completed but were not identified in the previous mitigation strategy in the 2010 Plan:

- None identified

Proposed Hazard Mitigation Initiatives for the Plan Update

The Town of Granville participated in a mitigation action workshop in September 2016 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).

Table 9.12-12 summarizes the comprehensive-range of specific mitigation initiatives the Town of Granville would like to pursue in the future to reduce the effects of hazards. Some of these initiatives may be previous actions carried forward for this plan update. These 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. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table below to further demonstrate the wide-range of activities and mitigation measures selected.

As discussed in Section 6, 14 evaluation/prioritization criteria are used 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 your actions as 'High', 'Medium', or 'Low.' The table below summarizes the evaluation of each mitigation initiative, listed by Action Number.

Table 9.12-13 provides a summary of the prioritization of all proposed mitigation initiatives for the Plan update.

Table 9.12-12. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
T. Granville-1 (previous action)	Cross Road - re-grade slope with erosion and sediment control blankets and hydroseeding with conservation mix and soil amendments	Existing	Flood, Severe Storm	1	Town Highway Dept. with support from Lake Champlain-Lake George Regional Planning Board	Medium	Low	County Soil & Water Conservation district, municipal budget, Water Quality Improvement Project Grants	Short Term	High	SIP	PP, NR
T. Granville-2 (previous action)	Conety Road – stabilize with French drains and hydroseed with conservation mix and soil amendments	Existing	Flood, Severe Storm	1	Town Highway Dept. with support from Lake Champlain-Lake George Regional Planning Board	Medium	Low	County Soil & Water Conservation district, municipal budget, Water Quality Improvement Project Grants	Short Term	high	SIP	PP, NR
T. Granville-3	Consider becoming a New York State certified Climate Smart Community	N/A	All	1, 5	Town Planning / Zoning with support from NYSDEC	Medium	Low	Municipal Budget	Short Term	Medium	LPR, EAP	PR, PI
T. Granville-4	Review the Town's current Flood Damage Prevention Ordinance, and update as necessary to consider and address: • Compliance with the latest model Flood Damage Prevention Ordinances. To request the Model Flood Damage Prevention Law appropriate for your community, please contact the DEC Floodplain Management Section at 518-402-8185 or at floodplain.floodplain@dec.ny.gov. • Proper identification of the local NFIP Floodplain Administrator as per the Flood Damage Prevention Ordinance • Reference current regulatory NFIP floodplain mapping, which is currently in an active update process (2016-2017).											
	See above	New	Flood	1	Town Code Enforcement	High	Low	Municipal Budget	Short Term	High	LPR	PR

Notes:

Not all acronyms and abbreviations defined below are included in the table.

**Does this mitigation initiative reduce the effects of hazards on new and/or existing buildings and/or infrastructure? Not applicable (N/A) is inserted if this does not apply.*

Acronyms and Abbreviations:

CAV *Community Assistance Visit*

Potential FEMA HMA Funding Sources:

FMA *Flood Mitigation Assistance Grant Program*

Timeline:

Short *1 to 5 years*

CRS	*Community Rating System*
DPW	*Department of Public Works*
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*
HMGP	*Hazard Mitigation Grant Program*
PDM	*Pre-Disaster Mitigation Grant Program*
RFC	*Repetitive Flood Claims Grant Program (discontinued in 2015)*
SRL	*Severe Repetitive Loss Grant Program (discontinued in 2015)*
Long Term	*5 years or greater*
OG	*On-going program*
DOF	*Depending on funding*

Costs:

Where actual project costs have been reasonably estimated:

Low	*< $10,000*
Medium	*$10,000 to $100,000*
High	*> $100,000*

Where actual project costs cannot reasonably be established at this time:

Low	*Possible to fund under existing budget. Project is part of, or can be part of an existing on-going program.*
Medium	*Could budget for under existing work plan, but would require a reapportionment of the budget or a budget amendment, or the cost of the project would have to be spread over multiple years.*
High	*Would require an increase in revenue via an alternative source (i.e., bonds, grants, fee increases) to implement. Existing funding levels are not adequate to cover the costs of the proposed project.*

Benefits:

Where possible, an estimate of project benefits (per FEMA's benefit calculation methodology) has been evaluated against the project costs, and is presented as:

Low=	*< $10,000*
Medium	*$10,000 to $100,000*
High	*> $100,000*

Where numerical project benefits cannot reasonably be established at this time:

Low	*Long-term benefits of the project are difficult to quantify in the short term.*
Medium	*Project will have a long-term impact on the reduction of risk exposure to life and property, or project will provide an immediate reduction in the risk exposure to property.*
High	*Project will have an immediate impact on the reduction of risk exposure to life and property.*

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*

Table 9.12-13. Summary of Prioritization of Actions

Mitigation Action/Project Number	Mitigation Action/Initiative	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
T. Granville-1 (previous action)	Cross Road - re-grade slope with erosion and sediment control blankets and hydroseeding with conservation mix and soil amendments	1	1	1	1	0	0	0	1	1	1	1	1	1	1	11	High
T. Granville-2 (previous action)	Conety Road – stabilize with French drains and hydroseed with conservation mix and soil amendments	1	1	1	1	0	0	0	1	1	1	1	1	1	1	11	High
T. Granville-3	Consider becoming a New York State certified Climate Smart Community	1	1	1	1	0	0	1	1	0	1	1	0	0	0	8	Medium
T. Granville-4	Review the Town's current Flood Damage Prevention Ordinance, and update as necessary.	1	1	1	1	1	1	1	1	0	0	0	1	0	0	9	High

Note: Refer to Section 6, which conveys guidance on prioritizing mitigation actions.

9.12.7 Future Needs to Better Understand Risk/Vulnerability

None at this time.

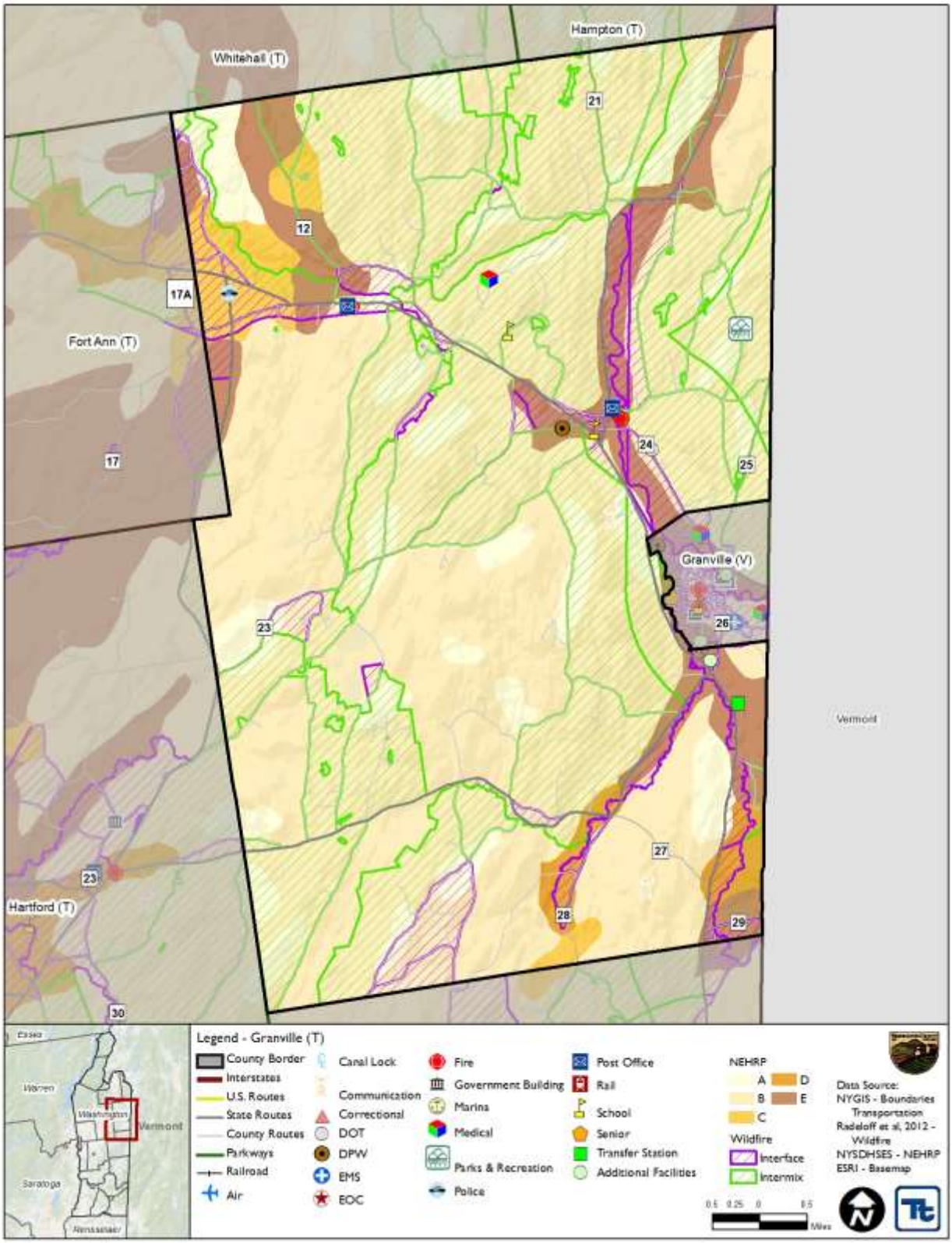
9.12.8 Hazard Area Extent and Location

Hazard area extent and location maps have been generated for the Town of Granville that illustrate the probable areas impacted within the municipality. These maps are based on the best available data at the time of the preparation of this plan, and are considered to be adequate for planning purposes. Maps have only been generated for those hazards that can be clearly identified using mapping techniques and technologies, and for which the Town of Granville has significant exposure. These maps are illustrated in the hazard profiles within Section 5.4, Volume I of this Plan.

9.12.9 Additional Comments

None at this time.

Figure 9.12-1. Town of Granville Hazard Area Extent and Location



Action Number: T. Granville-1

Mitigation Action Name: Cross Road.

Assessing the Risk	
Hazard(s) addressed:	Flood, Severe Storm
Specific problem being mitigated:	Steep slopes along the bank adjacent to Cross Road are subject to erosion, as they are not stabilized and exposed to the elements.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Install retaining wall – costly. Hard stabilization of bank – not environmentally friendly, costly.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Repair and re-grade slope along Cross Road with erosion and sediment control blankets and hydroseeding with conservation mix and soil amendments in areas prone to erosion. This will reduce or alleviate erosion along Cross Road.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	Goal 1: Protect Life and Property
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	Medium
Estimated Cost	Low
Priority*	High
Plan for Implementation	
Responsible Organization	Town Highway Dept. with support from Lake Champlain-Lake George Regional Planning Board
Local Planning Mechanism	Hazard Mitigation
Potential Funding Sources	County Soil & Water Conservation district, municipal budget, Water Quality Improvement Project Grants
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	No progress; new project

Action Number: T. Granville-1
Mitigation Action Name: Cross Road.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	This action is technically feasible
Political	0	
Legal	0	
Fiscal	0	Need to seek grant funding
Environmental	1	No known environmental impacts; would have beneficial impacts
Social	1	No known social impacts; any person using Cross Road would benefit
Administrative	1	Town has administrative capability to manage the work
Multi-Hazard	1	Flood and Severe Storm
Timeline	1	
Agency Champion	1	
Other Community Objectives	1	
Total	11	
Priority (H/M/L)	High	

Action Number: T. Granville-2

Mitigation Action Name: Conety Road.

Assessing the Risk	
Hazard(s) addressed:	Flood, Severe Storm
Specific problem being mitigated:	Steep slopes along the bank adjacent to Conety Road are critically eroding and contribute to significant sediment loads in adjacent streams.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Install retaining wall – costly.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Stabilize Conety Road with French drains and hydroseed with conservation mix and soil amendments in areas in need of repair that are prone to erosion impacts. This will provide protection along Conety Road from erosion during periods of heavy rain.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	Goal 1: Protect Life and Property
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	Medium
Estimated Cost	Low
Priority*	High
Plan for Implementation	
Responsible Organization	Town Highway Dept. with support from Lake Champlain-Lake George Regional Planning Board
Local Planning Mechanism	Hazard Mitigation
Potential Funding Sources	County Soil & Water Conservation district, municipal budget, Water Quality Improvement Project Grants
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	No progress; new project

Action Number: T. Granville-2
Mitigation Action Name: Conety Road.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	This action is technically feasible
Political	0	
Legal	0	
Fiscal	0	Need grant funding
Environmental	1	No known environmental impacts; would have beneficial impacts
Social	1	No known social impacts; any person using Cross Road would benefit
Administrative	1	Town has administrative capability to manage the work
Multi-Hazard	1	Flood and Severe Storm
Timeline	1	
Agency Champion	1	
Other Community Objectives	1	
Total	11	
Priority (H/M/L)	High	

Action Number: T. Granville-3

Mitigation Action Name: Consider becoming a New York State certified Climate Smart Community.

Assessing the Risk	
Hazard(s) addressed:	All
Specific problem being mitigated:	Town is currently not a New York State certified Climate Smart Community.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Conduct Climate Smart Community actions but do not apply for certification – missed outreach opportunities.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Consider becoming a New York State certified Climate Smart Community to guide climate action and achieve recognition.
Mitigation Action Type	Local Plans and Regulations (LPR) Education and Awareness Programs (EAP)
Goals Met	Goal 1: Protect Life and Property 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.
Applies to existing and or new development, or not applicable	N/A
Benefits (losses avoided)	Medium
Estimated Cost	Low
Priority*	Medium
Plan for Implementation	
Responsible Organization	Town Planning / Zoning with support from NYSDEC
Local Planning Mechanism	Hazard Mitigation
Potential Funding Sources	Municipal budget
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	No progress; new project

Action Number: T. Granville-3

Mitigation Action Name: Consider becoming a New York State certified Climate Smart Community.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	This action is technically feasible
Political	0	
Legal	0	
Fiscal	1	Municipal budget / staff time
Environmental	1	No known negative environmental impacts
Social	0	No known social impacts
Administrative	1	Town has administrative capability to manage the work
Multi-Hazard	1	All hazards
Timeline	0	
Agency Champion	0	
Other Community Objectives	0	
Total	8	
Priority (H/M/L)	Medium	

Action Number: T. Granville-4

Mitigation Action Name: Flood Damage Prevention Ordinance.

Assessing the Risk	
Hazard(s) addressed:	Flood
Specific problem being mitigated:	The Town's flood damage prevention ordinance is in need of an update and the Town needs to identify a floodplain administrator
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Exceed requirements for Flood Damage Prevention Ordinance – not interested in exceeding requirements at this time
Action/Project Intended for Implementation	
Description of Selected Action/Project	Review the Town's current Flood Damage Prevention Ordinance (FDPO), and update as necessary to consider and address: • Compliance with the latest model Flood Damage Prevention Ordinances. To request the Model Flood Damage Prevention Law appropriate, contact the DEC Floodplain Management Section at 518-402-8185 or at floodplain.floodplain@dec.ny.gov. • Proper identification of the local National Flood Insurance Program (NFIP) Floodplain Administrator as per the FDPO. • Reference current regulatory NFIP floodplain mapping, which is currently in an active update process (2016-2017).
Mitigation Action Type	Local Plans and Regulations (LPR)
Goals Met	Goal 1: Protect Life and Property
Applies to existing and or new development, or not applicable	New
Benefits (losses avoided)	High
Estimated Cost	Low
Priority*	High
Plan for Implementation	
Responsible Organization	Town Code Enforcement
Local Planning Mechanism	Hazard Mitigation, Floodplain Management
Potential Funding Sources	Municipal Budget
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	No progress; new project

Action Number: T. Granville-4

Mitigation Action Name: Flood Damage Prevention Ordinance.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	This action is technically feasible
Political	1	
Legal	1	
Fiscal	1	Municipal budget / staff time
Environmental	1	No known negative environmental impacts
Social	0	No known social impacts
Administrative	0	
Multi-Hazard	0	Flood
Timeline	1	
Agency Champion	0	
Other Community Objectives	0	
Total	9	
Priority (H/M/L)	High	

9.13 VILLAGE OF GRANVILLE

This section presents the jurisdictional annex for the Village of Granville.

9.13.1 Hazard Mitigation Plan Point of Contact

The following individuals have been identified as the hazard mitigation plan's primary and alternate points of contact.

Primary Point of Contact	Alternate Point of Contact	Alternate Point of Contact
George Johnson, Assistant Superintendent of Public Works 51 Quaker Street, PO Box 208, Granville, NY 12832 518-361-9503 granville@roadrunner.com	Scott Mackey, WWTP Operator in Training 51 Quaker Street, PO Box 208, Granville, NY 12832 518-742-9200 smackeyvog@yahoo.com	Rick Roberts, Village Clerk 51 Quaker Street, PO Box 208, Granville, NY 12832 518-361-9502 granville@roadrunner.com

9.13.2 Municipal Profile

The Village of Granville is located in northeastern Washington County and is fully surrounded by the Town of Granville. The Indian and Mettawee River both meet in the Village. New York State Route 22 runs along the west side of the Village and joins New York State Route 149 south of the Village. New York 149 passes through the Village as Main Street and becomes Vermont Route 149 at the east side of the Village. The 2010 Census for the Village of Granville was 2,543. The Village has a total area of 1.6 square miles.

Growth/Development Trends

The following table summarizes recent residential/commercial development since 2010 to present and any known or anticipated major residential/commercial development and major infrastructure development that has been identified in the next five years within the municipality.

Table 9.13-1. Growth and Development

Property or Development Name	Type (e.g. Res., Comm.)	# of Units / Structures	Location (address and/or Parcel ID)	Known Hazard Zone(s)	Description/Status of Development
Recent Development from 2010 to present					
Dunkin Donuts	Comm	1	69-70 Quaker Street	None	In Progress
St. Gobain	Comm	1 (new roof)	117.19-1-25	None	Completed
Known or Anticipated Development in the Next Five (5) Years					
St. Gobain	Comm	Addition	117.19-1-25	None	In Progress

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

9.13.3 Natural Hazard Event History Specific to the Municipality

Washington County has a history of natural and non-natural hazard events as detailed in Volume I, Section 5.0 of this plan. 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. For the purpose of this plan update, events that have occurred in the County from 2008 to present were summarized to indicate the range and impact of hazard events in the community. Information regarding specific damages is included, if available, based on reference material or local sources. This information is presented in the table below. For details of these and additional events, refer to Volume I, Section 5.0 of this plan.

Table 9.13-2. Hazard Event History

Dates of Event	Event Type (FEMA Disaster Declaration if applicable)	Washington County Designated?	Summary of Damages/Losses
August 26-September 5, 2011	Hurricane Irene DR-4020	Yes	Three bridges in the Village were closed for 16 hours; 17 homes were damaged; there was also damage to the WWTP, light stations and Slate Valley Museum; Village had $605,000 in losses and damages
October 27-November 8, 2012	Hurricane/Tropical Storm Sandy EM-3351	Yes	While the Village indicated they were impacted by this storm, damages were minimal.

Notes:

EM *Emergency Declaration (FEMA)*

FEMA *Federal Emergency Management Agency*

DR *Major Disaster Declaration (FEMA)*

9.13.4 Hazard Vulnerabilities and Ranking

The hazard profiles in Section 5.0 of this plan have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes the hazard vulnerabilities and their ranking in the Village of Granville. For additional vulnerability information relevant to this jurisdiction, refer to Section 5.0. Refer to the map in 9.13.8 of this annex which illustrates the hazard areas in the village.

Natural Hazard Risk/Vulnerability Risk Ranking

As discussed in Section 5.3 (Hazard Ranking), each participating town or village may have differing degrees of risk exposure and vulnerability compared to Washington County as a whole. Therefore, each municipality 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 Granville. Table 9.13-12 provides proposed mitigation initiatives for the high ranked hazards.

Table 9.13-3. Hazard Risk/Vulnerability Risk Ranking

Hazard type	Estimate of Potential Dollar Losses to Structures Vulnerable to the Hazard [a, c]	Probability of Occurrence	Risk Ranking Score (Probability x Impact)	Hazard Ranking [b]
Earthquake	100-Year GBS: $0 500-Year GBS: $12,646,196 2,500-Year GBS: $132,879,223	Occasional	28	Medium
Flood	Damage estimate not available.	Frequent	21	Medium
Severe Weather	100-Year MRP: $639,558 500-year MRP: $2,920,265 Annualized: $30,693	Frequent	48	High
Severe Winter Weather	1% GBS: $14,253,602 5% GBS: $71,268,010	Frequent	51	High
Wildfire	Estimated Value in the WUI Hazard Areas: $2,332,445,115	Frequent	48	High

Notes:

a. *Building damage ratio estimates based on FEMA 386-2 (August 2001)*

b. *The valuation of general building stock and loss estimates was based on custom inventory for the municipality.*
High = Total hazard priority risk ranking score of 31 and above

Medium = Total hazard priority risk ranking of 20-30+

Low = Total hazard risk ranking below 20

c. Loss estimates for the severe storm and severe winter storm hazards are structural values only and do not include the value of contents.

d Loss estimates for the flood and earthquake hazards represent both structure and contents.

e. The HAZUS-MH earthquake model results are reported by Census Tract.

f. Damage estimate for flood unavailable due to lack of digital floodplain data for Washington County.

National Flood Insurance Program (NFIP) Summary

The following table summarizes the NFIP statistics for the Village of Granville.

Table 9.13-4. NFIP Summary

Municipality	# Policies (1)	# Claims (Losses) (1)	Total Loss Payments (2)	# Rep. Loss Prop. (1)	# Severe Rep. Loss Prop. (1)
Granville (V)	12	10	$165,198	0	0

Source: FEMA, 2016

Note (1) Policies, claims, repetitive loss and severe repetitive loss statistics provided by FEMA and are current as of April 30, 2016 and are summarized by Community Name. Please note the total number of repetitive loss properties excludes the severe repetitive loss properties. The number of claims represents claims closed by 4/30/2016.

Note (2) Total building and content losses from the claims file provided by FEMA Region 2.

Note (3) The policies inside and outside of the flood zones are unavailable due to lack of digital floodplain for Washington County.

Note (4) FEMA noted that where there is more than one entry for a property, there may be more than one policy in force or more than one GIS possibility.

Critical Facilities

At the time of this HMP Update, digitized flood maps for Washington County are unavailable. In order to provide some level of beneficial analysis, a desktop analysis was performed to identify critical facilities located within the floodplain (refer to Section 5.1 [Methodology and Tools] for details). The following table identifies critical facilities located within the municipality and their exposure, if any, to the possible floodplain. This information is a resource for the municipality to determine if flood mitigation actions are appropriate based on historical events and proximity of the facility to a water body. At the time of this 2018 HMP Update, the municipality did not identify any actions associated with these facilities.

The Village of Granville understands the limitation of the map data and once the updated maps are available, the municipality will work with Washington County to determine which critical facilities are located within the 1% and 0.2% annual chance flood zones. Once identified, the municipality will work with the property owners and develop mitigation actions for each of the critical facilities, ensuring they will be protected to the 500-year (or worst-case scenario) level.

Table 9.13-5. Potential Flood Losses to Critical Facilities

Name	Type	Potential Flood Exposure
Granville DPW	DPW	X
Granville Town Court	Court	X
Indian River Nursing Home	Senior	X
Town of Granville	Municipal Hall	X
US Postal Service - Granville	Post Office	X

Source: Washington County; NYS GIS Clearinghouse

Other Vulnerabilities Identified

The municipality has identified the following vulnerabilities within their community:

- According to the 2003 Comprehensive Plan, Seasonal flooding of the Mettawee River has caused the Village some problems in the past. The Little League fields are located within the 100-year flood plain and spring flooding often affects the complex. The Village has been working with the Army Corps of Engineers to solve the flooding problem on the property, without creating additional flooding problems downstream.

9.13.5 Capability Assessment

This section identifies the following capabilities of the local jurisdiction:

- Planning and regulatory capability
- Administrative and technical capability
- Fiscal capability
- Community classification
- National Flood Insurance Program
- Integration of mitigation planning into existing and future planning mechanisms

Planning and Regulatory Capability

The table below summarizes the regulatory tools that are available to the Village of Granville.

Table 9.13-6. Planning and Regulatory Tools

Tool / Program (code, ordinance, plan)	Do you have this? (Yes/No) If Yes, date of adoption or update	Authority (local, county, state, federal)	Dept. /Agency Responsible	Code Citation and Comments (Code Chapter, name of plan, explanation of authority, etc.)
Planning Capability				
Master Plan	Yes	Local	Village Planning Board	Comprehensive Plan (2003)
Capital Improvements Plan	Yes	Local	Village Board	Capital Improvements Budget which includes budget for mitigation-related projects
Floodplain Management / Basin Plan	No	-	-	-
Stormwater Management Plan	No	-	-	-
Open Space Plan	No	-	-	-
Stream Corridor Management Plan	No	-	-	-
Watershed Management or Protection Plan	No	-	-	-
Economic Development Plan	No	-	-	-
Comprehensive Emergency Management Plan	No	-	-	-
Emergency Response Plan	Yes	Local	Village Planning Board	Emergency Action Plan
Post-Disaster Recovery Plan	No	-	-	-

Tool / Program (code, ordinance, plan)	Do you have this? (Yes/No) If Yes, date of adoption or update	Authority (local, county, state, federal)	Dept. /Agency Responsible	Code Citation and Comments (Code Chapter, name of plan, explanation of authority, etc.)
Transportation Plan	No	-	-	-
Strategic Recovery Planning Report	No	-	-	-
Other Plans:	Yes	Local	Village Planning Board	Local Waterfront Revitalization Plan
Regulatory Capability				
Building Code	Yes	State and Local	Code Enforcement (County)	Building Code of New York State (NYS), Local Law #1
Zoning Ordinance	Yes	Local	Zoning Board of Appeals	Zoning Law of The Village of Granville 5/17/2006
Subdivision Ordinance	Yes	Local	Zoning Board of Appeals	Article 11 Of the Zoning Law
NFIP Flood Damage Prevention Ordinance	Yes	Local	Code Enforcement	Article 8
NFIP: Cumulative Substantial Damages	No	-	-	-
NFIP: Freeboard	Yes	State, Local	Code Enforcement (County)	State mandated BFE+2 for single and two-family residential construction, BFE+1 for all other construction types
Growth Management Ordinances	No	-	-	-
Site Plan Review Requirements	Yes (2006)	Local	Zoning Board of Appeals	Part of Zoning Ordinance
Stormwater Management Ordinance	No	-	-	-
Municipal Separate Storm Sewer System (MS4)	No	-	-	-
Natural Hazard Ordinance	No	-	-	-
Post-Disaster Recovery Ordinance	No	-	-	-
Real Estate Disclosure Requirement	Yes	State	Code Enforcement (County)	NYS mandate, Property Condition Disclosure Act, NY Code - Article 14 §460-467
Other (Special Purpose Ordinances [i.e., sensitive areas, steep slope])	No	-	-	-

Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the Village of Granville.

Table 9.13-7. Administrative and Technical Capabilities

Resources	Is this in place? (Yes or No)	Department/ Agency/Position
Administrative Capability		
Planning Board	Yes	Planning Board

Resources	Is this in place? (Yes or No)	Department/ Agency/Position
Mitigation Planning Committee	No	-
Environmental Board/Commission	No	-
Open Space Board/Committee	No	-
Economic Development Commission/Committee	No	-
Maintenance programs to reduce risk	No	-
Mutual aid agreements	Yes	Surrounding municipalities - fire
Technical/Staffing Capability		
Planner(s) or engineer(s) with knowledge of land development and land management practices	No	-
Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Yes	Municipal engineer
Planners or engineers with an understanding of natural hazards	Yes	Municipal engineer, Emergency Management
NFIP Floodplain Administrator (FPA)	Yes	Code Enforcement
Surveyor(s)	No	-
Personnel skilled or trained in GIS and/or Hazards United States (HAZUS) – Multi-Hazards (MH) applications	No	-
Scientist familiar with natural hazards	No	-
Emergency Manager	No	-
Grant writer(s)	No	-
Staff with expertise or training in benefit/cost analysis	No	-
Professionals trained in conducting damage assessments	No	-

Fiscal Capability

The table below summarizes financial resources available to the Village of Granville.

Table 9.13-8. 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
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	No
Open Space Acquisition funding programs	No
Other	No

Community Classifications

The table below summarizes classifications for community program available to the Village of Granville.

Table 9.13-9. Community Classifications

Program	Do you have this? (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	9/15/15
NYSDEC Climate Smart Community	No	-	-
Storm Ready	No	-	-
Firewise	No	-	-
Disaster/safety programs in/for schools	No	-	-
Organizations with mitigation focus (advocacy group, non-government)	No	-	-
Public education program/outreach (through website, social media)	No	-	-
Public-Private Partnerships	No	-	-

Note:
N/A *Not applicable*
NP *Not participating*
- *Unavailable*

The classifications listed above relate to the community's ability to provide effective services to lessen its vulnerability to the hazards identified. These classifications can be viewed as a gauge of the community's capabilities in all phases of emergency management (preparedness, response, recovery and mitigation) and are used as an underwriting parameter for determining the costs of various forms of insurance. The CRS class applies to flood insurance while the BCEGS and Public Protection classifications apply to standard property insurance. CRS classifications range on a scale of 1 to 10 with class 1 being the best possible classification, and class 10 representing no classification benefit. Firewise classifications include a higher classification when the subject property is located beyond 1000 feet of a creditable fire hydrant and is within 5 road miles of a recognized Fire Station.

Criteria for classification credits are outlined in the following documents:

- The Community Rating System Coordinators Manual
- The Building Code Effectiveness Grading Schedule website at: https://www.isomitigation.com/bcegs/
- The ISO Mitigation online ISO's Public Protection website at https://www.isomitigation.com/ppc/
- The National Weather Service Storm Ready website at https://www.weather.gov/stormready/
- The National Firewise Communities website at http://firewise.org/

Self-Assessment of Capability

The table below provides an approximate measure of the Village of Granville's capability to work in a hazard-mitigation capacity and/or effectively implement hazard mitigation strategies to reduce hazard vulnerabilities.

Table 9.13-10. Self-Assessment Capability for the Municipality

Area	Degree of Hazard Mitigation Capability		
	Limited (If limited, what are your obstacles?)	Moderate	High
Planning and regulatory capability		X	
Administrative and technical capability		X	
Fiscal capability		X	
Community political capability		X	
Community resiliency capability		X	
Capability to integrate mitigation into municipal processes and activities		X	

National Flood Insurance Program

NFIP Floodplain Administrator (FPA)

According to the NYS DEC, the code enforcement officer is the FPA for the Village of Granville.

Flood Vulnerability Summary

Throughout the Village of Granville, both a 100 and 500- year floodplain can be found along the Mettawee River and the Indian River. The Federal Emergency Management Agency (FEMA) National Flood Insurance Program delineated these boundaries on Flood Insurance Rate Map Panel Number 360886B, 1985. The Village has areas that are within Zone A of the Mettawee and Indian Rivers and Zone C. Zone A is the 100-year floodplain. Any development within Zone A requires the purchase of mandatory flood insurance. Zone C is the flood insurance rate zone that corresponds to areas outside the 100-year floodplain.

Seasonal flooding of the Mettawee River has caused the Village some problems in the past. The Little League fields are located within the 100-year flood plain and spring flooding often affects the complex. The Village has been working with the Army Corps of Engineers to solve the flooding problem on the property, without creating additional flooding problems downstream.

Resources

While NYS DEC indicated that the code enforcement officer is the FPA for the Village, which is the county, the county does not assume the role as FPA for any municipality in the county. Therefore, the village needs to revise their flood damage prevention ordinance to identify a floodplain administrator. The Village does not provide any education or outreach to the community regarding flood hazards/risk or flood risk reduction.

Compliance History

According to the most recent FEMA Community Status Book Report, the community is in good standing with the NFIP. According to NYS DEC, the date of the last compliance visit was August 18, 2016.

Regulatory

Article 8: Special Use Permits of the Village Zoning Law describes the procedure and standards which apply to certain land uses and activities which due to their characteristics, or the special characteristics of the area in which they are to be located, require special consideration. The Village does not have additional ordinances, plans, or programs that support floodplain management in the community. The Village does not participate in the CRS program.

Integration of Hazard Mitigation into Existing and Future Planning Mechanisms

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 this planning effort, each community was surveyed to obtain a better understanding of their community's progress in plan integration. A summary is provided below. In addition, the community identified specific integration activities that will be incorporated into municipal procedures.

Planning

Land Use Planning: The Village of Granville is nearly fully developed, creating a need to identify the remaining vacant parcels that can be developed, as well as opportunities for redevelopment of underutilized properties. The principal land use in the Village of Granville is single-family residential. In recent years, the Village has seen a proliferation of the conversion of single-family units into multi-family units (2 or more units). Existing land use maps area available.

Village of Granville Comprehensive Plan: The Village of Granville Comprehensive Plan identifies and examines a comprehensive list of existing conditions, including demographics and economic features, natural resources, municipal resources, recreation and community facilities, education resources, transportation and land use. The plan discusses natural hazard risk areas, like wetlands and floodplains, and identifies land use and regulatory recommendations for managing risks and directing growth. Some of the recommendations included the following:

- Protect and enhance environmentally significant water bodies in order to minimize adverse impacts due to manmade development.
- Increase communication and cooperation amongst Village, Town, and School officials.
- Improve and enhance the storm drainage system throughout the Village.
- Gain more green space through a program of tree planting plus site development standards.
- Adopt clearly defined and regulated zoning districts rather than continuing the current distinctions
- Create an inventory of vacant buildings.

Emergency Action Plan: This plan is meant to enhance the Village's ability to manage emergency/disaster situations, contributing to the effectiveness of a statewide emergency management program.

Village of Granville 2010 Mettowee River Waterfront Revitalization Strategy: This plan is intended to provide guidance to the Village, as it continues to work towards improvements that bring out the full potential of the waterfront, downtown, and neighborhoods. The plan identifies projects that were current at the time of publication, including the provision of four new groundwater production wells, located out of the floodplain. Furthermore, one of the plan's major recommendations includes improving the riverside walking path with bridges or boardwalks in the areas which currently experience flooding. Consideration of flood-prone areas is also recommended in the trail design.

Regulatory and Enforcement (Ordinances)

Code Enforcement: Washington County provides code enforcement duties and responsibilities to the Village of Granville.

Construction Codes, Uniform: The building codes are strictly enforced to make new and renovated buildings as prepared as possible for hazard related incidents. The Village complies with New York State Uniform Fire Prevention and Building Code (the Uniform Code) and the State Energy Conservation Construction Code (the Energy Code).

Flood Damage Prevention: Article 8: Special Use Permits of the Village Zoning Law describes the procedure and standards which apply to certain land uses and activities which due to their characteristics, or the special characteristics of the area in which they are to be located, require special consideration. In reviewing such permit applications, the planning board takes into account the following objectives:

- Adequacy of stormwater management plans and drainage facilities
- Adequacy of water supply and sewage disposal facilities and their compliance with
- Washington County Department of Health
- Adequate provision for fire, police, and other types of emergency vehicles
- Special attention shall be given to the adequacy of structures, roadways, and landscaping in areas with susceptibility to ponding, flooding, and/or erosion

The Village also maintains elevation certificates.

Sewers: The Village abides by the County-wide Sanitary Code, which protects and regulates its sewage collection and treatment facilities as a matter of public health and environmental safety. It seeks to prohibit the introduction of stormwater, surface, or sub-surface waters into sanitary sewers and to control the quantity and quality of wastes in the sewage system.

Site Plan Review (Zoning Law Article 7): Article 7 of the Village Zoning Law discusses Site Plan Review. The Village Planning Board is tasked with site plan review. In reviewing such permit applications, the planning board takes into account the following objectives, among others:

- The adequacy of storm water and drainage facilities in preventing flooding, erosion, and improper obstruction of drainage ways.
- The adequacy of water supply and sewage disposal facilities.
- The type of vegetation to be planted, the size of the trees and plantings, and the location.
- The retention of existing trees, wooded areas, watercourses, and other natural features to the maximum extent possible.
- The adequacy of fire lanes and other emergency zones and the provision of fire hydrants.

Subdivision Regulations (Zoning Law Article 11): The Village Planning Board is tasked with subdivision permitting and site plan review. The Planning Board pays special attention to ensure that developments meet the requirements of the stormwater management and erosion and sediment control provisions set by NYS DEC, and mitigate the issues associated with flood, fire, or other natural hazards.

Zoning Law Revised 2008: "Zoning Law Revised 2008: The Village of Granville has an adopted zoning ordinance that is used to promote the “public interest, health, comfort, convenience, safety, morals, order and public interest” of the Village residents. The Village is divided into the following districts:

1. Low Density Residential District
2. Village Density Residential District
3. Neighborhood Business District
4. Main Street Business District
5. Commercial Business District
6. Light Industrial District
7. Industrial District

Operational and Administration

DPW: DPW staff is trained and attends continuing professional education courses which supports natural hazard risk reduction.

Funding

Operating Budget: The Village operating budget contains provisions to perform street and sidewalk maintenance throughout the year including snow and ice removal on Village streets and sidewalks, street paving and repair, and capital projects on sidewalks and streetlights.

Grants: In 2013, the Village wrote for a NRCS grant to fund a mitigation project to restore the riverbank and protective berms near the Slate Valley Museum. The Village includes funding for grant writing services in its annual budget.

9.13.6 Mitigation Strategy and Prioritization

This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and prioritization.

Past Mitigation Initiative Status

The following table indicates progress on the community's mitigation strategy identified in the 2010 Plan. It should be noted that during the 2010 planning process, only general, countywide actions were identified for each municipality. The Village of Granville reviewed the previous actions and selected actions they chose to carry forward as part of this plan update. Previous actions that are now on-going programs and capabilities are indicated as such in the following table and may also be found under 'Capability Assessment' presented previously in this annex.

Table 9.13-11. Status of Previous Mitigation Actions

2010 Mitigation Action	Responsible Party	Status (In progress, No progress, Complete)	Describe Status	Next Step (Include in 2018 HMP or Discontinue)	Describe Next Step
Improve drainage at sites where roads have washed out due to natural hazards in the past	County and NYS DHSES	No Progress	Due to limited staff and funding, this action was not completed.	Discontinue	At the time of the plan update, this project is not a concern for the village. Therefore, it will not be included in this plan.
Purchase equipment to provide for local personnel to conduct the drainage improvement	County and NYS DHSES	No Progress	Due to limited staff and funding, this action was not completed.	Discontinue	At the time of the plan update, this project is not a concern for the village. Therefore, it will not be included in this plan.
Engineering assessment to determine feasibility of each site improvement	County and NYS DHSES	No Progress	Due to limited staff and funding, this action was not completed.	Discontinue	At the time of the plan update, this project is not a concern for the village. Therefore, it will not be included in this plan.
Improve dams to prevent flooding causing roads to wash out.	County and NYS DHSES	No Progress	Due to limited staff and funding, this action was not completed.	Discontinue	At the time of the plan update, this project is not a concern for the village. Therefore, it will not be included in this plan.
Improve identified sites where slope stability is subject to land subsidence and where excavation or planting could mitigate future damage.	County and NYS DHSES	Complete	Installed rip rap and willow plantings at well field and at Slate Valley museum	Discontinue	Project has been 100% complete

Completed Mitigation Initiatives Not Identified in the Previous Mitigation Strategy

The Village of Granville has identified the following mitigation projects/activities that have also been completed but were not identified in the previous mitigation strategy in the 2010 Plan:

- A J-hook was installed to prevent erosion at property along Factory Street.
- Flood walls were installed around critical equipment at the wastewater treatment plant
- Work in Mettawee River to mitigate exposure to public

Proposed Hazard Mitigation Initiatives for the Plan Update

The Village of Granville participated in a mitigation action workshop in September 2016 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).

Table 9.13-12 summarizes the comprehensive-range of specific mitigation initiatives the Village of Granville would like to pursue in the future to reduce the effects of hazards. Some of these initiatives may be previous actions carried forward for this plan update. These 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. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table below to further demonstrate the wide-range of activities and mitigation measures selected.

As discussed in Section 6, 14 evaluation/prioritization criteria are used 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 your actions as 'High', 'Medium', or 'Low.' The table below summarizes the evaluation of each mitigation initiative, listed by Action Number.

Table 9.13-13 provides a summary of the prioritization of all proposed mitigation initiatives for the Plan update.

Table 9.13-12. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
V. Granville-1	Lower parts of Slate Valley Museum property to expand flood area	New and Existing	Flood	1	Village DPW, property owner	High	High	Municipal Budget; FEMA HMA Grants (HMGP, FMA)	Short Term	Medium	SIP	PP
V. Granville-2	Remove section of Rathbun Avenue to expand flood area	New and Existing	Flood	1	Village DPW	High	High	Municipal Budget; FEMA HMA Grants (HMGP, FMA)	Short Term	Medium	SIP	PP
V. Granville-3	Enhance education and outreach program in the Village with respect to natural hazard risk management – more information seminars for public.	New and Existing	All	All	Village Board	High	Low	Municipal Budget	Short Term	High	EAP	PI
V. Granville-4	Review the Village's current Flood Damage Prevention Ordinance, and update as necessary to consider and address: • Compliance with the latest model Flood Damage Prevention Ordinances. To request the Model Flood Damage Prevention Law appropriate for your community, please contact the DEC Floodplain Management Section at 518-402-8185 or at floodplain.floodplain@dec.ny.gov. • Proper identification of the local NFIP Floodplain Administrator. • Reference current regulatory NFIP floodplain mapping, which is currently in an active update process (2016-2018).											
	See above	New	Flood	1	Village Board	High	Low	Operating Budget	Short Term	High	LPR	PR

Notes:

Not all acronyms and abbreviations defined below are included in the table.

**Does this mitigation initiative reduce the effects of hazards on new and/or existing buildings and/or infrastructure? Not applicable (N/A) is inserted if this does not apply.*

Acronyms and Abbreviations:

CAV	*Community Assistance Visit*
CRS	*Community Rating System*
DPW	*Department of Public Works*
FEMA	*Federal Emergency Management Agency*
FPA	*Floodplain Administrator*
HMA	*Hazard Mitigation Assistance*
N/A	*Not applicable*

Potential FEMA HMA Funding Sources:

FMA	*Flood Mitigation Assistance Grant Program*
HMGP	*Hazard Mitigation Grant Program*
PDM	*Pre-Disaster Mitigation Grant Program*
RFC	*Repetitive Flood Claims Grant Program (discontinued in 2015)*
SRL	*Severe Repetitive Loss Grant Program (discontinued in 2015)*

Timeline:

Short	*1 to 5 years*
Long Term	*5 years or greater*
OG	*On-going program*
DOF	*Depending on funding*

NFIP *National Flood Insurance Program*
OEM *Office of Emergency Management*

Costs:

Where actual project costs have been reasonably estimated:

Low *< $10,000*
Medium *$10,000 to $100,000*
High *> $100,000*

Where actual project costs cannot reasonably be established at this time:

Low *Possible to fund under existing budget. Project is part of, or can be part of an existing on-going program.*
Medium *Could budget for under existing work plan, but would require a reapportionment of the budget or a budget amendment, or the cost of the project would have to be spread over multiple years.*
High *Would require an increase in revenue via an alternative source (i.e., bonds, grants, fee increases) to implement. Existing funding levels are not adequate to cover the costs of the proposed project.*

Benefits:

Where possible, an estimate of project benefits (per FEMA's benefit calculation methodology) has been evaluated against the project costs, and is presented as:

Low= *< $10,000*
Medium *$10,000 to $100,000*
High *> $100,000*

Where numerical project benefits cannot reasonably be established at this time:

Low *Long-term benefits of the project are difficult to quantify in the short term.*
Medium *Project will have a long-term impact on the reduction of risk exposure to life and property, or project will provide an immediate reduction in the risk exposure to property.*
High *Project will have an immediate impact on the reduction of risk exposure to life and property.*

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*

Table 9.13-13. Summary of Prioritization of Actions

Mitigation Action/Project Number	Mitigation Action/Initiative	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
V. Granville-1	Lower parts of Slate Valley Museum property to expand flood area	1	1	1	1	0	0	0	1	1	1	0	0	0	0	7	Medium
V. Granville-2	Remove section of Rathbun Avenue to expand flood area	1	1	1	1	0	0	0	1	1	1	0	0	0	0	7	Medium
V. Granville-3	Enhance education and outreach program in the Village with respect to natural hazard risk management – more information seminars for public.	1	1	1	1	1	1	1	0	1	1	1	1	0	0	11	High
V. Granville-4	Review the Village's current Flood Damage Prevention Ordinance, and update as necessary	1	1	1	1	1	1	1	1	0	0	0	1	0	0	9	High

Note: Refer to Section 6, which conveys guidance on prioritizing mitigation actions.

9.13.7 Future Needs to Better Understand Risk/Vulnerability

None at this time.

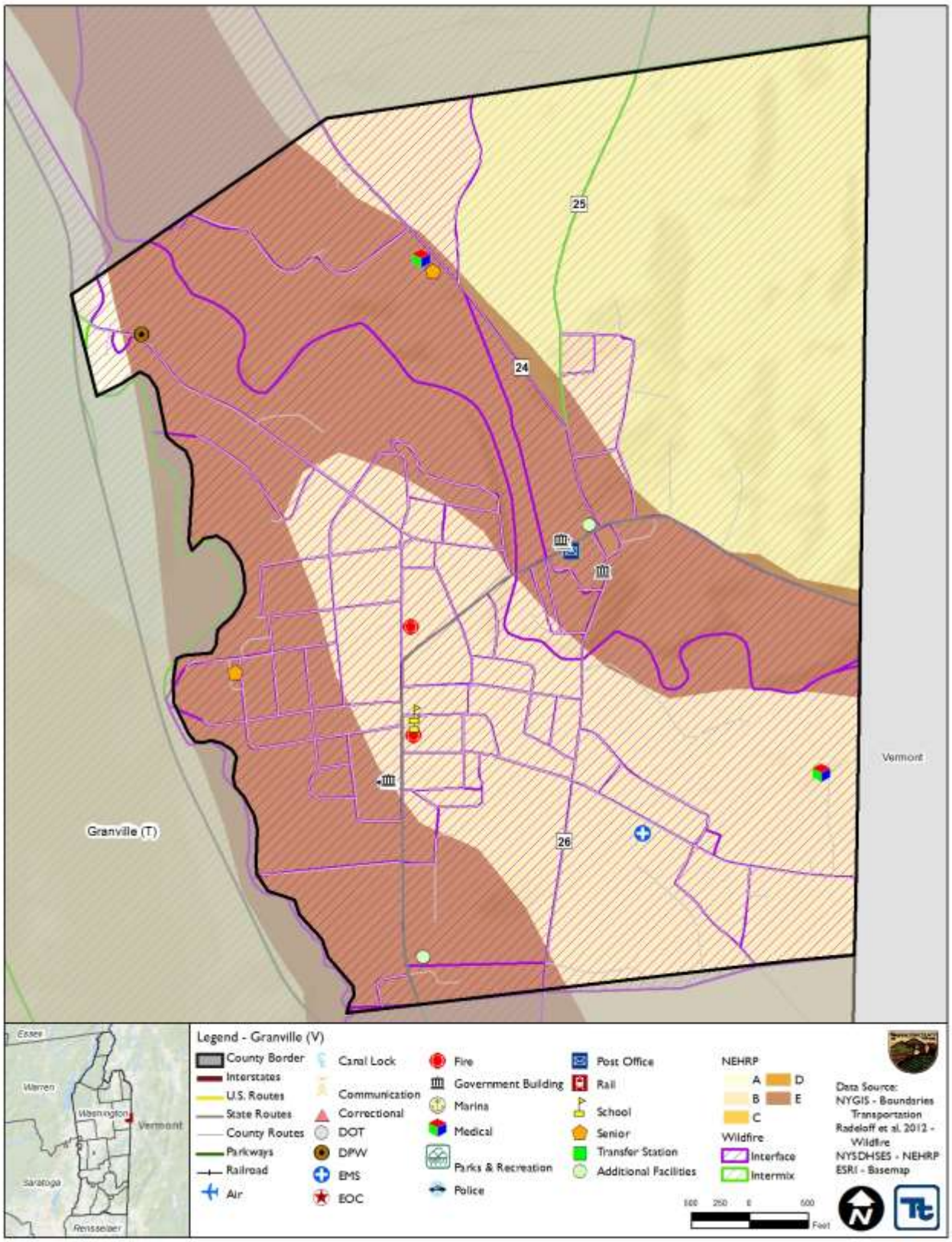
9.13.8 Hazard Area Extent and Location

Hazard area extent and location maps have been generated for the Village of Granville that illustrate the probable areas impacted within the municipality. These maps are based on the best available data at the time of the preparation of this plan, and are considered to be adequate for planning purposes. Maps have only been generated for those hazards that can be clearly identified using mapping techniques and technologies, and for which the Village of Granville has significant exposure. These maps are illustrated in the hazard profiles within Section 5.4, Volume I of this Plan.

9.13.9 Additional Comments

None at this time.

Figure 9.13-1. Village of Granville Hazard Area Extent and Location



Action Number: V. Granville -1

Mitigation Action Name: Lower parts of Slate Valley Museum property to expand flood area.

Assessing the Risk	
Hazard(s) addressed:	Flood
Specific problem being mitigated:	Flooding around the Slate Valley Museum.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Bring in fill to raise low lying areas of Slate Valley Museum property – likely to increase flooding elsewhere in floodplain.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Dredging of area around the Slate Valley Museum to create extra flood storage area.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	Goal 1: Protect Life and Property
Applies to existing and or new development, or not applicable	New and Existing
Benefits (losses avoided)	High
Estimated Cost	High
Priority*	Medium
Plan for Implementation	
Responsible Organization	Village DPW, property owner
Local Planning Mechanism	Hazard Mitigation
Potential Funding Sources	Municipal Budget; FEMA HMA Grants (HMGP, FMA)
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	No progress; new project

Action Number: V. Granville -1

Mitigation Action Name: Lower parts of Slate Valley Museum property to expand flood area

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Reduce the flooding impact to residents in the area of the lower parts of Slate Valley Museum
Property Protection	1	Reduce the flooding impact to the structures in the area of the lower parts of Slate Valley Museum
Cost-Effectiveness	1	
Technical	1	
Political	0	
Legal	0	
Fiscal	0	Need to obtain funding to complete action
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	0	
Timeline	0	
Agency Champion	0	
Other Community Objectives	0	
Total	7	
Priority (H/M/L)	Medium	

Action Number: V. Granville -2

Mitigation Action Name: Remove section of Rathbun Avenue to expand flood area.

Assessing the Risk	
Hazard(s) addressed:	Flood
Specific problem being mitigated:	Flooding along Rathbun Avenue.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Raise Rathburn Avenue in flooding areas – flooding likely to continue elsewhere.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Removal of section of Rathbun Avenue to increase stormwater infiltration and reduce flooding.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	Goal 1: Protect Life and Property
Applies to existing and or new development, or not applicable	New and Existing
Benefits (losses avoided)	High
Estimated Cost	High
Priority*	Medium
Plan for Implementation	
Responsible Organization	Village DPW
Local Planning Mechanism	Hazard Mitigation
Potential Funding Sources	Municipal Budget; FEMA HMA Grants (HMGP, FMA)
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	No progress; new project

Action Number: V. Granville -2

Mitigation Action Name: Remove section of Rathbun Avenue to expand flood area

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Reduce the flooding impact to residents in the area of Rathbun Avenue
Property Protection	1	Reduce the flooding impact to the structures in the area of Rathbun Avenue
Cost-Effectiveness	1	
Technical	1	
Political	0	
Legal	0	
Fiscal	0	Need to obtain funding to complete action
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	0	
Timeline	0	
Agency Champion	0	
Other Community Objectives	0	
Total	7	
Priority (H/M/L)	Medium	

Action Number: V. Granville -3

Mitigation Action Name: Enhance education and outreach program in the Village.

Assessing the Risk	
Hazard(s) addressed:	All
Specific problem being mitigated:	Current lack of public outreach.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Rely on outside groups to conduct public outreach – may not be sustainable or at high enough standards.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Enhance education and outreach program in the Village with respect to natural hazard risk management with more information seminars for public. Develop and disseminate educational materials to the public to increase awareness of natural hazard risk management.
Mitigation Action Type	Education and Awareness Programs (EAP)
Goals Met	Goal 1: Protect Life and Property Goal 2: Increase Public Awareness Goal 3: Encourage Partnerships Goal 4: Provide for Emergency Services 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.
Applies to existing and or new development, or not applicable	New and Existing
Benefits (losses avoided)	High
Estimated Cost	Low
Priority*	High
Plan for Implementation	
Responsible Organization	Village Board
Local Planning Mechanism	Hazard Mitigation
Potential Funding Sources	Municipal Budget
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	No progress; new project

Action Number: V. Granville -3

Mitigation Action Name: Enhance education and outreach program in the Village.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	
Fiscal	1	Municipal budget
Environmental	0	
Social	1	
Administrative	1	The Village has the administrative capability to complete this action
Multi-Hazard	1	All hazards
Timeline	1	To be completed in next five years
Agency Champion	0	
Other Community Objectives	0	
Total	11	
Priority (H/M/L)	High	

Action Number: V. Granville-4

Mitigation Action Name: Flood Damage Prevention Ordinance.

Assessing the Risk	
Hazard(s) addressed:	Flood
Specific problem being mitigated:	The Village's flood damage prevention ordinance is in need of an update and the Village needs to identify a floodplain administrator
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Exceed standards for Flood Damage Prevention Ordinance – not interested in exceeding at this time.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Review the Village's current Flood Damage Prevention Ordinance, and update as necessary to consider and address: • Compliance with the latest model Flood Damage Prevention Ordinances. To request the Model Flood Damage Prevention Law appropriate for your community, please contact the DEC Floodplain Management Section at 518-402-8185 or at floodplain.floodplain@dec.ny.gov. • Proper identification of the local National Flood Insurance Program (NFIP) Floodplain Administrator. Reference current regulatory NFIP floodplain mapping, which is currently in an active update process (2016-2018).
Mitigation Action Type	Local Plans and Regulations (LPR)
Goals Met	Goal 1: Protect Life and Property
Applies to existing and or new development, or not applicable	New
Benefits (losses avoided)	High
Estimated Cost	Low
Priority*	High
Plan for Implementation	
Responsible Organization	Village Board
Local Planning Mechanism	Hazard Mitigation, Floodplain Management
Potential Funding Sources	Municipal Budget
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	No progress; new project

Action Number: V. Granville-4
Mitigation Action Name: Flood Damage Prevention Ordinance.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	This action is technically feasible
Political	1	
Legal	1	
Fiscal	1	Municipal budget / staff time
Environmental	1	No known negative environmental impacts
Social	0	No known social impacts
Administrative	0	
Multi-Hazard	0	Flood
Timeline	1	
Agency Champion	0	
Other Community Objectives	0	
Total	9	
Priority (H/M/L)	High	

9.14 TOWN OF GREENWICH

This section presents the jurisdictional annex for the Town of Greenwich.

9.14.1 Hazard Mitigation Plan Point of Contact

The following individuals have been identified as the hazard mitigation plan's primary and alternate points of contact.

Primary Point of Contact	Alternate Point of Contact
Kellie Blake, Clerk to the Supervisor and Highway Superintendent 2 Academy Street, Greenwich, NY 518-692-7137 x103 bookkeeper@nycap.rr.com	Sara S. Idleman, Supervisor 2 Academy Street, Greenwich, NY 518-727-1269 idleman@nycap.rr.com

9.14.2 Municipal Profile

The Town of Greenwich is on the southwest border of Washington County, with the Hudson River defining the Town's western boundary with Saratoga County. The Village of Greenwich lies within the Town, sharing part of the south town line. The town has a total area of 44.4 square miles, 0.4 square miles of which is water. Significant waterways in the town include: Batten Kill, which defines the south town line; Cossayuna Lake, which lies mostly in the Town of Argyle but defines some of the Greenwich's north boundary; Hartshorn Brook, a tributary to Batten Kill; and Slocum Creek, a tributary to the Hudson River.

According to the 2010 Census, the Town's population was 4,942.

Growth/Development Trends

The following table summarizes recent residential/commercial development since 2010 to present and any known or anticipated major residential/commercial development and major infrastructure development that has been identified in the next five years within the municipality.

Table 9.14-1. Growth and Development

Property or Development Name	Type (e.g. Res., Comm.)	# of Units / Structures	Location (address and/or Parcel ID)	Known Hazard Zone(s)	Description/Status of Development
Recent Development from 2010 to present					
Tractor Supply Store	Commercial	One	1169 State Route 29	None	Finished
Capital Tractor	Commercial	One addition	1135 State Route 29	None	Finished
AutoZone	Commercial	New structure	1165 State Route 29	None	Finished
Fronhofer Tools	Industrial	New Structure	3329 State Route 29	None	Finished
Known or Anticipated Development in the Next Five (5) Years					
None Identified. Note: When the Town Zoning Law was adopted, Major Subdivisions require 300 foot of road frontage, which in most cases would mean a new road being built to Town specifications. Also, the Town limited the number of building permits per year to 5 in a new development.					

Note: Only location-specific hazard zones or vulnerabilities identified.

9.14.3 Natural Hazard Event History Specific to the Municipality

Washington County has a history of natural and non-natural hazard events as detailed in Volume I, Section 5.0 of this plan. 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. For the purpose of this plan update, events that have occurred in the County from 2008 to present were summarized to indicate the range and impact of hazard events in the community. Information regarding specific damages is included, if available, based on reference material or local sources. This information is presented in the table below. For details of these and additional events, refer to Volume I, Section 5.0 of this plan.

Table 9.14-2. Hazard Event History

Dates of Event	Event Type (FEMA Disaster Declaration if applicable)	Washington County Designated?	Summary of Damages/Losses
December 11-31, 2008	Severe Winter Storm DR-1827	Yes	Power outages were reported around Town, and the Town provided emergency preventive measures with sanding, salting and incidental tree removal. $76,380.04 total cost for all.
August 26-September 5, 2011	Hurricane/T.S. Irene DR-4020	Yes	The Town beach located on the Batten Kill on State Route 29 had considerable washout requiring debris removal. A culvert and shoulders on North Road washed out. A house on lower Academy Street reportedly had flooding issues. Town-incurred costs from the incident included: Debris Removal from Roads - $7,414.17 Beach cleanup and restoration - $15,472.30 Culvert repair - $1,006.99

Notes:
FEMA Federal Emergency Management Agency
DR Major Disaster Declaration (FEMA)

9.14.4 Hazard Vulnerabilities and Ranking

The hazard profiles in Section 5.0 of this plan have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes the hazard vulnerabilities and their ranking in the Town of Greenwich. For additional vulnerability information relevant to this jurisdiction, refer to Section 5.0.

Natural Hazard Risk/Vulnerability Risk Ranking

As discussed in Section 5.3 (Hazard Ranking), each participating town or village may have differing degrees of risk exposure and vulnerability compared to Washington County as a whole. Therefore, each municipality 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 Greenwich. Table 9.14-12 provides proposed mitigation initiatives for the high ranked hazards. The Town has identified specific mitigation initiatives for flood and severe storm, while the other high-ranked hazards are addressed through the town's ongoing capability of public education and outreach.

Table 9.14-3. Hazard Risk/Vulnerability Risk Ranking

Hazard type	Estimate of Potential Dollar Losses to Structures Vulnerable to the Hazard [a, c]	Probability of Occurrence	Risk Ranking Score (Probability x Impact)	Hazard Ranking [b]
Earthquake	100-Year GBS: $0	Occasional	28	Medium

Hazard type	Estimate of Potential Dollar Losses to Structures Vulnerable to the Hazard [a, c]	Probability of Occurrence	Risk Ranking Score (Probability x Impact)	Hazard Ranking [b]
	500-Year GBS: $8,059,506 2,500-Year GBS: $82,837,817			
Flood	Damage estimate not available.	Frequent	30	Medium
Severe Weather	100-Year MRP: $146,281 500-year MRP: $1,254,406 Annualized: $9,379	Frequent	48	High
Severe Winter Weather	1% GBS: $7,098,422 5% GBS: $35,492,108	Frequent	51	High
Wildfire	Estimated Value in the WUI Hazard Areas: $801,042,321	Frequent	48	High

Notes:

a. Building damage ratio estimates based on FEMA 386-2 (August 2001)

b. The valuation of general building stock and loss estimates was based on custom inventory for the municipality.
High = Total hazard priority risk ranking score of 31 and above
Medium = Total hazard priority risk ranking of 20-30+
Low = Total hazard risk ranking below 20

c. Loss estimates for the severe storm and severe winter storm hazards are structural values only and do not include the value of contents.

d Loss estimates for the flood and earthquake hazards represent both structure and contents.

e. The HAZUS-MH earthquake model results are reported by Census Tract.

f. Damage estimate for flood unavailable due to lack of digital floodplain data for Washington County.

National Flood Insurance Program (NFIP) Summary

The following table summarizes the NFIP statistics for the Town of Greenwich.

Table 9.14-4. NFIP Summary

Municipality	# Policies (1)	# Claims (Losses) (1)	Total Loss Payments (2)	# Rep. Loss Prop. (1)	# Severe Rep. Loss Prop. (1)
Greenwich, Town of	2	1	$3,745.00	0	0

Source: FEMA, 2016

Note (1) Policies, claims, repetitive loss and severe repetitive loss statistics provided by FEMA and are current as of April 30, 2016 and are summarized by Community Name. Please note the total number of repetitive loss properties excludes the severe repetitive loss properties. The number of claims represents claims closed by 4/30/2016.

Note (2) Total building and content losses from the claims file provided by FEMA Region 2.

Note (3) The policies inside and outside of the flood zones are unavailable due to lack of digital floodplain for Washington County.

Note (4) FEMA noted that where there is more than one entry for a property, there may be more than one policy in force or more than one GIS possibility.

Critical Facilities

At the time of this HMP Update, digitized flood maps for Washington County are unavailable. In order to provide some level of beneficial analysis, a desktop analysis was performed to identify critical facilities located within the floodplain (refer to Section 5.1 [Methodology and Tools] for details). The following table identifies critical facilities located within the municipality and their exposure, if any, to the possible floodplain. This information is a resource for the municipality to determine if flood mitigation actions are appropriate based on historical events and proximity of the facility to a water body. At the time of this 2018 HMP Update, the municipality did not identify any actions associated with these facilities.

The Town of Greenwich understands the limitation of the map data and once the updated maps are available, the municipality will work with Washington County to determine which critical facilities are located within the 1% and 0.2% annual chance flood zones. Once identified, the municipality will work with the property owners and develop mitigation actions for each of the critical facilities, ensuring they will be protected to the 500-year (or worst-case scenario) level.

Table 9.14-5. Potential Flood Losses to Critical Facilities

Name	Type	Potential Flood Exposure
Greenwich Family Health	Medical	X
Middle Falls Fire Department	Fire	X
Ondawa	Rail	X
Thomson	Rail	X
US Postal Service - Cossayuna	Post Office	X

Source: Washington County; NYS GIS Clearinghouse

Other Vulnerabilities Identified

The municipality has identified the following vulnerabilities within their community:

- Steep slopes are identified in the Town's Comprehensive Plan. Other vulnerable areas include the 1% flood zone near the Hudson and Battenkill Rivers.

9.14.5 Capability Assessment

This section identifies the following capabilities of the local jurisdiction:

- Planning and regulatory capability
- Administrative and technical capability
- Fiscal capability
- Community classification
- National Flood Insurance Program
- Integration of mitigation planning into existing and future planning mechanisms

Planning and Regulatory Capability

The table below summarizes the regulatory tools that are available to the Town of Greenwich.

Table 9.14-6. Planning and Regulatory Tools

Tool / Program (code, ordinance, plan)	Do you have this? (Yes/No) If Yes, date of adoption or update	Authority (local, county, state, federal)	Dept. /Agency Responsible	Code Citation and Comments (Code Chapter, name of plan, explanation of authority, etc.)
Planning Capability				
Master Plan	Yes	Local	Town Board	Comprehensive Plan Updated In 2002
Capital Improvements Plan	No	-	-	-
Floodplain Management / Basin Plan	Yes	Local	Code Enforcement Officer (CEO)	Flood Damage Plan LL# 1-1992
Stormwater Management Plan	Yes	Local	Planning/Zoning CEO	In Zoning Law

Tool / Program (code, ordinance, plan)	Do you have this? (Yes/No) If Yes, date of adoption or update	Authority (local, county, state, federal)	Dept. /Agency Responsible	Code Citation and Comments (Code Chapter, name of plan, explanation of authority, etc.)
Open Space Plan	Yes	Local	Planning, Zoning, CEO	In Zoning Law
Stream Corridor Management Plan	No	-	-	-
Watershed Management or Protection Plan	Partial	Local	Town Board	In Comprehensive Plan
Local Waterfront Revitalization Plan	No	-	-	-
Economic Development Plan	No	-	-	Economic development committee has been formed, as of 2016.
Comprehensive Emergency Management Plan	No	-	-	-
Emergency Operation Plan	Yes	Local	CEO	In Flood Damage Plan Chapter 122
Post-Disaster Recovery Plan	No	-	-	-
Transportation Plan	No	-	-	-
Strategic Recovery Planning Report	No	-	-	-
Other Plans:	No	-	-	-
Regulatory Capability				
Building Code	Yes	State & Local	Town CEO & County CEO	Building Code of New York State (NYS), Local Law #1
Zoning Ordinance	Yes	Local	Planning/Zoning	Local Law #1 Of 2007
Subdivision Ordinance	Yes	Local	Planning Board	Local Law #2 Of 1999
NFIP Flood Damage Prevention Ordinance	Yes	Federal, State, Local	CEO	Local Law #1-1992
NFIP: Cumulative Substantial Damages	Yes	State & Local	Town CEO & County CEO	Local Law #1-1992
NFIP: Freeboard	Yes	State, Local	CEO	State mandated BFE+2 for single and two-family residential construction, BFE+1 for all other construction types
NFIP: Cumulative Substantial Damages	No	-	-	-
Growth Management Ordinances	Yes	Local	CEO, Planning	In Zoning 5 House Max Build Per Year in New Subdivisions
Site Plan Review Requirements	Yes	Local	Planning	Site Plan Review Law
Stormwater Management Ordinance	Yes	Local	Planning	In Zoning Law
Municipal Separate Storm Sewer System (MS4)	No	-	-	-
Natural Hazard Ordinance	No	-	-	-
Post-Disaster Recovery Ordinance	No	-	-	-
Real Estate Disclosure Requirement	Yes	State	NYS Department of State, Real Estate Agent	NYS mandate, Property Condition Disclosure Act, NY Code - Article 14 §460-467

Tool / Program (code, ordinance, plan)	Do you have this? (Yes/No) If Yes, date of adoption or update	Authority (local, county, state, federal)	Dept. /Agency Responsible	Code Citation and Comments (Code Chapter, name of plan, explanation of authority, etc.)
Other (Special Purpose Ordinances [i.e., sensitive areas, steep slope])	No	-	-	-

Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the Town of Greenwich.

Table 9.14-7. Administrative and Technical Capabilities

Resources	Is this in place? (Yes or No)	Department/ Agency/Position
Administrative Capability		
Planning Board	Yes	Town Board
Mitigation Planning Committee	No	-
Environmental Board/Commission	No	-
Open Space Board/Committee	No	-
Economic Development Commission/Committee	Yes	Town Supervisor
Maintenance programs to reduce risk	No	-
Mutual aid agreements	Yes	Between Fire Departments
Technical/Staffing Capability		
Planner(s) or engineer(s) with knowledge of land development and land management practices	Yes	Town Board, Planning Board. No planner on staff, but the town has an on-call engineer.
Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Yes	There is an on-call engineer for the planning board for any issues we would like looked at prior to approving plans.
Planners or engineers with an understanding of natural hazards	Yes	There is an on-call engineer for the planning board for any issues we would like looked at prior to approving plans.
NFIP Floodplain Administrator (FPA)	Yes	Code Enforcement Officer
Surveyor(s)	No	-
Personnel skilled or trained in GIS and/or Hazards United States (HAZUS) – Multi-Hazards (MH) applications	No	Washington County has this capability
Scientist familiar with natural hazards	No	-
Emergency Manager	No	-
Grant writer(s)	Yes	On-call with Town Board
Staff with expertise or training in benefit/cost analysis	No	-
Professionals trained in conducting damage assessments	No	-

Fiscal Capability

The table below summarizes financial resources available to the Town of Greenwich.

Table 9.14-8. Fiscal Capabilities

Financial Resources	Accessible or Eligible to Use (Yes/No)
Community development Block Grants (CDBG, CDBG-DR)	Yes, unknown
Capital improvements project funding	Yes, Town Board
Authority to levy taxes for specific purposes	Yes, Town Board
User fees for water, sewer, gas or electric service	Yes, Lighting Districts in Place Now
Impact fees for homebuyers or developers of new development/homes	Yes, if town board approved, have lot and recreation fee for each new lot
Stormwater utility fee	Unknown
Incur debt through general obligation bonds	Yes, Town Board
Incur debt through special tax bonds	Yes, Town Board
Incur debt through private activity bonds	B.A.N.S, Town Board
Withhold public expenditures in hazard-prone areas	Not applicable
Other federal or state Funding Programs	Unknown
Open Space Acquisition funding programs	Unknown
Other	-

Community Classifications

The table below summarizes classifications for community program available to the Town of Greenwich.

Table 9.14-9. Community Classifications

Program	Do you have this? (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	9 (Greenwich TPFD) 4/4X (Greenwich FPSA) 9 (Cossayuna FPD)	2/17/17 (Greenwich TPFD) 11/23/15 (Greenwich FPSA) 7/29/16 (Cossayuna FPD)
NYSDEC Climate Smart Community	No	-	-
Storm Ready	No	-	-
Firewise	No	-	-
Disaster/safety programs in/for schools	No	-	-
Organizations with mitigation focus (advocacy group, non-government)	No	-	-
Public education program/outreach (through website, social media)	No	-	-
Public-Private Partnerships	No	-	-

Note:

N/A *Not applicable*

NP *Not participating*

- *Unavailable*

The classifications listed above relate to the community's ability to provide effective services to lessen its vulnerability to the hazards identified. These classifications can be viewed as a gauge of the community's capabilities in all phases of emergency management (preparedness, response, recovery and mitigation) and are

used as an underwriting parameter for determining the costs of various forms of insurance. The CRS class applies to flood insurance while the BCEGS and Public Protection classifications apply to standard property insurance. CRS classifications range on a scale of 1 to 10 with class 1 being the best possible classification, and class 10 representing no classification benefit. Firewise classifications include a higher classification when the subject property is located beyond 1000 feet of a creditable fire hydrant and is within 5 road miles of a recognized Fire Station.

Criteria for classification credits are outlined in the following documents:

- The Community Rating System Coordinators Manual
- The Building Code Effectiveness Grading Schedule website at https://www.isomitigation.com/bcegs/
- The ISO Mitigation online ISO's Public Protection website at https://www.isomitigation.com/ppc/
- The National Weather Service Storm Ready website at https://www.weather.gov/stormready/
- The National Firewise Communities website at https://www.nfpa.org/Public-Education/By-topic/Wildfire/Firewise-USA

Self-Assessment of Capability

The table below provides an approximate measure of the Town of Greenwich's capability to work in a hazard-mitigation capacity and/or effectively implement hazard mitigation strategies to reduce hazard vulnerabilities.

Table 9.14-10. Self-Assessment Capability for the Municipality

Area	Degree of Hazard Mitigation Capability		
	Limited (If limited, what are your obstacles?)	Moderate	High
Planning and regulatory capability	Limited staff	-	-
Administrative and technical capability	Limited staff	-	-
Fiscal capability	Limited funds	-	-
Community political capability	Limited staff	-	-
Community resiliency capability	Limited staff	-	-
Capability to integrate mitigation into municipal processes and activities	Limited staff	-	-

National Flood Insurance Program

NFIP Floodplain Administrator (FPA)

Dan O'Connor, Code Enforcement Officer

Flood Vulnerability Summary

The Town does not maintain lists/inventories of properties that have been flood damaged or make substantial damage estimates. The current FPA is not aware of any damages sustained in the Town from Floyd, Irene, or other events.

No Town residents have approached the FPA with interest in mitigation activities. The Town is unaware of any residents currently in the process of mitigation. Any mitigation underway is being funded by the town. The beach cleanup was conducted using FEMA/SEMO funding from Hurricane Irene.

Resources

The current FPA is the sole person assuming the responsibilities of floodplain administration for building permit review, but the Town planning board reviews all subdivisions development proposals during the site plan review and special use permits processes.

The primary responsibilities of the Village FPA/Town Supervisor are building permits review prior to submission to County Code Enforcement who completes site visit, inspections, etc. There are currently no education or outreach programs to the community regarding flood hazards/risk, and flood risk reduction through NFIP insurance, mitigation, etc.

The Town reports lack of funding and staff as the main barriers to running an effective floodplain management program. The FPA would consider attending continuing education and/or certification training on floodplain management if it were offered in the County for all local floodplain administrators.

Compliance History

According to the most recent FEMA Community Status Book Report, the Town of Greenwich is in good standing with the NFIP. However, information provided by NYS DHSES indicated that the Town has not had a compliance audit conducted.

Regulatory

The Town Flood Damage Prevention ordinance meets, but does not exceed the FEMA and State minimum requirements.

Other local ordinances, plans or programs (e.g. site plan review) that support floodplain management and meeting the NFIP requirements in the Town include planning board activities, site plan review, special use permits and subdivision process, as well as the variance process with the zoning board of appeals.

The FPA is unaware of whether the community has ever considered joining the Community Rating System (CRS) program to reduce flood insurance premiums for their insured, but would attend a CRS seminar if offered locally.

Integration of Hazard Mitigation into Existing and Future Planning Mechanisms

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 this planning effort, each community was surveyed to obtain a better understanding of their community's progress in plan integration. A summary is provided below. In addition, the community identified specific integration activities that will be incorporated into municipal procedures.

Planning

Land Use Planning: The Town of Greenwich has a Planning Board and Zoning Board of Appeals (ZBA) which review all applications for development and consider natural hazard risk areas in their review. The planning board and ZBA utilize flood plain maps, County GIS mapping, and an engineer on call if needed to guide their decisions with respect to natural hazard risk management. Town zoning and subdivision regulations, and site plan review process, requires developers to take additional actions to mitigate natural hazard risk. During the application process, for either subdivision, site plan review, special use permit or variance the Planning Board looks to see if any of the areas are in the floodplain or Federal & State wetlands and that they meet our required 100-foot Hudson and Battenkill River setbacks. The planning board also

preforms stormwater management functions during the permit review process, while the Code Enforcement Officer takes over during the building permit process.

Many development activities require additional levels of environmental review, specifically NYS SEQR and Federal NEPA requirements. The Town Board adopted a Right to Farm ordinance (Chapter 153) in 2007.

Town of Greenwich 2004 Comprehensive Plan: The plan sets forth goals and implementation strategies to guide the physical development of the Town. The 2004 Plan replaces the previous plans from 1989 and 1971. While the plan does not refer to a local or Countywide Hazard Mitigation Plan, it does include maps delineating Open Space, Prime Farmland, Steep Slopes, various soil types, and water resources, all of which are critical tools to identifying natural hazards within the community. The plan also contains specific recommendations necessary to implement land use goals, and potential funding sources for each strategy. Some of the recommendations include:

- Adopt the Town's first zoning ordinance
- Support local agricultural preservation and development initiatives, including purchase of development right programs.

The Town is currently speaking about updating the Comprehensive Plan shortly as it is in the process of updating its Zoning Law. During the update of the Comprehensive Plan, the Town will include a flood overly district. Additionally, the Town will integrate the risk assessment from the 2018 HMP Update and recommendations identified in the plan. This establishes resiliency as an overarching value of a community and provides the opportunity for the Town to continuously manage development in a way that does not lead to increased hazard vulnerability.

Regulatory and Enforcement

Code Enforcement: Washington County provides code enforcement duties and responsibilities to the Town of Greenwich.

Construction Codes, Uniform: The building codes are strictly enforced to make new and renovated buildings as prepared as possible for hazard related incidents. The Town complies with New York State Uniform Fire Prevention and Building Code (the Uniform Code) and the State Energy Conservation Construction Code (the Energy Code).

Flood Damage Prevention Plan, LL# 1-1992: This chapter promotes the public health, safety, and general welfare of residents and seeks to minimize public and private losses due to flood conditions. The chapter regulates development to promote flood resistant structures and controls the alteration of floodplains to prevent increased vulnerability.

Sewers: The Town abides by the County-wide Sanitary Code, which protects and regulates its sewage collection and treatment facilities as a matter of public health and environmental safety. It seeks to prohibit the introduction of stormwater, surface, or sub-surface waters into sanitary sewers and to control the quantity and quality of wastes in the sewage system.

Site Plan Review, Chapter 190, Article IV: The purpose of site plan review, which is the responsibility of the Town Planning Board, is to provide for the review and approval of development plans to ensure that land development occurs in harmony with surrounding uses, without adversely impacting neighboring parcels, property values, public facilities, infrastructure or the natural environment, including agricultural and open space resources.

Subdivision of Land, Chapter 167: Adopted by the Town Board of the Town of Greenwich 5-11-1999. The Town's Planning Board is tasked with reviewing subdivision proposals. The Planning Board pays special attention to ensure that developments meet the requirements of the stormwater management and erosion and sediment control provisions set by NYS DEC, and mitigate the issues associated natural hazards.

Zoning Chapter 190: The Town of Greenwich zoning code includes specific districts or standards pertaining to natural hazard mitigation, including the flood hazard area. Environmental design standards written into the zoning code deal with flood hazard areas, state-and federally- designated freshwater wetlands, stormwater management, and erosion and sediment control. The zoning code includes standards for growth, open space, and watershed or stream corridor management. The zoning map also shows the area of the Hudson River and Batten Kill Critical Environmental Area, which can help decision makers divert development away from sensitive and critical areas in the floodplain. As the zoning ordinance is updated, zoning regulations will incorporate hazard mitigation. This will promote development and redevelopment patterns (location, type, density) that are at less risk from known hazards. It will also help reduce potential for damages caused by negligent permitting or land use decisions.

Fiscal

Operating Budget: While the Town's operating budget does not include specific line items for mitigation projects/activities, it does contain a Highway Fund with minimal provisions for expected expenses like snow removal, brush and weeds cleanup, and bridge repair including infrastructure repair after a storm or natural disaster. The Town's capital fund covers facilities improvement and highway equipment. The Town also allots funding for contractual expenses related to environmental control which may reduce flood vulnerability, including weed harvesting and nutrient study/removal.

Grants: The Town contracts with a firm with experience in preparing grant applications for mitigation projects, as needed.

Education and Outreach

Outreach: The Town relies on the County MyEM App Reverse 911 System, a phone service to alert residents who have registered for the service of emergencies. The Town will work on development and implementing a multi-hazard public awareness program to increase knowledge of its residents. Additionally, the program will increase the usage of the County MyEM app. The Town will develop and handout educational materials to the public as well.

The Town is served by four fire departments - the Cossayuna Volunteer Fire Department, Greenwich Fire Department, Middle Falls Volunteer Fire Department, and Schuylerville Fire Department. As part of their services, the Cossayuna and middle Falls Fire Departments maintain Facebook pages which include real-time severe weather warnings and other safety messages.

Town staff does not currently get training or continuing professional education which supports natural hazard risk reduction, but notes that such training would be helpful for all parts of the permitting process. In the future, the local floodplain administrator will attend continuing education classes and training to ensure code enforcement and proper inspections are conducted. Additionally, the Town will send staff to county and state trainings as offered. Staff from various departments (such as public works and code enforcement) will also complete certification, as needed, with respect to hazard risk management in Benefit Cost Analysis (BCA), recovery planning, damage estimates, and debris management.

9.14.6 Mitigation Strategy and Prioritization

This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and prioritization.

Past Mitigation Initiative Status

The following table indicates progress on the community's mitigation strategy identified in the 2010 Plan. It should be noted that during the 2010 planning process, only general, countywide actions were identified for each municipality. The Town of Greenwich reviewed the previous actions and selected actions they chose to carry forward as part of this plan update. Previous actions that are now on-going programs and capabilities are indicated as such in the following table and may also be found under 'Capability Assessment' presented previously in this annex.

Table 9.14-11. Status of Previous Mitigation Actions

2010 Mitigation Action	Responsible Party	Status (In progress, No progress, Complete)	Describe Status	Next Step (Include in 2018 HMP or Discontinue)	Describe Next Step
Improve drainage at sites where roads have washed out due to natural hazards in the past	County and NYS DHSES	In Progress	Ongoing operational capability - replacing culverts as needed yearly after inspection.	Include in 2018 HMP	Replacing two major culverts
Purchase equipment to provide for local personnel to conduct the drainage improvement	County and NYS DHSES	No Progress	0 % complete.	Discontinue	The town will not purchase equipment for this item. It is more cost effective to rent or subcontract as this equipment isn't used in the day to day operations of the Town.
Engineering assessment to determine feasibility of each site improvement	County and NYS DHSES	In Progress	Ongoing operational capability - This year we have used the County Highway Engineer to help with two culvert replacements and a possible bridge replacement.	Discontinue	
Improve dams to prevent flooding causing roads to wash out.	County and NYS DHSES	No Progress	0% complete	Discontinue	Town of Greenwich does not own any dams
Improve identified sites where slope stability is subject to land subsidence and where excavation or planting could mitigate future damage.	County and NYS DHSES	No Progress	0% complete	Discontinue	Unaware of any such areas at this time.

Completed Mitigation Initiatives Not Identified in the Previous Mitigation Strategy

The Town of Greenwich has identified the following mitigation projects/activities that have also been completed but were not identified in the previous mitigation strategy in the 2010 Plan:

- None identified

Proposed Hazard Mitigation Initiatives for the Plan Update

The Town of Greenwich participated in a mitigation action workshop in September 2016 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).

Table 9.14-12 summarizes the comprehensive-range of specific mitigation initiatives the Town of Greenwich would like to pursue in the future to reduce the effects of hazards. Some of these initiatives may be previous actions carried forward for this plan update. These 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. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table below to further demonstrate the wide-range of activities and mitigation measures selected.

As discussed in Section 6, 14 evaluation/prioritization criteria are used 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 your actions as 'High', 'Medium', or 'Low.' The table below summarizes the evaluation of each mitigation initiative, listed by Action Number.

Table 9.14-13 provides a summary of the prioritization of all proposed mitigation initiatives for the Plan update.

Table 9.14-12. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
T. Greenwich-1 (previous action)	Upgrade and/or install culverts along East Road to improve drainage of roadway. Additionally, remove debris from existing culverts and ditches to improve water movement.	Existing	Flood, severe storm	1, 4	Town Public Works / Highway, with support from the County	Medium	Medium	FEMA (HMGP, FMA, PDM), Local Budget	Short	Medium	SIP	PP
T. Greenwich-2 (previous action)	Upgrade and/or install culverts along Black Horse Road to improve drainage of roadway. Additionally, remove debris from existing culverts and ditches to improve water movement.	Existing	Flood, severe storm	1, 4	Town Public Works / Highway, with support from the County	Medium	Medium	FEMA (HMGP, FMA, PDM), Local Budget	Short	Medium	SIP	PP
T. Greenwich-3 (previous action)	Upgrade and/or install culverts along Patterson Road to improve drainage of roadway. Additionally, remove debris from existing culverts and ditches to improve water movement.	Existing	Flood, severe storm	1, 4	Town Public Works / Highway, with support from the County	Medium	Medium	FEMA (HMGP, FMA, PDM), Local Budget	Short	Medium	SIP	PP

Notes:

Not all acronyms and abbreviations defined below are included in the table.

**Does this mitigation initiative reduce the effects of hazards on new and/or existing buildings and/or infrastructure? Not applicable (N/A) is inserted if this does not apply.*

Acronyms and Abbreviations:

CAV	*Community Assistance Visit*
CRS	*Community Rating System*
DPW	*Department of Public Works*
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*
PDM	*Pre-Disaster Mitigation Grant Program*
RFC	*Repetitive Flood Claims Grant Program (discontinued in 2015)*
SRL	*Severe Repetitive Loss Grant Program (discontinued in 2015)*

Timeline:

Short	*1 to 5 years*
Long Term	*5 years or greater*
OG	*On-going program*
DOF	*Depending on funding*

Costs:

Where actual project costs have been reasonably estimated:

Low	*< $10,000*
Medium	*$10,000 to $100,000*

Benefits:

Where possible, an estimate of project benefits (per FEMA's benefit calculation methodology) has been evaluated against the project costs, and is presented as:

Low=	*< $10,000*

Costs:

High *> $100,000*

Where actual project costs cannot reasonably be established at this time:

Low *Possible to fund under existing budget. Project is part of, or can be part of an existing on-going program.*

Medium *Could budget for under existing work plan, but would require a reapportionment of the budget or a budget amendment, or the cost of the project would have to be spread over multiple years.*

High *Would require an increase in revenue via an alternative source (i.e., bonds, grants, fee increases) to implement. Existing funding levels are not adequate to cover the costs of the proposed project.*

Benefits:

Medium *$10,000 to $100,000*

High *> $100,000*

Where numerical project benefits cannot reasonably be established at this time:

Low *Long-term benefits of the project are difficult to quantify in the short term.*

Medium *Project will have a long-term impact on the reduction of risk exposure to life and property, or project will provide an immediate reduction in the risk exposure to property.*

High *Project will have an immediate impact on the reduction of risk exposure to life and property.*

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*

Table 9.14-13. Summary of Prioritization of Actions

Mitigation Action / Project Number	Mitigation Action/Initiative	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
T. Greenwich-1 (previous action)	Upgrade and/or install culverts along East Road to improve drainage of roadway. Additionally, remove debris from existing culverts and ditches to improve water movement.	1	0	1	1	0	1	0	0	0	1	1	1	0	0	7	Medium
T. Greenwich-2 (previous action)	Upgrade and/or install culverts along Black Horse Road to improve drainage of roadway. Additionally, remove debris from existing culverts and ditches to improve water movement.	1	0	1	1	0	1	0	0	0	1	1	1	0	0	7	Medium
T. Greenwich-3 (previous action)	Upgrade and/or install culverts along Patterson Road to improve drainage of roadway. Additionally, remove debris from existing culverts and ditches to improve water movement.	1	0	1	1	0	1	0	0	0	1	1	1	0	0	7	Medium

Note: Refer to Section 6, which conveys guidance on prioritizing mitigation actions.

9.14.7 Future Needs to Better Understand Risk/Vulnerability

None at this time.

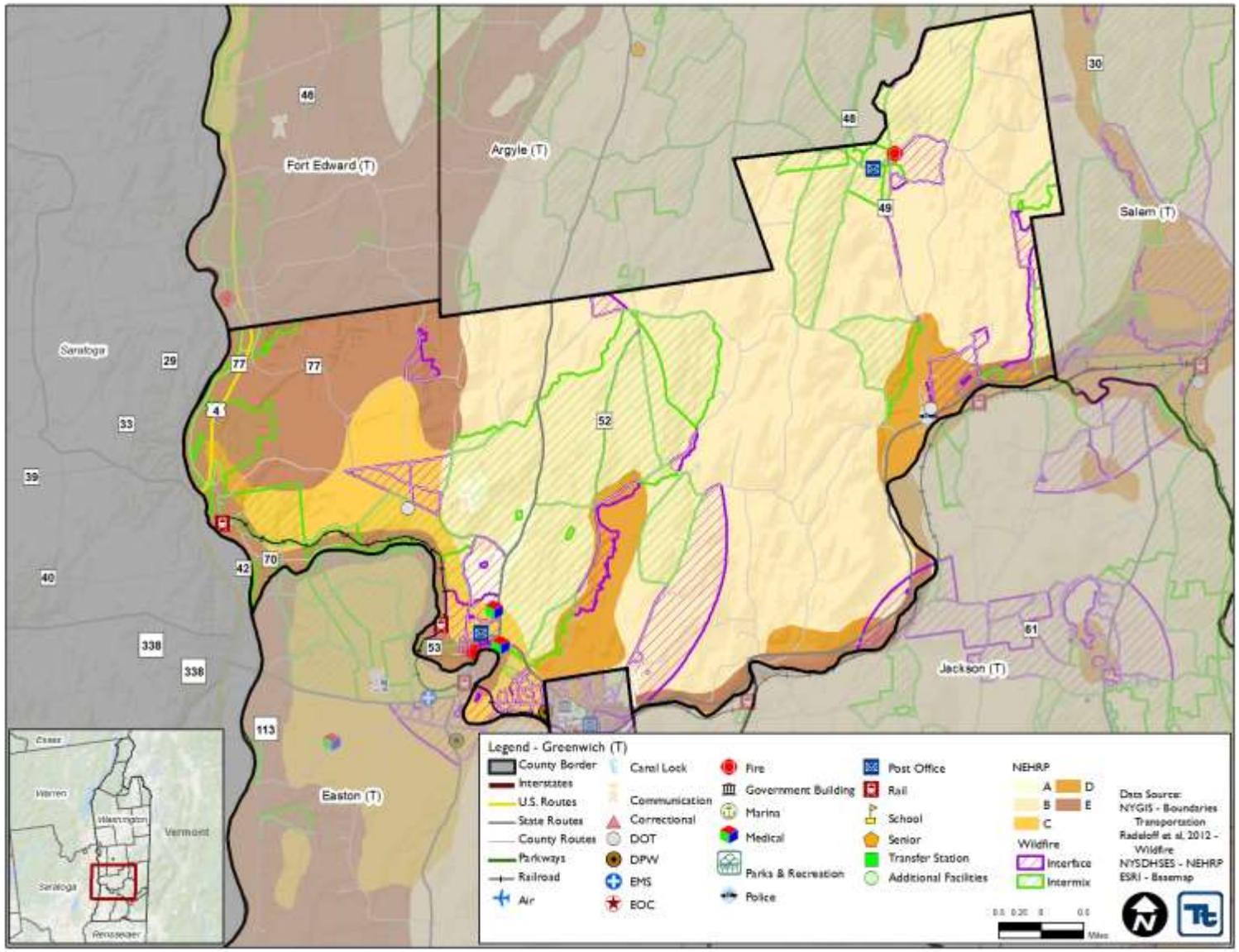
9.14.8 Hazard Area Extent and Location

Hazard area extent and location maps have been generated for the Town of Greenwich that illustrate the probable areas impacted within the municipality. These maps are based on the best available data at the time of the preparation of this plan, and are considered to be adequate for planning purposes. Maps have only been generated for those hazards that can be clearly identified using mapping techniques and technologies, and for which the Town of Greenwich has significant exposure. These maps are illustrated in the hazard profiles within Section 5.4, Volume I of this Plan.

9.14.9 Additional Comments

None at this time.

Figure 9.14-1. Town of Greenwich Hazard Area Extent and Location



Action Number: T. Greenwich - 1

Mitigation Action Name: Upgrade and install culverts along East Road

Assessing the Risk	
Hazard(s) addressed:	Flood, severe storm
Specific problem being mitigated:	Past hazard events have washed out East Road.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Relocate roadways where washout has occurred – not feasible. Elevate roadways – costly.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Upgrade and install culverts along East Road to improve drainage of roadway. Additionally, remove debris from existing culverts and ditches to improve water movement.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	Goal 1: Protect Life and Property Goal 4: Provide for Emergency Services
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	Medium
Estimated Cost	Medium
Priority*	Medium
Plan for Implementation	
Responsible Organization	Town Public Works / Highway, with support from the County
Local Planning Mechanism	Hazard Mitigation, Capital Improvement
Potential Funding Sources	FEMA (HMGP, FMA, PDM), County, Local Budget
Timeline for Completion	Short
Reporting on Progress	
Date of Status Report/ Report of Progress	No progress; new project

Action Number: T. Greenwich - 1

Mitigation Action Name: Upgrade and install culverts along East Road.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	0	
Cost-Effectiveness	1	
Technical	1	This action is technically feasible
Political	0	
Legal	1	
Fiscal	0	Municipal budget / staff time
Environmental	0	No known environmental impacts
Social	0	No known social impacts
Administrative	1	The Town has the administrative capabilities to implement this action
Multi-Hazard	1	
Timeline	1	
Agency Champion	0	
Other Community Objectives	0	
Total	7	
Priority (H/M/L)	Medium	

Action Number: T. Greenwich - 2

Mitigation Action Name: Upgrade and install culverts along Black Horse Road.

Assessing the Risk	
Hazard(s) addressed:	Flood, severe storm
Specific problem being mitigated:	Past hazard events have led to multiple washouts along Black Horse Road. This area of road has undersized culverts which leads to water on the road and erosion along the slopes of the roadway.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Relocate roadways where washout has occurred – not feasible. Elevate roadways – costly.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Upgrade and install culverts along Black Horse Road to improve drainage of roadway. Additionally, remove debris from existing culverts and ditches to improve water movement.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	Goal 1: Protect Life and Property Goal 4: Provide for Emergency Services
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	Medium
Estimated Cost	Medium
Priority*	Medium
Plan for Implementation	
Responsible Organization	Town Public Works / Highway, with support from the County
Local Planning Mechanism	Hazard Mitigation, Capital Improvement
Potential Funding Sources	FEMA (HMGP, FMA, PDM), County, Local Budget
Timeline for Completion	Short
Reporting on Progress	
Date of Status Report/ Report of Progress	No progress; new project

Action Number: T. Greenwich - 2

Mitigation Action Name: Upgrade and install culverts along Black Horse Road.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	0	
Cost-Effectiveness	1	
Technical	1	This action is technically feasible
Political	0	
Legal	1	
Fiscal	0	Municipal budget / staff time
Environmental	0	No known environmental impacts
Social	0	No known social impacts
Administrative	1	The Town has the administrative capabilities to implement this action
Multi-Hazard	1	
Timeline	1	
Agency Champion	0	
Other Community Objectives	0	
Total	7	
Priority (H/M/L)	Medium	

Action Number: T. Greenwich - 3

Mitigation Action Name: Upgrade and install culverts along Patterson Road.

Assessing the Risk	
Hazard(s) addressed:	Flood, severe storm
Specific problem being mitigated:	Past hazard events have washed out Patterson Road.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Relocate roadways where washout has occurred – not feasible. Elevate roadways – costly.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Upgrade and install culverts along Patterson Road to improve drainage of roadway. Additionally, remove debris from existing culverts and ditches to improve water movement.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	Goal 1: Protect Life and Property Goal 4: Provide for Emergency Services
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	Medium
Estimated Cost	Medium
Priority*	Medium
Plan for Implementation	
Responsible Organization	Town Public Works / Highway, with support from the County
Local Planning Mechanism	Hazard Mitigation, Capital Improvement
Potential Funding Sources	FEMA (HMGP, FMA, PDM), County, Local Budget
Timeline for Completion	Short
Reporting on Progress	
Date of Status Report/ Report of Progress	No progress; new project

Action Number: T. Greenwich - 3

Mitigation Action Name: Upgrade and/or install culverts along Patterson Road

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	0	
Cost-Effectiveness	1	
Technical	1	This action is technically feasible
Political	0	
Legal	1	
Fiscal	0	Municipal budget / staff time
Environmental	0	No known environmental impacts
Social	0	No known social impacts
Administrative	1	The Town has the administrative capabilities to implement this action
Multi-Hazard	1	
Timeline	1	
Agency Champion	0	
Other Community Objectives	0	
Total	7	
Priority (H/M/L)	Medium	

9.15 VILLAGE OF GREENWICH

This section presents the jurisdictional annex for the Village of Greenwich.

9.15.1 Hazard Mitigation Plan Point of Contact

The following individuals have been identified as the hazard mitigation plan's primary and alternate points of contact.

Primary Point of Contact	Alternate Point of Contact
Pam Fuller, Mayor 6 Academy Street, Greenwich, New York 518-361-7220 mayor@villageofgreenwich.org	Kyle Vandewater, Trustee 6 Academy Street, Greenwich, New York 518-692-2755 trusteevandewater@villageofgreenwich.org

9.15.2 Municipal Profile

The Village of Greenwich is located in southwest Washington County. It is developed on both sides of the Battenkill River and is served by State Route 29. According to the 2010 Census, the Village's population was 1,777.

Growth/Development Trends

The Village of Greenwich did not note any recent residential/commercial development since 2010 or any major residential or commercial development, or major infrastructure development planned for the next five years in the municipality.

1 paper mill that has been out of operation – in the process of taking it by eminent domain through EPA (program that lets them start the progress) – seeing how much cleanup needs to be done; get grants to clean it up; clean up the site. But this could be longer than five years; just began the process

Table 9.15-1. Growth and Development

Property or Development Name	Type (e.g. Res., Comm.)	# of Units / Structures	Location (address and/or Parcel ID)	Known Hazard Zone(s)	Description/Status of Development
Recent Development from 2010 to present					
None identified					
Known or Anticipated Development in the Next Five (5) Years					
None identified					

Note: Only location-specific hazard zones or vulnerabilities identified.

9.15.3 Natural Hazard Event History Specific to the Municipality

Washington County has a history of natural and non-natural hazard events as detailed in Volume I, Section 5.0 of this plan. 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. For the purpose of this plan update, events that have occurred in the County from 2008 to present were summarized to indicate the range and impact of hazard events in the community. Information regarding specific damages is included, if available, based on reference material or local sources. This information is presented in the table below. For details of these and additional events, refer to Volume I, Section 5.0 of this plan.

Table 9.15-2. Hazard Event History

Dates of Event	Event Type (FEMA Disaster Declaration if applicable)	Washington County Designated?	Summary of Damages/Losses
None identified			

Notes:
EM *Emergency Declaration (FEMA)*
FEMA *Federal Emergency Management Agency*
DR *Major Disaster Declaration (FEMA)*

9.15.4 Hazard Vulnerabilities and Ranking

The hazard profiles in Section 5.0 of this plan have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes the hazard vulnerabilities and their ranking in the Village of Greenwich. For additional vulnerability information relevant to this jurisdiction, refer to Section 5.0.

Natural Hazard Risk/Vulnerability Risk Ranking

As discussed in Section 5.3 (Hazard Ranking), each participating town or village may have differing degrees of risk exposure and vulnerability compared to Washington County as a whole. Therefore, each municipality 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 Greenwich. It should be noted that the Village chose to adjust the hazard ranking for all hazards of concern. Table 9.15-12 provides proposed mitigation initiatives for the high ranked hazards.

Table 9.15-3. Hazard Risk/Vulnerability Risk Ranking

Hazard type	Estimate of Potential Dollar Losses to Structures Vulnerable to the Hazard [a, c]	Probability of Occurrence	Risk Ranking Score (Probability x Impact)	Hazard Ranking [b]
Earthquake	100-Year GBS: $0 500-Year GBS: $8,059,506 2,500-Year GBS: $82,837,817	Occasional	28	Low*
Flood	Damage estimate not available.	Frequent	36	Low*
Severe Weather	100-Year MRP: $51,076 500-year MRP: $1,525,789 Annualized: $8,449	Frequent	48	Medium*
Severe Winter Weather	1% GBS: $9,580,060 5% GBS: $47,900,301	Frequent	51	Medium*
Wildfire	Estimated Value in the WUI Hazard Areas: $1,497,316,056	Frequent	48	Low*

Notes:
* *The hazard rankings were adjusted by the Village*
a. *Building damage ratio estimates based on FEMA 386-2 (August 2001)*
b. *The valuation of general building stock and loss estimates was based on custom inventory for the municipality.*
High = Total hazard priority risk ranking score of 31 and above
Medium = Total hazard priority risk ranking of 20-30+
Low = Total hazard risk ranking below 20
c. *Loss estimates for the severe storm and severe winter storm hazards are structural values only and do not include the value of contents.*

d *Loss estimates for the flood and earthquake hazards represent both structure and contents.*
e. *The HAZUS-MH earthquake model results are reported by Census Tract.*
f. *Damage estimate for flood unavailable due to lack of digital floodplain data for Washington County.*

National Flood Insurance Program (NFIP) Summary

The following table summarizes the NFIP statistics for the Village of Greenwich.

Table 9.15-4. NFIP Summary

Municipality	# Policies (1)	# Claims (Losses) (1)	Total Loss Payments (2)	# Rep. Loss Prop. (1)	Severe Rep. Loss Prop. (1)
Greenwich (V)	10	1	$7,633	0	0

Source: *FEMA, 2016*
Note (1) *Policies, claims, repetitive loss and severe repetitive loss statistics provided by FEMA and are current as of April 30, 2016 and are summarized by Community Name. Please note the total number of repetitive loss properties excludes the severe repetitive loss properties. The number of claims represents claims closed by 4/30/2016.*
Note (2) *Total building and content losses from the claims file provided by FEMA Region 2.*
Note (3) *The policies inside and outside of the flood zones are unavailable due to lack of digital floodplain for Washington County.*
Note (4) *FEMA noted that where there is more than one entry for a property, there may be more than one policy in force or more than one GIS possibility.*

Critical Facilities

At the time of this HMP Update, digitized flood maps for Washington County are unavailable. In order to provide some level of beneficial analysis, a desktop analysis was performed to identify critical facilities located within the floodplain (refer to Section 5.1 [Methodology and Tools] for details). The following table identifies critical facilities located within the municipality and their exposure, if any, to the possible floodplain. This information is a resource for the municipality to determine if flood mitigation actions are appropriate based on historical events and proximity of the facility to a water body. At the time of this 2018 HMP Update, the municipality did not identify any actions associated with these facilities.

The Village of Greenwich understands the limitation of the map data and once the updated maps are available, the municipality will work with Washington County to determine which critical facilities are located within the 1% and 0.2% annual chance flood zones. Once identified, the municipality will work with the property owners and develop mitigation actions for each of the critical facilities, ensuring they will be protected to the 500-year (or worst-case scenario) level.

Table 9.15-5. Potential Flood Losses to Critical Facilities

Name	Type	Potential Flood Exposure
Greenwich	Rail	X
Greenwich Junior/Senior High School	School	X
Greenwich Elementary School	School	X
US Postal Service - Greenwich	Post Office	X

Source: *Washington County; NYS GIS Clearinghouse*

Other Vulnerabilities Identified

The municipality has identified the following vulnerabilities within their community:

- Battenkill Dam at County Route 53 in the Village of Greenwich
- Village water main runs through the bridge wingwalls and directly on the creek bottom where CR 74 crosses Fly Creek and Marshall Brook

9.15.5 Capability Assessment

This section identifies the following capabilities of the local jurisdiction:

- Planning and regulatory capability
- Administrative and technical capability
- Fiscal capability
- Community classification
- National Flood Insurance Program
- Integration of mitigation planning into existing and future planning mechanisms

Planning and Regulatory Capability

The table below summarizes the regulatory tools that are available to the Village of Greenwich.

Table 9.15-6. Planning and Regulatory Tools

Tool / Program (code, ordinance, plan)	Do you have this? (Yes/No) If Yes, date of adoption or update	Authority (local, county, state, federal)	Dept. /Agency Responsible	Code Citation and Comments (Code Chapter, name of plan, explanation of authority, etc.)
Planning Capability				
Master Plan	No	-	-	-
Capital Improvements Plan	Yes	Local	Village Trustee	Not a formal plan For highway department – 5-year and 10-year plans Water system with the Health Department – need more capacity out of the source – may need to drill new well; upgrade the water mains
Floodplain Management / Basin Plan	No	-	-	Minimal floodplain given the topography and the way the Village is built out
Stormwater Management Plan	No	-	-	Closed storm drains throughout the village; four outfalls have been closed; don't qualify for the NYSDEC MS4
Open Space Plan	No	-	-	-
Stream Corridor Management Plan	No	-	-	-
Watershed Management or Protection Plan	No	-	-	-
Local Waterfront Revitalization Plan	No	-	-	-
Economic Development Plan	No	-	-	-
Comprehensive Emergency Management Plan	No	-	-	-
Emergency Response/Operations Plan	No	-	-	-
Post-Disaster Recovery Plan	No	-	-	-
Transportation Plan	No	-	-	-
Strategic Recovery Planning Report	No	-	-	-
Other Plans:	No	-	-	-
Regulatory Capability				

Tool / Program (code, ordinance, plan)	Do you have this? (Yes/No) If Yes, date of adoption or update	Authority (local, county, state, federal)	Dept. /Agency Responsible	Code Citation and Comments (Code Chapter, name of plan, explanation of authority, etc.)
Building Code	Yes	State, County	Code Enforcement (county)	New York State Uniform Fire Prevention and Building Code and State Energy Conservation Construction Code
Zoning Ordinance	Yes	Local	Zoning	Zoning Law – Village of Greenwich
Subdivision Ordinance	Yes	Local	Zoning	Zoning Law – Village of Greenwich
NFIP Flood Damage Prevention Ordinance	No	Local	Code Enforcement Officer	Not a locally drafted ordinance
NFIP: Freeboard	Yes	State, Local	Code Enforcement Officer	State mandated BFE+2 for single and two-family residential construction, BFE+1 for all other construction types
NFIP: Cumulative Substantial Damages	No	-	-	-
Growth Management Ordinances	No	-	-	-
Site Plan Review Requirements	No	-	-	-
Stormwater Management Ordinance	No	-	-	-
Municipal Separate Storm Sewer System (MS4)	No	-	-	-
Natural Hazard Ordinance	No	-	-	-
Post-Disaster Recovery Ordinance	No	-	-	-
Real Estate Disclosure Requirement	Yes	State	NYS Department of State, Real Estate Agent	NYS mandate, Property Condition Disclosure Act, NY Code - Article 14 §460-467
Other (Special Purpose Ordinances [i.e., sensitive areas, steep slope])	Yes	Local	Village	Nuisance Law – Local Law No. 1 of 2006

Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the Village of Greenwich.

Table 9.15-7. Administrative and Technical Capabilities

Resources	Is this in place? (Yes or No)	Department/ Agency/Position
Administrative Capability		
Planning Board	No	-
Mitigation Planning Committee	Yes	Village Trustees
Environmental Board/Commission	No	-
Open Space Board/Committee	No	-
Economic Development Commission/Committee	No	-
Maintenance programs to reduce risk	No	-
Mutual aid agreements	No	-
Technical/Staffing Capability		

Resources	Is this in place? (Yes or No)	Department/ Agency/Position
Planner(s) or engineer(s) with knowledge of land development and land management practices	Yes	Engineer consultant
Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Yes	Engineer consultant
Planners or engineers with an understanding of natural hazards	Yes	Engineer consultant
NFIP Floodplain Administrator (FPA)	Yes	Code Enforcement Officer
Surveyor(s)	No	-
Personnel skilled or trained in GIS and/or Hazards United States (HAZUS) – Multi-Hazards (MH) applications	No	-
Scientist familiar with natural hazards	No	-
Emergency Manager	No	-
Grant writer(s)	No	-
Staff with expertise or training in benefit/cost analysis	No	-
Professionals trained in conducting damage assessments	No	-

Fiscal Capability

The table below summarizes financial resources available to the Village of Greenwich.

Table 9.15-8. Fiscal Capabilities

Financial Resources	Accessible or Eligible to Use (Yes/No)
Community Development Block Grants (CDBG, CDBG-DR)	Yes – have on underway right now; private citizen applied for it but the Village had to be the sponsor; Main Street development grant
Capital improvements project funding	Yes – grant in the works to upgrade all the Village's water meters; replacing fire equipment
Authority to levy taxes for specific purposes	Yes
User fees for water, sewer, gas or electric service	Yes – water and 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	No
Incur debt through private activity bonds	No
Withhold public expenditures in hazard-prone areas	No
Other federal or state funding programs	Yes – EPA grant for the paper mill property; looking at a transportation grant for streetscape (NYSDOT)
Open Space Acquisition funding programs	No
Other	No

Community Classifications

The table below summarizes classifications for community program available to the Village of Greenwich.

Table 9.15-9. Community Classifications

Program	Do you have this? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Community Rating System (CRS)	No	NP	N/A
Building Code Effectiveness Grading Schedule (BCEGS)	No	NP	N/A
Public Protection (ISO Fire Protection Classes 1 to 10)	Yes	9 (Greenwich TPFD) 4/4X (Greenwich FPSA)	2/17/17 (Greenwich TPFD) 11/23/15 (Greenwich FPSA)
Storm Ready	No	NP	N/A
Firewise	No	NP	N/A
NYSDEC Climate Smart Community	No	NP	N/A
Disaster/safety programs in/for schools	Yes	Fire prevention programs for students	N/A
Organizations with mitigation focus (advocacy group, non-government)	No	N/A	N/A
Public education program/outreach (through website, social media)	Yes	Municipal website	N/A
Public-Private Partnerships	No	N/A	N/A

Note:
N/A *Not applicable*
NP *Not participating*
- *Unavailable*

The classifications listed above relate to the community's ability to provide effective services to lessen its vulnerability to the hazards identified. These classifications can be viewed as a gauge of the community's capabilities in all phases of emergency management (preparedness, response, recovery and mitigation) and are used as an underwriting parameter for determining the costs of various forms of insurance. The CRS class applies to flood insurance while the BCEGS and Public Protection classifications apply to standard property insurance. CRS classifications range on a scale of 1 to 10 with class 1 being the best possible classification, and class 10 representing no classification benefit. Firewise classifications include a higher classification when the subject property is located beyond 1000 feet of a creditable fire hydrant and is within 5 road miles of a recognized Fire Station.

Criteria for classification credits are outlined in the following documents:

- The Community Rating System Coordinators Manual
- The Building Code Effectiveness Grading Schedule website at https://www.isomitigation.com/bcegs/
- The ISO Mitigation online ISO's Public Protection website at https://www.isomitigation.com/ppc/
- The National Weather Service Storm Ready website at https://www.weather.gov/stormready/
- The National Firewise Communities website at https://www.nfpa.org/Public-Education/By-topic/Wildfire/Firewise-USA

Self-Assessment of Capability

The table below provides an approximate measure of the Village of Greenwich's capability to work in a hazard-mitigation capacity and/or effectively implement hazard mitigation strategies to reduce hazard vulnerabilities.

Table 9.15-10. Self-Assessment Capability for the Municipality

	Degree of Hazard Mitigation Capability

Area	Limited (If limited, what are your obstacles?)	Moderate	High
Planning and regulatory capability	X – due to funding and staff; Village population is small		
Administrative and technical capability	X – due to funding and staff; Village population is small		
Fiscal capability	X – due to funding and staff; Village population is small		
Community political capability	X – due to funding and staff; Village population is small		
Community resiliency capability	X – due to funding and staff; Village population is small		
Capability to integrate mitigation into municipal processes and activities	X – due to funding and staff; Village population is small		

National Flood Insurance Program

NFIP Floodplain Administrator (FPA)

According to information provided by NYS DEC, the Code Enforcement Officer is the floodplain administrator for the Village of Greenwich.

Flood Vulnerability Summary

A majority of the Village is located outside of the floodplain. Those areas within the floodplain are concentrated along the Batten Kill and Fly Creek and have minimal development. The Village does not maintain lists or inventories of properties that have been flood damaged.

Resources

While the NYS DEC indicates that the Code Enforcement Officer is the FPA, the Village's code enforcement is performed by Washington County. The County does not assume any floodplain administration tasks for municipalities. The Village Board reviews building permits prior to submission to County Code Enforcement who completes site visits and inspections. There are currently no education or outreach programs to the community regarding flood hazards/risk, or flood risk reduction through NFIP insurance, mitigation, etc.

Compliance History

According to the most recent FEMA Community Status Book Report, the Village of Greenwich is in good standing with the NFIP. However, based on information provided by NYS DHSES, the Village has not had a compliance audit conducted.

Regulatory

According to the mayor, the Village does not have a locally drafted ordinance regarding floodplain administration. This has been identified as a mitigation action for the Village.

Integration of Hazard Mitigation into Existing and Future Planning Mechanisms

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 this planning effort, each community was surveyed to obtain a better understanding of their community's progress in plan integration. A summary is provided below. In addition, the community identified specific integration activities that will be incorporated into municipal procedures.

Planning

Land Use Planning: The Village of Greenwich has a Planning Board and Zoning Board of Appeals which review all applications for development and consider natural hazard risk areas in their review. Many development activities require additional levels of environmental review, specifically NYS Environmental Quality Review Act (SEQR) and Federal National Environmental Policy Act (NEPA) requirements. Existing land use maps are available.

Vision Plan: The Village of Greenwich has a Vision Plan, developed in 2009, which is comprised of a Vision Statement, Goals and Action Strategies, and a Strategic Areas diagram that illustrates how the vision can guide redevelopment within the Village. Relevant strategies include:

- Consider the temporary use and improvement of vacant Riverfront related land for seating, gathering and overlook areas to increase visual access.
- Review, update and enforce village codes that address building and site condition and appearance.

Emergency Management Plan: This plan is meant to enhance the Village's ability to manage emergency/disaster situations, contributing to the effectiveness of a statewide emergency management program.

Regulatory and Enforcement

Code Enforcement: Washington County provides code enforcement duties and responsibilities to the Village of Greenwich.

Construction Codes, Uniform: The building codes are strictly enforced to make new and renovated buildings as prepared as possible for hazard related incidents. The Village complies with New York State Uniform Fire Prevention and Building Code (the Uniform Code) and the State Energy Conservation Construction Code (the Energy Code).

Sewers: The Village abides by the County-wide Sanitary Code, which protects and regulates its sewage collection and treatment facilities as a matter of public health and environmental safety. It seeks to prohibit the introduction of stormwaters, surface, or sub-surface waters into sanitary sewers and to control the quantity and quality of wastes in the sewage system.

Subdivision of Land: The Village Planning Board is tasked with subdivision permitting and site plan review. The Planning Board pays special attention to ensure that developments meet the requirements of the stormwater management and erosion and sediment control provisions set by NYS DEC, and mitigate the issues associated with flood, fire, or other natural hazards.

Fiscal

Operating Budget: The Village operating budget contains provisions to perform maintenance throughout the year including snow and ice removal on Village streets and sidewalks, street paving and repair, and capital

projects on sidewalks and streetlights. The budget also includes line items for specific capital projects, including, in 2015-2016, the demolition of a property at 60 Hill St.

Grants: The Village operating budget for FY 2015-2016 allocated $2,000 towards grant writing under Economic Opportunity and Development.

9.15.6 Mitigation Strategy and Prioritization

This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and prioritization.

Past Mitigation Initiative Status

The following table indicates progress on the community's mitigation strategy identified in the 2010 Plan. It should be noted that during the 2010 planning process, only general, countywide actions were identified for each municipality. The Village of Greenwich reviewed the previous actions and selected actions they chose to carry forward as part of this plan update. Previous actions that are now on-going programs and capabilities are indicated as such in the following table and may also be found under 'Capability Assessment' presented previously in this annex.

Table 9.15-11. Status of Previous Mitigation Actions

2010 Mitigation Action	Responsible Party	Status (In progress, No progress, Complete)	Describe Status	Next Step (Include in 2018 HMP or Discontinue)	Describe Next Step
CR 74, water main. Village of Greenwich water supply main runs through the bridge wingwalls and directly on the creek bottom where CR 74 crosses Fly Creek and Marshall Brook. The existing condition compromises the integrity of the two county bridges, and the exposed water main is vulnerable to debris and ice. Failure of the pipe would compromise the only supply to the storage tank that supports a village of 1,900 residents. Propose a project to install new water mains under the creek bed.	County, Village of Greenwich	No Progress	Due to funding and employee time, project has not been completed. Beyond the capability of the Village forces.	Include in 2018 HMP	CR 74, water main. Village of Greenwich water supply main runs through the bridge wingwalls and directly on the creek bottom where CR 74 crosses Fly Creek and Marshall Brook. The existing condition compromises the integrity of the two county bridges, and the exposed water main is vulnerable to debris and ice. Failure of the pipe would compromise the only supply to the storage tank that supports a village of 1,900 residents. Propose a project to install new water mains under the creek bed. Get water main under creek; upgrade water main pipe size. Need assistance from County and/or NYSDOT
Improve drainage at sites where roads have washed out due to natural hazards in the past	County and NYS DHSES	No Progress	Does not apply to the Village	Discontinue	Does not apply to the Village
Purchase equipment to provide for local personnel to conduct the drainage improvement	County and NYS DHSES	No Progress	Does not apply to the Village	Discontinue	Does not apply to the Village
Engineering assessment to determine feasibility of each site improvement	County and NYS DHSES	No Progress	Does not apply to the Village	Discontinue	Does not apply to the Village

2010 Mitigation Action	Responsible Party	Status (In progress, No progress, Complete)	Describe Status	Next Step (Include in 2018 HMP or Discontinue)	Describe Next Step
Improve dams to prevent flooding causing roads to wash out.	County and NYS DHSES	No Progress	Does not apply to the Village	Discontinue	Does not apply to the Village
Improve identified sites where slope stability is subject to land subsidence and where excavation or planting could mitigate future damage.	County and NYS DHSES	No Progress	Does not apply to the Village	Discontinue	Does not apply to the Village

Completed Mitigation Initiatives Not Identified in the Previous Mitigation Strategy

The Village of Greenwich has identified the following mitigation projects/activities that have also been completed but were not identified in the previous mitigation strategy in the 2010 Plan:

- None identified

Proposed Hazard Mitigation Initiatives for the Plan Update

A mitigation action workshop was held in September 2016 and municipalities were 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).

Table 9.15-12 summarizes the comprehensive-range of specific mitigation initiatives the Village of Greenwich would like to pursue in the future to reduce the effects of hazards. Some of these initiatives may be previous actions carried forward for this plan update. These 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. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table below to further demonstrate the wide-range of activities and mitigation measures selected.

As discussed in Section 6, 14 evaluation/prioritization criteria are used 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 your actions as 'High', 'Medium', or 'Low.' The table below summarizes the evaluation of each mitigation initiative, listed by Action Number.

Table 9.15-13 provides a summary of the prioritization of all proposed mitigation initiatives for the Plan update.

Table 9.15-12. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
V. Greenwich-1	CR 74, water main. Village of Greenwich water supply main runs through the bridge wingwalls and directly on the creek bottom where CR 74 crosses Fly Creek and Marshall Brook. This compromises the integrity of the water main as it is vulnerable to debris and ice. Failure of the pipe would impact the only supply to the storage tank that supports a village of 1,900 residents. Bury the water main under creek; upgrade water main pipe size.	Existing	Flood, Severe Storm, Severe Winter Storm	1	Village DPW, Village Health Department; with support from the County and NYSDOT	High	High	FEMA HMA Grants (HMGP, FMA), BRIDGE NY, Village Budget	Short Term	High	SIP	PP
V. Greenwich-2	Review the Village's current Flood Damage Prevention Ordinance with the goal of ensuring that it is compliant with the latest model of the State's Flood Damage Prevention Ordinance and to identify administrative procedures and responsibilities of the Floodplain Administrator because the CEO is listed as the FPA but the CEO is the County and the County does not assume the responsibilities of floodplain management.											
	See above	New and Existing	Flood, Severe Storm	1	Village Board	High	Low	Village Budget	Short Term	High	LPR, EAP	PR, PI
V. Greenwich-3	Incorporate an inspection and management procedure of hazardous trees in the Village that pose a threat to utility lines and drainage systems.	Existing	Flood, Severe Storm, Severe Winter Storm	1	Village DPW	Medium	Low	Village Budget	Short Term	Medium	SIP	PP

Notes:

Not all acronyms and abbreviations defined below are included in the table.

**Does this mitigation initiative reduce the effects of hazards on new and/or existing buildings and/or infrastructure? Not applicable (N/A) is inserted if this does not apply.*

Acronyms and Abbreviations:

CAV	*Community Assistance Visit*
CRS	*Community Rating System*
DPW	*Department of Public Works*
FEMA	*Federal Emergency Management Agency*
FPA	*Floodplain Administrator*

Potential FEMA HMA Funding Sources:

FMA	*Flood Mitigation Assistance Grant Program*
HMGP	*Hazard Mitigation Grant Program*
PDM	*Pre-Disaster Mitigation Grant Program*
RFC	*Repetitive Flood Claims Grant Program (discontinued in 2015)*

Timeline:

Short	*1 to 5 years*
Long Term	*5 years or greater*
OG	*On-going program*
DOF	*Depending on funding*

HMA	*Hazard Mitigation Assistance*
N/A	*Not applicable*
NFIP	*National Flood Insurance Program*
OEM	*Office of Emergency Management*
SRL	*Severe Repetitive Loss Grant Program (discontinued in 2015)*

Costs:

Where actual project costs have been reasonably estimated:

Low	*< $10,000*
Medium	*$10,000 to $100,000*
High	*> $100,000*

Where actual project costs cannot reasonably be established at this time:

Low	*Possible to fund under existing budget. Project is part of, or can be part of an existing on-going program.*
Medium	*Could budget for under existing work plan, but would require a reapportionment of the budget or a budget amendment, or the cost of the project would have to be spread over multiple years.*
High	*Would require an increase in revenue via an alternative source (i.e., bonds, grants, fee increases) to implement. Existing funding levels are not adequate to cover the costs of the proposed project.*

Benefits:

Where possible, an estimate of project benefits (per FEMA's benefit calculation methodology) has been evaluated against the project costs, and is presented as:

Low=	*< $10,000*
Medium	*$10,000 to $100,000*
High	*> $100,000*

Where numerical project benefits cannot reasonably be established at this time:

Low	*Long-term benefits of the project are difficult to quantify in the short term.*
Medium	*Project will have a long-term impact on the reduction of risk exposure to life and property, or project will provide an immediate reduction in the risk exposure to property.*
High	*Project will have an immediate impact on the reduction of risk exposure to life and property.*

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*

Table 9.15-13. Summary of Prioritization of Actions

Mitigation Action / Project Number	Mitigation Action/Initiative	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
V. Greenwich-1	CR 74, water main - bury the water main under creek; upgrade water main pipe size.	1	1	1	1	0	0	0	1	1	1	1	0	1	0	9	High
V. Greenwich-2	Review the Village's current Flood Damage Prevention Ordinance, and update as necessary	1	1	1	1	1	1	1	1	0	1	1	0	0	0	10	High
V. Greenwich-3	Incorporate an inspection and management procedure of hazardous trees in the Village that pose a threat to utility lines and drainage systems.	1	1	1	1	0	0	1	0	0	1	1	1	0	0	8	Medium

Note: Refer to Section 6, which conveys guidance on prioritizing mitigation actions.

9.15.7 Future Needs to Better Understand Risk/Vulnerability

None at this time.

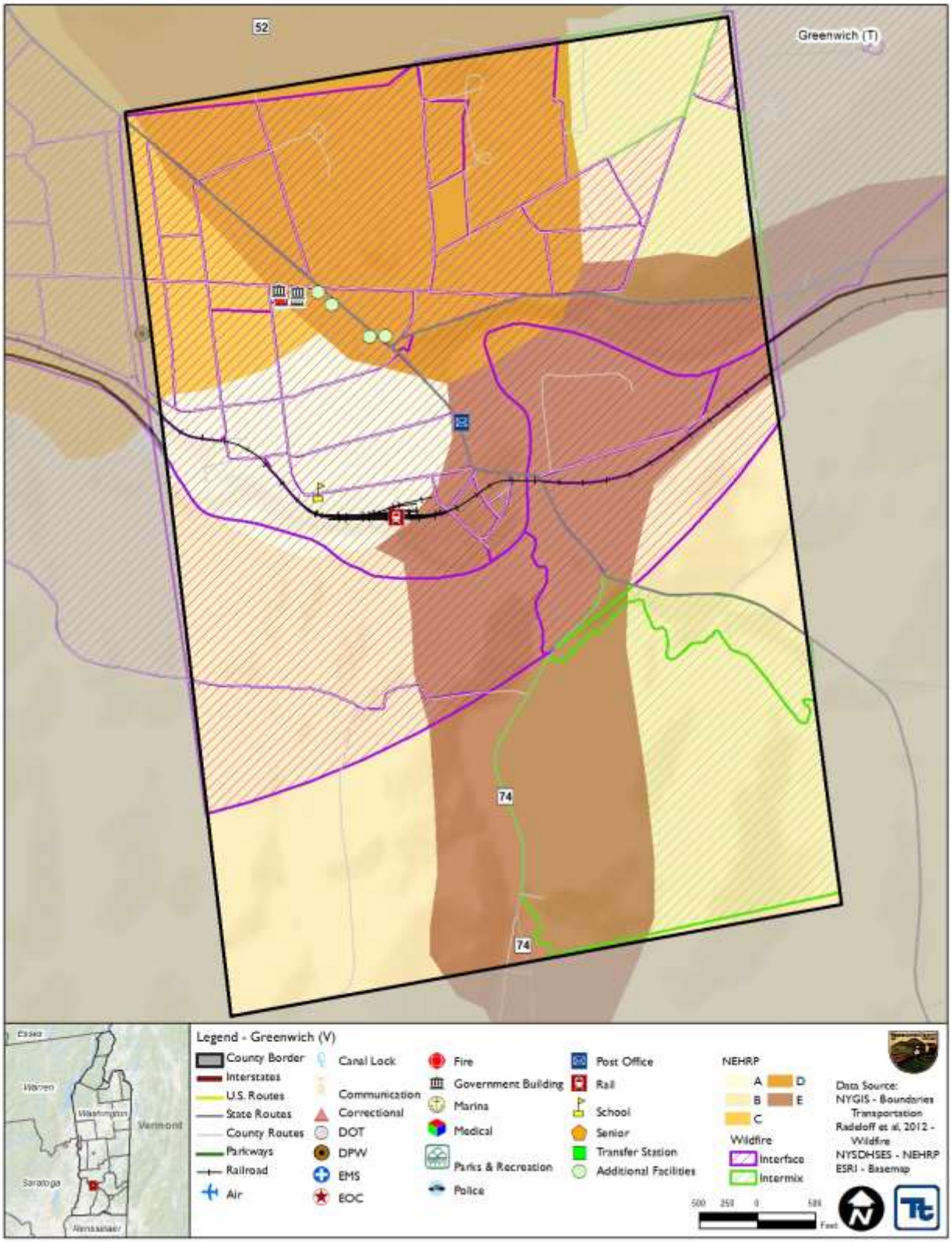
9.15.8 Hazard Area Extent and Location

Hazard area extent and location maps have been generated for the Village of Greenwich that illustrate the probable areas impacted within the municipality. These maps are based on the best available data at the time of the preparation of this plan, and are considered to be adequate for planning purposes. Maps have only been generated for those hazards that can be clearly identified using mapping techniques and technologies, and for which the Village of Greenwich has significant exposure. These maps are illustrated in the hazard profiles within Section 5.4, Volume I of this Plan.

9.15.9 Additional Comments

None at this time.

Figure 9.15-1. Village of Greenwich Hazard Area Extent and Location



Action Number: V. Greenwich - 1

Mitigation Action Name: CR-74 water main project.

Assessing the Risk	
Hazard(s) addressed:	Flood, Severe Storm, Severe Winter Storm
Specific problem being mitigated:	Village of Greenwich water supply main, the CR 74 water main, runs through the bridge wingwalls and directly on the creek bottom where CR 74 crosses Fly Creek and Marshall Brook, which compromises the integrity of the main, as it is vulnerable to debris and ice. Failure of the pipe would impact the only supply to the storage tank that supports a village of 1,900 residents. The project would bury the water main under the creek and upgrade the water main pipe size.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Bury the water main using the current size water main pipe – current problem persists.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Bury the existing water main under the creek and upgrade the water main pipe size.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	Goal 1: Protect Life and Property
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	High
Estimated Cost	High
Priority*	High
Plan for Implementation	
Responsible Organization	Village DPW, Village Health Department; County; NYSDOT
Local Planning Mechanism	Hazard Mitigation
Potential Funding Sources	FEMA HMA Grants (HMGP, FMA), BRIDGE NY, Village Budget
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	No progress; new project

Action Number: V. Greenwich - 1
Mitigation Action Name: CR-74 water main project

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	This action is technically feasible
Political	0	Need to work with NYSDOT and the County to complete this project
Legal	0	
Fiscal	0	Need to seek grant funding for this project
Environmental	1	No known environmental impacts
Social	1	No known social impacts
Administrative	1	The Village has the administrative capabilities to implement this action
Multi-Hazard	1	Severe Storm, Severe Winter Storm, Flood
Timeline	0	
Agency Champion	1	
Other Community Objectives	0	
Total	9	
Priority (H/M/L)	High	

Action Number: V. Greenwich - 2

Mitigation Action Name: Flood Damage Prevention Ordinance and Floodplain Administrator.

Assessing the Risk	
Hazard(s) addressed:	Flood, severe storm
Specific problem being mitigated:	The Village needs to updated its flood damage prevention ordinance and to identify a local National Flood Insurance Program (NFIP) a floodplain administrator (FPA) needs to be identified. While the Flood Damage Prevention Ordinance (FDPO) identifies the Code Enforcement Officer (CEO) as the FPA. The County is the CEO, but the County does not provide FPA duties for the Village.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Adopt a FDPO with higher than required standards – not interested in exceeding standards at this time.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Review the Village's current FDPO with the goal of ensuring compliance with the latest model of the state's ordinance and to identify administrative procedures and responsibilities of a named Village FPA in lieu of the County.
Mitigation Action Type	Education and Awareness (EAP) Local Planning and Regulations (LPR)
Goals Met	Goal 1: Protect Life and Property
Applies to existing and or new development, or not applicable	New and Existing
Benefits (losses avoided)	High
Estimated Cost	Low
Priority*	High
Plan for Implementation	
Responsible Organization	Village Board
Local Planning Mechanism	Hazard Mitigation, Floodplain Administration
Potential Funding Sources	Village Budget
Timeline for Completion	Short
Reporting on Progress	
Date of Status Report/ Report of Progress	No progress; new project

Action Number: V. Greenwich - 2
Mitigation Action Name: Flood Damage Prevention Ordinance and Floodplain Administrator

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	This action is technically feasible
Political	1	
Legal	1	
Fiscal	1	Municipal budget / staff time
Environmental	1	
Social	0	
Administrative	1	The Village has the administrative capabilities to implement this action
Multi-Hazard	1	Flood, Severe Storm
Timeline	0	
Agency Champion	0	
Other Community Objectives	0	
Total	10	
Priority (H/M/L)	High	

Action Number: V. Greenwich - 3

Mitigation Action Name: Incorporate an inspection and management procedure for hazardous trees

Assessing the Risk	
Hazard(s) addressed:	Flood, Severe Storm, Severe Winter Storm
Specific problem being mitigated:	While the Village maintains trees on a constant basis, there is not a procedure to inspect and manage hazardous trees in the Village that pose a threat to utility lines and drainage systems. This can lead to power outages during periods of high winds or flooded roadways in the event debris from the trees clogs the culverts in the Village.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Trim trees on an as-needed basis – not efficient and is not proactive.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Incorporate an inspection and management procedure of hazardous trees in the Village that pose a threat to utility lines and drainage systems.
Mitigation Action Type	Structural and Infrastructure Project (SIP)
Goals Met	Goal 1: Protect Life and Property
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	Medium
Estimated Cost	Low
Priority*	Medium
Plan for Implementation	
Responsible Organization	Village Board
Local Planning Mechanism	Hazard Mitigation
Potential Funding Sources	Village Budget
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	No progress; new project

Action Number: V. Greenwich – 3

Mitigation Action Name: Incorporate an inspection and management procedure for hazardous trees

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	This action is technically feasible
Political	0	
Legal	0	
Fiscal	1	Municipal budget / staff time
Environmental	0	
Social	0	
Administrative	1	The Village has the administrative capabilities to implement this action
Multi-Hazard	1	Flood, Severe Storm, Severe Winter Storm
Timeline	1	
Agency Champion	0	
Other Community Objectives	0	
Total	8	
Priority (H/M/L)	Medium	

9.16 TOWN OF HAMPTON

This section presents the jurisdictional annex for the Town of Hampton.

9.16.1 Hazard Mitigation Plan Point of Contact

The following individuals have been identified as the hazard mitigation plan's primary and alternate points of contact.

Primary Point of Contact	Alternate Point of Contact
Herb Sady – Highway Superintendent 2629 State Route 22A, P.O. Box 125, Hampton, NY 12837 Phone: 518-338-7216 Email: herbsady@hamptonny.org	Dave O'Brien - Supervisor 2629 State Route 22A, P.O. Box 125, Hampton, NY 12837 Phone: 518-866-1022 Email: daveobrien@hamptonny.org

9.16.2 Municipal Profile

The Town of Hampton is located in the northeastern region of Washington County. The Town is bordered to the north and the east by the State of Vermont, to the south by the Town Granville, and to the west by the Town of Whitehall. The following hamlets are found in the Town: Hampton, Hampton Corners, Hampton Flats, and Low Hampton. Crystal Lake, Hills Pond, and Melvin Pond are major bodies of water found throughout the Town.

The Town has a total area of 22.6 square miles, of which, 22.6 square miles is land and less than 1 square mile is water. According to the 2010 Census, the community's population was 938. The Town is governed by the Town Board consisting of the board members and the town supervisor.

Growth/Development Trends

The Town of Hampton did not note any recent residential/commercial development since 2010 or any major residential or commercial development, or major infrastructure development planned for the next five years in the municipality.

Table 9.16-1. Growth and Development

Property or Development Name	Type (e.g. Res., Comm.)	# of Units / Structures	Location (address and/or Parcel ID)	Known Hazard Zone(s)	Description/Status of Development
Recent Development from 2010 to present					
None					
Known or Anticipated Development in the Next Five (5) Years					
None anticipated					

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

9.16.3 Natural Hazard Event History Specific to the Municipality

Washington County has a history of natural and non-natural hazard events as detailed in Volume I, Section 5.0 of this plan. 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. For the purpose of this plan update, events that have occurred in the County from 2008 to present were summarized to indicate the range and impact of hazard events in the community. Information regarding specific damages is included, if available, based on reference material or local sources. This information is presented in the table below. For details of these and additional events, refer to Volume I, Section 5.0 of this plan.

Table 9.16-2. Hazard Event History

Dates of Event	Event Type (FEMA Disaster Declaration if applicable)	Washington County Designated?	Summary of Damages/Losses
December 11-31, 2008	Severe Winter Storm DR-1827	Yes	The Town received a significant amount of snow; however, there were no reports of monetary losses, infrastructure damage, fatalities, or injuries associated with this event.
August 26-September 5, 2011	Hurricane/T.S. Irene DR-4020	Yes	The Town did not suffer any major flooding or damage from the event.

Notes:
EM *Emergency Declaration (FEMA)*
FEMA *Federal Emergency Management Agency*
DR *Major Disaster Declaration (FEMA)*
IA *Individual Assistance*
N/A *Not applicable*
PA *Public Assistance*

9.16.4 Hazard Vulnerabilities and Ranking

The hazard profiles in Section 5.0 of this plan have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes the hazard vulnerabilities and their ranking in the Town of Hampton. For additional vulnerability information relevant to this jurisdiction, refer to Section 5.0.

Natural Hazard Risk/Vulnerability Risk Ranking

As discussed in Section 5.3 (Hazard Ranking), each participating town or village may have differing degrees of risk exposure and vulnerability compared to Washington County as a whole. Therefore, each municipality 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 Hampton. Table 9.16-12 provides proposed mitigation initiatives for the high ranked hazards.

Table 9.16-3. Hazard Risk/Vulnerability Risk Ranking

Hazard type	Estimate of Potential Dollar Losses to Structures Vulnerable to the Hazard [a, c]	Probability of Occurrence	Risk Ranking Score (Probability x Impact)	Hazard Ranking [b]
Earthquake	100-Year GBS: $0 500-Year GBS: $6,814,745 2,500-Year GBS: $76,340,720	Occasional	28	Medium
Flood	Damage estimate not available.	Frequent	21	Medium
Severe Weather	100-Year MRP: $234,314 500-year MRP: $2,392,334 Annualized: $16,211	Frequent	48	High
Severe Winter Weather	1% GBS: $1,547,950 5% GBS: $7,739,751	Frequent	51	High
Wildfire	Estimated Value in the WUI Hazard Areas: $208,522,236	Frequent	48	High

Notes:
a. *Building damage ratio estimates based on FEMA 386-2 (August 2001)*
b. *The valuation of general building stock and loss estimates was based on custom inventory for the municipality.*
High = Total hazard priority risk ranking score of 31 and above

Medium = Total hazard priority risk ranking of 20-30+

Low = Total hazard risk ranking below 20

c. Loss estimates for the severe storm and severe winter storm hazards are structural values only and do not include the value of contents.

d Loss estimates for the flood and earthquake hazards represent both structure and contents.

e. The HAZUS-MH earthquake model results are reported by Census Tract.

f. Damage estimate for flood unavailable due to lack of digital floodplain data for Washington County.

National Flood Insurance Program (NFIP) Summary

The following table summarizes the NFIP statistics for the Town of Hampton.

Table 9.16-4. NFIP Summary

Municipality	# Policies (1)	# Claims (Losses) (1)	Total Loss Payments (2)	# Rep. Loss Prop. (1)	# Severe Rep. Loss Prop. (1)
Hampton (T)	2	1	$1,597	0	0

Source: FEMA, 2016

Note (1) Policies, claims, repetitive loss and severe repetitive loss statistics provided by FEMA and are current as of April 30, 2016 and are summarized by Community Name. Please note the total number of repetitive loss properties excludes the severe repetitive loss properties. The number of claims represents claims closed by 4/30/2016.

Note (2) Total building and content losses from the claims file provided by FEMA Region 2.

Note (3) The policies inside and outside of the flood zones are unavailable due to lack of digital floodplain for Washington County.

Note (4) FEMA noted that where there is more than one entry for a property, there may be more than one policy in force or more than one GIS possibility.

Critical Facilities

At the time of this HMP Update, digitized flood maps for Washington County are unavailable. In order to provide some level of beneficial analysis, a desktop analysis was performed to identify critical facilities located within the floodplain (refer to Section 5.1 [Methodology and Tools] for details). The following table identifies critical facilities located within the municipality and their exposure, if any, to the possible floodplain. This information is a resource for the municipality to determine if flood mitigation actions are appropriate based on historical events and proximity of the facility to a water body. At the time of this 2018 HMP Update, the municipality did not identify any actions associated with these facilities.

The Town of Hampton understands the limitation of the map data and once the updated maps are available, the municipality will work with Washington County to determine which critical facilities are located within the 1% and 0.2% annual chance flood zones. Once identified, the municipality will work with the property owners and develop mitigation actions for each of the critical facilities, ensuring they will be protected to the 500-year (or worst-case scenario) level.

Table 9.16-5. Potential Flood Losses to Critical Facilities

Name	Type	Potential Flood Exposure
Crown Communication LLC	Communication Tower	X

Source: Washington County; NYS GIS Clearinghouse

Other Vulnerabilities Identified

The municipality has identified the following vulnerabilities within their community:

- None identified

9.16.5 Capability Assessment

This section identifies the following capabilities of the local jurisdiction:

- Planning and regulatory capability
- Administrative and technical capability
- Fiscal capability
- Community classification
- National Flood Insurance Program
- Integration of Mitigation Planning into Existing and Future Planning Mechanisms

Planning and Regulatory Capability

The table below summarizes the regulatory tools that are available to the Town of Hampton.

Table 9.16-6. Planning and Regulatory Tools

Tool / Program (code, ordinance, plan)	Do you have this? (Yes/No) If Yes, date of adoption or update	Authority (local, county, state, federal)	Dept. /Agency Responsible	Code Citation and Comments (Code Chapter, name of plan, explanation of authority, etc.)
Planning Capability				
Master Plan	no	-	-	-
Capital Improvements Plan	no	Local	Town Board	In progress
Floodplain Management / Basin Plan	no	-	-	-
Stormwater Management Plan	no	-	-	-
Open Space Plan	no	-	-	-
Stream Corridor Management Plan	no	-	-	-
Watershed Management or Protection Plan	no	-	-	-
Economic Development Plan	no	-	-	-
Comprehensive Emergency Management Plan	no	-	-	-
Emergency Response Plan	no	-	-	-
Post-Disaster Recovery Plan	no	-	-	-
Transportation Plan	no	-	-	-
Strategic Recovery Planning Report	no	-	-	-
Other Plans:	no	-	-	-
Regulatory Capability				
Building Code	Yes	Local and State	Code Enforcement (County)	Local Law #1 of 1988
Zoning Ordinance	no	-	-	-
Subdivision Ordinance	Yes	Local	Code Enforcement (County)	Local Law #2 of 1991
NFIP Flood Damage Prevention Ordinance	Yes	Local	Town Supervisor	Local Law # 1 of 1989
NFIP: Cumulative Substantial Damages	no	-	-	-
NFIP: Freeboard	Yes	State, Local	Code	State mandated BFE+2 for single and

Tool / Program (code, ordinance, plan)	Do you have this? (Yes/No) If Yes, date of adoption or update	Authority (local, county, state, federal)	Dept. /Agency Responsible	Code Citation and Comments (Code Chapter, name of plan, explanation of authority, etc.)
			Enforcement (County)	two-family residential construction, BFE+1 for all other construction types
Growth Management Ordinances		-	-	-
Site Plan Review Requirements	Yes	Local	Planning Board	Local Law No. 1 of 20014 – Town of Hampton Site Plan Review Law
Stormwater Management Ordinance	no	-	-	-
Municipal Separate Storm Sewer System (MS4)	no	-	-	-
Natural Hazard Ordinance	no	-	-	-
Post-Disaster Recovery Ordinance	no	-	-	-
Real Estate Disclosure Requirement	Yes	State	NYS Department of State, Real Estate Agent	NYS mandate, Property Condition Disclosure Act, NY Code - Article 14 §460-467
Other [Special Purpose Ordinances (i.e., sensitive areas, steep slope)]	no	-	-	-

Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the Town of Hampton.

Table 9.16-7. Administrative and Technical Capabilities

Resources	Is this in place? (Yes or No)	Department/ Agency/Position
Administrative Capability		
Planning Board	Yes	Planning Board
Mitigation Planning Committee	no	
Environmental Board/Commission	no	
Open Space Board/Committee	no	
Economic Development Commission/Committee	no	
Maintenance Programs to Reduce Risk	yes	Highway department
Mutual Aid Agreements	yes	Fire department, county public safety
Technical/Staffing Capability		
Planner(s) or Engineer(s) with knowledge of land development and land management practices	no	-
Engineer(s) or Professional(s) trained in construction practices related to buildings and/or infrastructure	yes	County code enforcement
Planners or engineers with an understanding of natural hazards	no	-
NFIP Floodplain Administrator	yes	Town supervisor
Surveyor(s)	no	-
Personnel skilled or trained in GIS and/or HAZUS-MH applications	yes	County public safety

Resources	Is this in place? (Yes or No)	Department/ Agency/Position
Scientist familiar with natural hazards	no	-
Emergency Manager	yes	Town supervisor
Grant Writer(s)	no	-
Staff with expertise or training in benefit/cost analysis	no	-
Professionals trained in conducting damage assessments	no	-

Fiscal Capability

The table below summarizes financial resources available to the Town of Hampton.

Table 9.16-8. Fiscal Capabilities

Financial Resources	Accessible or Eligible to Use (Yes/No)
Community development Block Grants (CDBG, CDBG-DR)	no
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	no
Incur debt through private activity bonds	no
Withhold public expenditures in hazard-prone areas	no
Other Federal or State Funding Programs	no
Open Space Acquisition Funding Programs	no
Other	

Community Classifications

The table below summarizes classifications for community program available to the Town of Hampton.

Table 9.16-9. Community Classifications

Program	Do you have this? (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	-	-
NYSDEC Climate Smart Community	No	-	-
Storm Ready	No	-	-
Firewise	No	-	-
Disaster/Safety Programs in/for Schools	no	-	-
Organizations with Mitigation Focus (advocacy group, non-government)	no	-	-
Public Education Program/Outreach (through website, social media)	yes	The Town utilizes the municipal website for public education and outreach	

Program	Do you have this? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Public-Private Partnerships	no	-	-

N/A = Not applicable. NP = Not participating. - = Unavailable. TBD = To be determined.

The classifications listed above relate to the community's ability to provide effective services to lessen its vulnerability to the hazards identified. These classifications can be viewed as a gauge of the community's capabilities in all phases of emergency management (preparedness, response, recovery and mitigation) and are used as an underwriting parameter for determining the costs of various forms of insurance. The CRS class applies to flood insurance while the BCEGS and Public Protection classifications apply to standard property insurance. CRS classifications range on a scale of 1 to 10 with class 1 being the best possible classification, and class 10 representing no classification benefit. Firewise classifications include a higher classification when the subject property is located beyond 1000 feet of a creditable fire hydrant and is within 5 road miles of a recognized Fire Station.

Criteria for classification credits are outlined in the following documents:

- The Community Rating System Coordinators Manual
- The Building Code Effectiveness Grading Schedule website at https://www.isomitigation.com/bcegs/
- The ISO Mitigation online ISO's Public Protection website at https://www.isomitigation.com/ppc/
- The National Weather Service Storm Ready website at https://www.weather.gov/stormready/
- The National Firewise Communities website at https://www.nfpa.org/Public-Education/By-topic/Wildfire/Firewise-USA

Self-Assessment of Capability

The table below provides an approximate measure of the Town of Hampton's capability to work in a hazard-mitigation capacity and/or effectively implement hazard mitigation strategies to reduce hazard vulnerabilities.

Table 9.16-10. Self-Assessment Capability for the Municipality

Area	Degree of Hazard Mitigation Capability		
	Limited (If limited, what are your obstacles?) *	Moderate	High
Planning and Regulatory Capability	limited		
Administrative and Technical Capability	limited		
Fiscal Capability		x	
Community Political Capability		x	
Community Resiliency Capability		x	
Capability to Integrate Mitigation into Municipal Processes and Activities.		x	

National Flood Insurance Program

NFIP Floodplain Administrator (FPA)

The Town Supervisor is the identified floodplain administrator for the Town.

Flood Vulnerability Summary

The Town does not maintain lists or inventories of properties that have been flood damaged.

Resources

The Supervisor is the sole person assuming the roles and responsibilities of floodplain management in the town. The Town Planning Board reviews applications and performs site plan reviews in the town.

Compliance History

According to the most recent FEMA Community Status Book Report, the Town of Hampton is in good standing with the NFIP. However, based on information provided by NYS DEC, the Town has not had a compliance audit conducted.

Regulatory

The Flood Damage Prevention Local Law promotes the public health, safety, and general welfare of residents and seeks to minimize public and private losses due to flood conditions. The law regulates development to promote flood resistant structures and controls the alteration of floodplains to prevent increased vulnerability, and requires the town FPA to maintain elevation certificates.

Integration of Hazard Mitigation into Existing and Future Planning Mechanisms

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 this planning effort, each community was surveyed to obtain a better understanding of their community's progress in plan integration. A summary is provided below. In addition, the community identified specific integration activities that will be incorporated into municipal procedures.

Planning

Land Use Planning: The Town of Hampton Planning Board reviews development and subdivision permit applications and environmental assessment forms. Town codes and planning documents including the Building and Property Regulation and Building and Construction (Regulation Inspection) are available on the town's website.

Lake Champlain Watershed Water Quality Management Planning: Roadside Erosion Assessment and Inventory: The Lake Champlain Watershed Water Quality Management Planning project was one of 11 projects in New York State that was funded through the Federal Government's American Recovery and Reinvestment Act Initiative. The goal of the project was to identify critically eroding roadside banks that have contributed significant sediment loads to the high-quality streams throughout the Champlain Watershed (Clinton, Essex, Franklin, Warren and Washington Counties). The plan identified 319 roadside erosion sites in need to remediation. In Washington County, 31 sites were identified (12 high priority, 11 moderate priority, and 8 low priority). Two sites were located in the Town of Hampton.

Regulatory and Enforcement

Code Enforcement: Washington County provides code enforcement duties and responsibilities to the Town of Hampton.

Construction Codes, Uniform: The building codes are strictly enforced to make new and renovated buildings as prepared as possible for hazard related incidents. The Town complies with New York State Uniform Fire Prevention and Building Code (the Uniform Code) and the State Energy Conservation Construction Code (the Energy Code).

Flood Damage Prevention Local Law # 1 of 1989: This law promotes the public health, safety, and general welfare of residents and seeks to minimize public and private losses due to flood conditions. The law regulates development to promote flood resistant structures and controls the alteration of floodplains to prevent increased vulnerability, and requires the town FPA to maintain elevation certificates.

Sewers: The Town abides by the County-wide Sanitary Code, which protects and regulates its sewage collection and treatment facilities as a matter of public health and environmental safety. It seeks to prohibit the introduction of stormwater, surface, or sub-surface waters into sanitary sewers and to control the quantity and quality of wastes in the sewage system.

Site Plan Review Local Law No. 1 as Amended 2007: The purpose of site plan review, which is the responsibility of the Town Planning Board, is to provide for the review and approval of development plans to assess the suitability of the proposed development to the natural conditions of the site and compatibility with surrounding uses.

Subdivision of Land, Local law # 2 of 1991: The Town's Planning Board is tasked with reviewing subdivision proposals. The Planning Board pays special attention to ensure that developments meet the requirements of the stormwater management and erosion and sediment control provisions set by NYS DEC, and mitigate the issues associated natural hazards.

Fiscal

Operating Budget: The Town's operating budget contains minimal provisions for expected expenses like snow removal and brush and weeds cleanup after a storm or natural disaster.

Capital Improvement Plan/Program: The Town Budget has Capital Fund Project line item under the Highway Appropriations, to which over $20,000 was allocated in the 2015 budget. A complete Capital Improvement Plan is in progress.

Education and Outreach

A section of the Town's website, 'Supervisors Corner', is used to provide the community with information on the Town and County. This information includes changes to the Town budget and funding, as well as how to prepare for upcoming storm events; for example, the Town cautioned travel on the roadways during the winter months and informed the public on how to clear snow so that there is no interference with roadway plows.

9.16.6 Mitigation Strategy and Prioritization

This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and prioritization.

Past Mitigation Initiative Status

The following table indicates progress on the community's mitigation strategy identified in the 2010 Plan. It should be noted that during the 2010 planning process, only general, countywide actions were identified for each municipality. The Town of Hampton reviewed the previous actions and selected actions they chose to carry forward as part of this plan update. Previous actions that are now on-going programs and capabilities are indicated as such in the following table and may also be found under 'Capability Assessment' presented previously in this annex.

Table 9.16-11. Status of Previous Mitigation Actions

2010 Mitigation Action	Responsible Party	Status (In progress, No progress, Complete)	Describe Status	Next Step (Include in 2018 HMP or Discontinue)	Describe Next Step
Improve drainage at sites where roads have washed out due to natural hazards in the past	County and NYS DHSES	complete	Information not provided at the time of the 2018 HMP Update	discontinue	The Town indicated that this project has been completed; therefore, it will not be included in the 2018 HMP Update.
Purchase equipment to provide for local personnel to conduct the drainage improvement	County and NYS DHSES	Complete	Information not provided at the time of the 2018 HMP Update	Discontinue	The Town indicated that this project has been completed; therefore, it will not be included in the 2018 HMP Update.
Engineering assessment to determine feasibility of each site improvement	County and NYS DHSES	complete	Information not provided at the time of the 2018 HMP Update	Discontinue	The Town indicated that this project has been completed; therefore, it will not be included in the 2018 HMP Update.
Improve dams to prevent flooding causing roads to wash out.	County and NYS DHSES	complete	Information not provided at the time of the 2018 HMP Update	discontinue	The Town indicated that this project has been completed; therefore, it will not be included in the 2018 HMP Update.
Improve identified sites where slope stability is subject to land subsidence and where excavation or planting could mitigate future damage.	County and NYS DHSES	No progress	Due to funding and staff, the project has not been completed.	Include in 2018 HMP	Please refer to Table 9.16-12 for this action

Completed Mitigation Initiatives Not Identified in the Previous Mitigation Strategy

The Town of Hampton has identified the following mitigation projects/activities that have also been completed but were not identified in the previous mitigation strategy in the 2010 Plan:

- None identified

Proposed Hazard Mitigation Initiatives for the Plan Update

A mitigation action workshop was held on September 15, 2016 that 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).

Table 9.16-12 summarizes the comprehensive-range of specific mitigation initiatives the Town of Hampton would like to pursue in the future to reduce the effects of hazards. Some of these initiatives may be previous actions carried forward for this plan update. These 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. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table below to further demonstrate the wide-range of activities and mitigation measures selected.

As discussed in Section 6, 14 evaluation/prioritization criteria are used 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 your actions as 'High', 'Medium', or 'Low.' The table below summarizes the evaluation of each mitigation initiative, listed by Action Number.

Table 9.16-13 provides a summary of the prioritization of all proposed mitigation initiatives for the Plan update.

Table 9.16-12. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
T. Hampton-1 (previous action)	Hickey Road – construct retaining wall or cribs and hydroseed	Existing	Flood, Erosion	1	Town with support from Lake Champlain-Lake George Regional Planning Board	Medium	Low	County Soil & Water Conservation district, municipal budget, Water Quality Improvement Project Grants	Short Term	High	SIP	PP, NR
T. Hampton-2 (previous action)	Poultney River – re-grade swale and hydroseed with conservation mix and soil amendments	Existing	Flood, Erosion	1	Town with support from Lake Champlain-Lake George Regional Planning Board	Medium	Low	County Soil & Water Conservation district, municipal budget, Water Quality Improvement Project Grants	Short Term	High	SIP	PP, NR
T. Hampton-3	Review the Town's current Flood Damage Prevention Ordinance, and update as necessary to consider and address: • Compliance with the latest model Flood Damage Prevention Ordinances. To request the Model Flood Damage Prevention Law appropriate for your community, please contact the DEC Floodplain Management Section at 518-402-8185 or at floodplain.floodplain@dec.ny.gov. • Proper identification of the local NFIP Floodplain Administrator. • Reference current regulatory NFIP floodplain mapping, which is currently in an active update process (2016-2017).											
	See above	New and Existing	Flood, Severe Storm	1	Town with assistance from NYSDEC, and County	High	Low	Municipal Budget / Time	Short Term / DOF	High	LPR, EAP	PR, PI

Notes:

Not all acronyms and abbreviations defined below are included in the table.

**Does this mitigation initiative reduce the effects of hazards on new and/or existing buildings and/or infrastructure? Not applicable (N/A) is inserted if this does not apply.*

Acronyms and Abbreviations:

CAV	*Community Assistance Visit*
CRS	*Community Rating System*
DPW	*Department of Public Works*

Potential FEMA HMA Funding Sources:

FMA	*Flood Mitigation Assistance Grant Program*
HMGP	*Hazard Mitigation Grant Program*
PDM	*Pre-Disaster Mitigation Grant Program*

Timeline:

Short	*1 to 5 years*
Long Term	*5 years or greater*
OG	*On-going program*

FEMA	*Federal Emergency Management Agency*	*RFC*	*Repetitive Flood Claims Grant Program (discontinued in 2015)*	*DOF*	*Depending on funding*
FPA	*Floodplain Administrator*	*SRL*	*Severe Repetitive Loss Grant Program (discontinued in 2015)*		
HMA	*Hazard Mitigation Assistance*				
N/A	*Not applicable*				
NFIP	*National Flood Insurance Program*				
OEM	*Office of Emergency Management*				

Costs:

Where actual project costs have been reasonably estimated:

Low	*< $10,000*
Medium	*$10,000 to $100,000*
High	*> $100,000*

Where actual project costs cannot reasonably be established at this time:

Low	*Possible to fund under existing budget. Project is part of, or can be part of an existing on-going program.*
Medium	*Could budget for under existing work plan, but would require a reapportionment of the budget or a budget amendment, or the cost of the project would have to be spread over multiple years.*
High	*Would require an increase in revenue via an alternative source (i.e., bonds, grants, fee increases) to implement. Existing funding levels are not adequate to cover the costs of the proposed project.*

Benefits:

Where possible, an estimate of project benefits (per FEMA's benefit calculation methodology) has been evaluated against the project costs, and is presented as:

Low=	*< $10,000*
Medium	*$10,000 to $100,000*
High	*> $100,000*

Where numerical project benefits cannot reasonably be established at this time:

Low	*Long-term benefits of the project are difficult to quantify in the short term.*
Medium	*Project will have a long-term impact on the reduction of risk exposure to life and property, or project will provide an immediate reduction in the risk exposure to property.*
High	*Project will have an immediate impact on the reduction of risk exposure to life and property.*

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*

Table 9.16-13. Summary of Prioritization of Actions

Mitigation Action/Project Number	Mitigation Action/Initiative	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
T. Hampton-1	Hickey Road – construct retaining wall or cribs and hydroseed	1	1	1	1	1	0	0	1	0	1	1	1	1	0	10	High
T. Hampton-2	Poultney River – re-grade swale and hydroseed with conservation mix and soil amendments	1	1	1	1	1	0	0	1	0	1	1	1	1	0	10	High
T. Hampton-3	Review the Town's current Flood Damage Prevention Ordinance, and update as necessary	1	1	1	1	1	1	1	1	0	1	1	0	0	0	10	High

Note: Refer to Section 6 which contains the guidance on conducting the prioritization of mitigation actions.

9.16.7 Future Needs To Better Understand Risk/Vulnerability

None at this time.

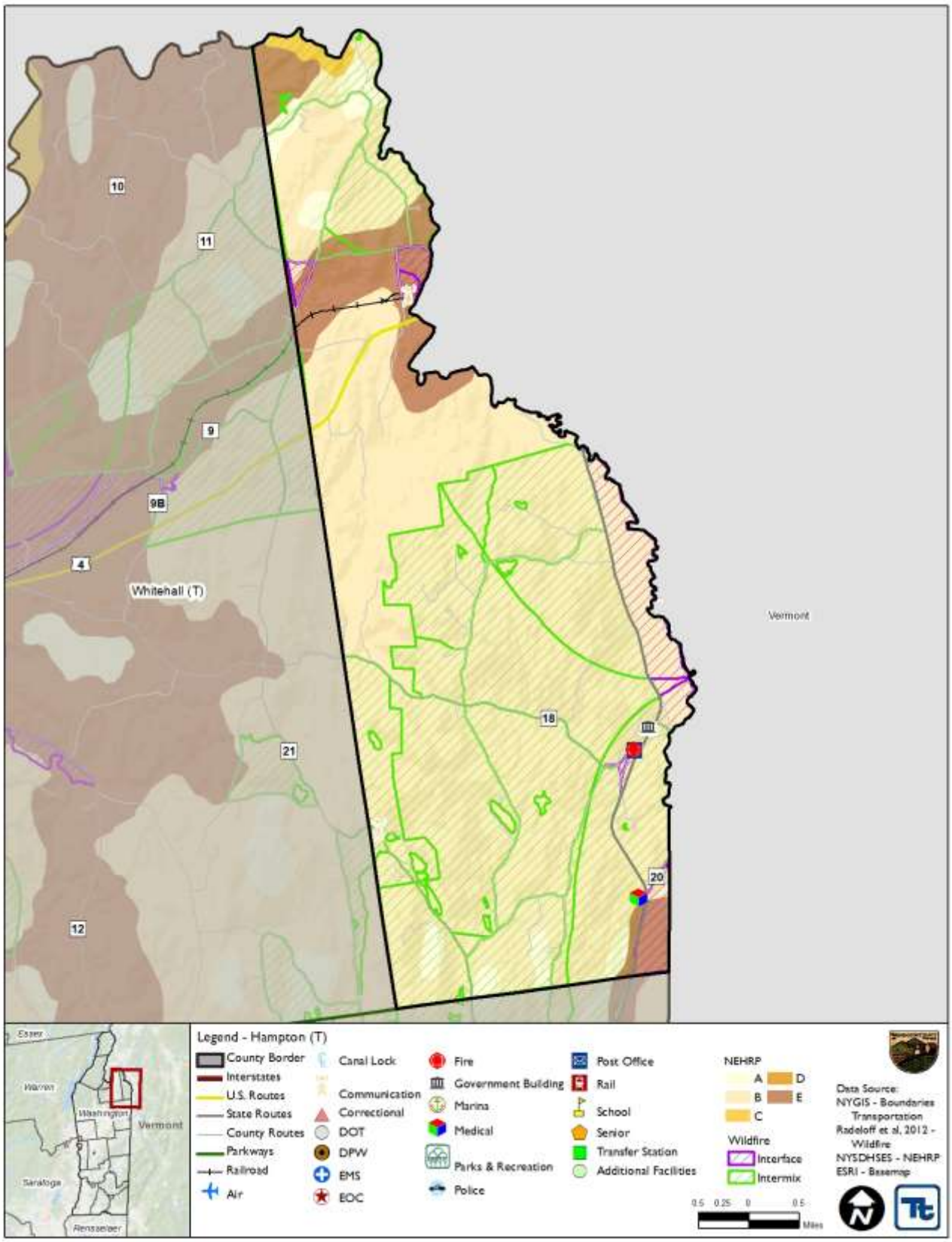
9.16.8 Hazard Area Extent and Location

Hazard area extent and location maps have been generated for the Town of Hampton that illustrate the probable areas impacted within the municipality. These maps are based on the best available data at the time of the preparation of this plan, and are considered to be adequate for planning purposes. Maps have only been generated for those hazards that can be clearly identified using mapping techniques and technologies, and for which the Town of Hampton has significant exposure. These maps are illustrated in the hazard profiles within Section 5.4, Volume I of this Plan.

9.16.9 Additional Comments

None at this time.

Figure 9.16-1. Town of Hampton Hazard Area Extent and Location



Action Number: T. Hampton-1

Mitigation Action Name: Hickey Road.

Assessing the Risk	
Hazard(s) addressed:	Flood, Erosion
Specific problem being mitigated:	Steep slopes along the bank of the Poultney River are subject to erosion as they are not stabilized and exposed to the elements.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Reroute Poultney River – not feasible.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Constructing a retaining wall or cribs along the Poultney River. The area will then be hydroseeded with conservation mix and soil amendments in areas prone to erosion. This project will reduce erosion along Hickey Road and improve stream channel functionality.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	Goal 1: Protect Life and Property
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	Medium
Estimated Cost	Low
Priority*	High
Plan for Implementation	
Responsible Organization	Town with support from Lake Champlain-Lake George Regional Planning Board
Local Planning Mechanism	Hazard Mitigation; Engineering
Potential Funding Sources	County Soil & Water Conservation district, municipal budget, Water Quality Improvement Project Grants
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	No progress; new project

Action Number: T. Hampton-1
Mitigation Action Name: Hickey Road.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	0	
Fiscal	0	
Environmental	1	
Social	0	
Administrative	1	
Multi-Hazard	1	Flood, Erosion
Timeline	1	Short Term – proposed to be completed in next five years
Agency Champion	1	
Other Community Objectives	0	
Total	10	
Priority (H/M/L)	High	

Action Number: T. Hampton-2

Mitigation Action Name: Poultney River.

Assessing the Risk	
Hazard(s) addressed:	Flood, Erosion
Specific problem being mitigated:	Current swale does not provide adequate stormwater management. The area is eroding and contributing to sediment loads in the Poultney River.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Regrade swale but do not replant – Not as effective.
Action/Project Intended for Implementation	
Description of Selected Action/Project	The existing swale will be regraded and then a slurry of grass and vegetative seed, mulch, fertilizer, and water will be applied to the area to establish vegetative cover and root systems to aid in reducing erosion in the area. This project will reduce erosion and help control stormwater run-off.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	Goal 1: Protect Life and Property
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	Medium
Estimated Cost	Low
Priority*	Low
Plan for Implementation	
Responsible Organization	Town with support from Lake Champlain-Lake George Regional Planning Board
Local Planning Mechanism	Hazard Mitigation; Engineering
Potential Funding Sources	County Soil & Water Conservation district, municipal budget, Water Quality Improvement Project Grants
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	No progress; new project

Action Number: T. Hampton-2

Mitigation Action Name: Poultney River .

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	0	
Fiscal	0	
Environmental	1	
Social	0	
Administrative	1	
Multi-Hazard	1	Flood, Erosion
Timeline	1	Short Term – proposed to be completed in next five years
Agency Champion	1	
Other Community Objectives	0	
Total	10	
Priority (H/M/L)	High	

Action Number: T. Hampton-3

Mitigation Action Name: Flood Damage Prevention Ordinance and Floodplain Administrator.

Assessing the Risk	
Hazard(s) addressed:	Flood, severe storm
Specific problem being mitigated:	The Town's needs to update its flood damage prevention ordinance (FDPO) and identify a local National Flood Insurance Program (NFIP) floodplain administrator (FPA).
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Adopt FDPO with higher standards – not interested in exceeding standards at this time.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Review the Town's current FDPO, and update as necessary to consider and address the following: 1) Compliance with the latest model FDPO. To request the Model Flood Damage Prevention Law appropriate for the community, contact the DEC Floodplain Management Section at 518-402-8185 or at floodplain.floodplain@dec.ny.gov. 2) Proper identification of the local NFIP FPA. Reference current regulatory NFIP floodplain mapping, which is currently in an active update process (2016-2017).
Mitigation Action Type	Local Plans and Regulations (LPR) Education and Awareness Programs (EAP)
Goals Met	Goal 1: Protect Life and Property
Applies to existing and or new development, or not applicable	New and Existing
Benefits (losses avoided)	High
Estimated Cost	Low
Priority*	High
Plan for Implementation	
Responsible Organization	Town with assistance from NYSDEC, and County
Local Planning Mechanism	Hazard Mitigation, Floodplain Administration
Potential Funding Sources	Town Budget
Timeline for Completion	Short
Reporting on Progress	
Date of Status Report/ Report of Progress	No progress; new project

Action Number: T. Hampton-3

Mitigation Action Name: Flood Damage Prevention Ordinance and Floodplain Administrator.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	This action is technically feasible
Political	1	
Legal	1	
Fiscal	1	Municipal budget / staff time
Environmental	1	
Social	0	
Administrative	1	The Town has the administrative capabilities to implement this action
Multi-Hazard	1	Flood, Severe Storm
Timeline	0	
Agency Champion	0	
Other Community Objectives	0	
Total	10	
Priority (H/M/L)	High	

9.17 TOWN OF HARTFORD

This section presents the jurisdictional annex for the Town of Hartford.

9.17.1 Hazard Mitigation Plan Point of Contact

The following individuals have been identified as the hazard mitigation plan's primary and alternate points of contact.

Primary Point of Contact	Alternate Point of Contact
Dana Haff – Town Supervisor 165 Hartford Main Street, Granville, NY Phone: 518-632-9178 Email: supervisor@hartfordny.com	Greg Brown – Highway Superintendent 165 Hartford Main Street, Granville, NY Phone: 518-632-5255 Email: highway@hartfordny.com

9.17.2 Municipal Profile

The Town of Hartford is located in the central region of Washington County. The Town is bordered to the north by the Town of Fort Ann, the east by the Towns of Granville and Hebron, to the south by the Towns Hebron and Argyle, and to the west by the Town of Kingsbury. The following hamlets are found in the Town: Adamsville, East Hartford, Hartford, and South Hartford. Lily Pond, Champlain Canal, and Big Creek are major bodies of water found throughout the Town.

The Town has a total area of 43.5 square miles, of which, 43.4 square miles is land and less than 1 square mile is water. According to the 2010 Census, the community's population was 2,279. The Town is governed by the Town Board consisting of the town council and the town supervisor.

Growth/Development Trends

The Town of Hartford did not note any recent residential/commercial development since 2010 or any major residential or commercial development, or major infrastructure development planned for the next five years in the municipality.

Table 9.17-1. Growth and Development

Property or Development Name	Type (e.g. Res., Comm.)	# of Units / Structures	Location (address and/or Parcel ID)	Known Hazard Zone(s)	Description/Status of Development
Recent Development from 2010 to present					
None identified					
Known or Anticipated Development in the Next Five (5) Years					
None identified					

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

9.17.3 Natural Hazard Event History Specific to the Municipality

Washington County has a history of natural and non-natural hazard events as detailed in Volume I, Section 5.0 of this plan. 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. For the purpose of this plan update, events that have occurred in the County from 2008 to present were summarized to indicate the range and impact of hazard events in the community. Information regarding specific damages is included, if available, based on reference material or local sources. This information is presented in the table below. For details of these and additional events, refer to Volume I, Section 5.0 of this plan.

Table 9.17-2. Hazard Event History

Dates of Event	Event Type (FEMA Disaster Declaration if applicable)	Washington County Designated?	Summary of Damages/Losses
December 11-31, 2008	Severe Winter Storm DR-1827	Yes	The Town noted that this event impacted the municipality; however, losses were not significant.
August 26-September 5, 2011	Hurricane/T.S. Irene DR-4020	Yes	The Town noted that this event impacted the municipality; however, losses were not significant.
July 11, 2013	Beaver Dam Failure – Flooding DR-4129	No	The Town noted that this event impacted the municipality; however, losses were not significant.

Notes:

EM *Emergency Declaration (FEMA)*
FEMA *Federal Emergency Management Agency*
DR *Major Disaster Declaration (FEMA)*
IA *Individual Assistance*
N/A *Not applicable*
PA *Public Assistance*

9.17.4 Hazard Vulnerabilities and Ranking

The hazard profiles in Section 5.0 of this plan have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes the hazard vulnerabilities and their ranking in the Town of Hartford. For additional vulnerability information relevant to this jurisdiction, refer to Section 5.0.

Natural Hazard Risk/Vulnerability Risk Ranking

As discussed in Section 5.3 (Hazard Ranking), each participating town or village may have differing degrees of risk exposure and vulnerability compared to Washington County as a whole. Therefore, each municipality 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 Hartford. Table 9.16-12 provides proposed mitigation initiatives for the high ranked hazards.

Table 9.17-3. Hazard Risk/Vulnerability Risk Ranking

Hazard type	Estimate of Potential Dollar Losses to Structures Vulnerable to the Hazard [a, c]	Probability of Occurrence	Risk Ranking Score (Probability x Impact)	Hazard Ranking [b]
Earthquake	100-Year GBS: $4,591,975 500-Year GBS: $58,329,243 2,500-Year GBS: $437,733,416	Occasional	32	High
Flood	Damage estimate not available.	Frequent	18	Medium
Severe Weather	100-Year MRP: $83,270 500-year MRP: $495,557 Annualized: $4,680	Frequent	48	High
Severe Winter Weather	1% GBS: $5,936,434 5% GBS: $29,682,168	Frequent	51	High
Wildfire	Estimated Value in the WUI Hazard Areas: $875,984,481	Frequent	48	High

Notes:

a. Building damage ratio estimates based on FEMA 386-2 (August 2001)

b. The valuation of general building stock and loss estimates was based on custom inventory for the municipality.
High = Total hazard priority risk ranking score of 31 and above
Medium = Total hazard priority risk ranking of 20-30+
Low = Total hazard risk ranking below 20

c. Loss estimates for the severe storm and severe winter storm hazards are structural values only and do not include the value of contents.

d Loss estimates for the flood and earthquake hazards represent both structure and contents.

e. The HAZUS-MH earthquake model results are reported by Census Tract.

f. Damage estimate for flood unavailable due to lack of digital floodplain data for Washington County.

National Flood Insurance Program (NFIP) Summary

The following table summarizes the NFIP statistics for the Town of Hartford.

Table 9.17-4. NFIP Summary

Municipality	# Policies (1)	# Claims (Losses) (1)	Total Loss Payments (2)	# Rep. Loss Prop. (1)	# Severe Rep. Loss Prop. (1)
Hartford (T)	0	0	$0	0	0

Source: FEMA, 2016
Note (1) Policies, claims, repetitive loss and severe repetitive loss statistics provided by FEMA and are current as of April 30, 2016 and are summarized by Community Name. Please note the total number of repetitive loss properties excludes the severe repetitive loss properties. The number of claims represents claims closed by 4/30/2016.
Note (2) Total building and content losses from the claims file provided by FEMA Region 2.
Note (3) The policies inside and outside of the flood zones are unavailable due to lack of digital floodplain for Washington County.
Note (4) FEMA noted that where there is more than one entry for a property, there may be more than one policy in force or more than one GIS possibility.

Critical Facilities

At the time of this HMP Update, digitized flood maps for Washington County are unavailable. In order to provide some level of beneficial analysis, a desktop analysis was performed to identify critical facilities located within the floodplain (refer to Section 5.1 [Methodology and Tools] for details). The following table identifies critical facilities located within the municipality and their exposure, if any, to the possible floodplain. This information is a resource for the municipality to determine if flood mitigation actions are appropriate based on historical events and proximity of the facility to a water body. At the time of this 2018 HMP Update, the county did not identify any actions associated with these facilities.

The Town of Hampton understands the limitation of the map data and once the updated maps are available, the municipality will work with Washington County to determine which critical facilities are located within the 1% and 0.2% annual chance flood zones. Once identified, the municipality will work with the property owners and develop mitigation actions for each of the critical facilities, ensuring they will be protected to the 500-year (or worst-case scenario) level.

Table 9.17-5. Potential Flood Losses to Critical Facilities

Name	Type	Potential Flood Exposure
Hartford Central School	School	X

Source: Washington County; NYS GIS Clearinghouse

Other Vulnerabilities Identified

The municipality has identified the following vulnerabilities within their community:

- None identified

9.17.5 Capability Assessment

This section identifies the following capabilities of the local jurisdiction:

- Planning and regulatory capability
- Administrative and technical capability
- Fiscal capability
- Community classification
- National Flood Insurance Program
- Integration of Mitigation Planning into Existing and Future Planning Mechanisms

Planning and Regulatory Capability

The table below summarizes the regulatory tools that are available to the Town of Hartford.

Table 9.17-6. Planning and Regulatory Tools

Tool / Program (code, ordinance, plan)	Do you have this? (Yes/No) If Yes, date of adoption or update	Authority (local, county, state, federal)	Dept. /Agency Responsible	Code Citation and Comments (Code Chapter, name of plan, explanation of authority, etc.)
Planning Capability				
Master Plan	Yes (9/7/2010)	Local	Town Council	Hartford, New York Comprehensive Plan
Capital Improvements Plan	No	-	-	-
Floodplain Management / Basin Plan	No	-	-	-
Stormwater Management Plan	No	-	-	-
Open Space Plan	No	-	-	-
Stream Corridor Management Plan	No	-	-	-
Watershed Management or Protection Plan	No	-	-	-
Economic Development Plan	No	-	-	-
Comprehensive Emergency Management Plan	No	-	-	-
Emergency Response Plan	No	-	-	-
Post-Disaster Recovery Plan	No	-	-	-
Transportation Plan	No	-	-	-
Strategic Recovery Planning Report	No	-	-	-
Other Plans:	Yes (2012)	Local	Town Board	Agriculture and Farmland Protection Plan
Regulatory Capability				
Building Code	Yes	Local and State	Code Enforcement (county)	Chapter 24: Building Code Administration and Enforcement

Tool / Program (code, ordinance, plan)	Do you have this? (Yes/No) If Yes, date of adoption or update	Authority (local, county, state, federal)	Dept. /Agency Responsible	Code Citation and Comments (Code Chapter, name of plan, explanation of authority, etc.)
Zoning Ordinance	No	-	-	-
Subdivision Ordinance	No	-	-	-
NFIP Flood Damage Prevention Ordinance	Yes	Local	Enforcement Officer	Chapter 55 – Flood Damage Prevention
NFIP: Cumulative Substantial Damages	No	-	-	-
NFIP: Freeboard	Yes	State, Local	Code Enforcement (county)	State mandated BFE+2 for single and two-family residential construction, BFE+1 for all other construction types
Growth Management Ordinances	No	-	-	-
Site Plan Review Requirements	Yes	Local	Planning Board	Chapter 105 – Site Plan Review
Stormwater Management Ordinance	No	-	-	-
Municipal Separate Storm Sewer System (MS4)	No	-	-	-
Natural Hazard Ordinance	No	-	-	-
Post-Disaster Recovery Ordinance	No	-	-	-
Real Estate Disclosure Requirement	Yes	State	NYS Department of State, Real Estate Agent	NYS mandate, Property Condition Disclosure Act, NY Code - Article 14 §460-467
Other [Special Purpose Ordinances (i.e., sensitive areas, steep slope)]	No	-	-	-

Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the Town of Hartford.

Table 9.17-7. Administrative and Technical Capabilities

Resources	Is this in place? (Yes or No)	Department/ Agency/Position
Administrative Capability		
Planning Board	Yes	Planning Board
Mitigation Planning Committee	No	-
Environmental Board/Commission	No	-
Open Space Board/Committee	No	-
Economic Development Commission/Committee	No	-
Maintenance Programs to Reduce Risk	No	-
Mutual Aid Agreements	No	-
Technical/Staffing Capability		
Planner(s) or Engineer(s) with knowledge of land development and land management practices	No	-
Engineer(s) or Professional(s) trained in construction	No	-

Resources	Is this in place? (Yes or No)	Department/ Agency/Position
practices related to buildings and/or infrastructure		
Planners or engineers with an understanding of natural hazards	No	-
NFIP Floodplain Administrator	Yes	Enforcement Officer
Surveyor(s)	No	-
Personnel skilled or trained in GIS and/or HAZUS-MH applications	No	-
Scientist familiar with natural hazards	No	-
Emergency Manager	No	-
Grant Writer(s)	No	-
Staff with expertise or training in benefit/cost analysis	No	-
Professionals trained in conducting damage assessments	No	-

Fiscal Capability

The table below summarizes financial resources available to the Town of Hartford.

Table 9.17-8. 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	No
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	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	No

Community Classifications

The table below summarizes classifications for community program available to the Town of Hartford.

Table 9.17-9. Community Classifications

Program	Do you have this? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Community Rating System (CRS)	No	-	-
Building Code Effectiveness Grading Schedule (BCEGS)	No	-	-

Program	Do you have this? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Public Protection (ISO Fire Protection Classes 1 to 10)	Yes	10	6/15/15
NYSDEC Climate Smart Community	No	-	-
Storm Ready	No	-	-
Firewise	No	-	-
Disaster/Safety Programs in/for Schools	No	-	-
Organizations with Mitigation Focus (advocacy group, non-government)	No	-	-
Public Education Program/Outreach (through website, social media)	No	-	-
Public-Private Partnerships	No	-	-

N/A = Not applicable. NP = Not participating. - = Unavailable. TBD = To be determined.

The classifications listed above relate to the community's ability to provide effective services to lessen its vulnerability to the hazards identified. These classifications can be viewed as a gauge of the community's capabilities in all phases of emergency management (preparedness, response, recovery and mitigation) and are used as an underwriting parameter for determining the costs of various forms of insurance. The CRS class applies to flood insurance while the BCEGS and Public Protection classifications apply to standard property insurance. CRS classifications range on a scale of 1 to 10 with class 1 being the best possible classification, and class 10 representing no classification benefit. Firewise classifications include a higher classification when the subject property is located beyond 1000 feet of a creditable fire hydrant and is within 5 road miles of a recognized Fire Station.

Criteria for classification credits are outlined in the following documents:

- The Community Rating System Coordinators Manual
- The Building Code Effectiveness Grading Schedule website at: https://www.isomitigation.com/bcegs/
- The ISO Mitigation online ISO's Public Protection website at https://www.isomitigation.com/ppc/
- The National Weather Service Storm Ready website at https://www.weather.gov/stormready/
- The National Firewise Communities website at http://firewise.org/

Self-Assessment of Capability

The table below provides an approximate measure of the Town of Hartford's capability to work in a hazard-mitigation capacity and/or effectively implement hazard mitigation strategies to reduce hazard vulnerabilities.

Table 9.17-10. Self-Assessment Capability for the Municipality

Area	Degree of Hazard Mitigation Capability		
	Limited (If limited, what are your obstacles?)	Moderate	High
Planning and Regulatory Capability	X – limited staff and funding		
Administrative and Technical Capability	X – limited staff and funding		
Fiscal Capability	X – limited staff and funding		
Community Political Capability	X – limited staff and		

Area	Degree of Hazard Mitigation Capability		
	Limited (If limited, what are your obstacles?)	Moderate	High
	funding		
Community Resiliency Capability	X – limited staff and funding		
Capability to Integrate Mitigation into Municipal Processes and Activities.	X – limited staff and funding		

National Flood Insurance Program

NFIP Floodplain Administrator (FPA)

The Town's Enforcement Officer or other person designated by the Town Board is the NFIP floodplain administrator (FPA).

Flood Vulnerability Summary

Hartford has no regulatory floodplains as determined by the Federal Emergency Management Agency (FEMA). However, soil maps indicate small areas, primarily adjacent to streams and creeks, that may be prone to periodic, seasonal flooding.

Given the town's terrain, flood-related hazards in Hartford would more likely be caused by fluvial erosion along small streams than inundation with floodwater. Fluvial erosion occurs when a stream, swollen with water from a heavy storm or rapid snow melt, moves horizontally eroding its banks and potentially cutting a new stream channel.

Resources

The Town does not provide public education or outreach materials in regard to flooding and floodplain management in the town. However, the town does encourage maintenance of vegetated buffers along streams and ponds, and keep new buildings a safe distance away from streams to minimize flood hazards.

Compliance History

According to the most recent FEMA Community Status Book Report for New York State, the Town of Hartford is in good standing with the NFIP. As of the date of this plan update, information provided by the New York State Department of Environmental Conservation (NYS DEC), the Town of Hartford has not had a compliance audit conducted.

Regulatory

The Town's flood damage prevention chapter meets the minimum set by FEMA and NYS. It promotes the public health, safety, and general welfare of residents and seeks to minimize public and private losses due to flood conditions. The chapter regulates development to promote flood resistant structures and controls the alteration of floodplains to prevent increased vulnerability.

Integration of Hazard Mitigation into Existing and Future Planning Mechanisms

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 this planning effort, each community was surveyed to obtain a better understanding of their community's progress in plan integration. A summary is provided below. In

addition, the community identified specific integration activities that will be incorporated into municipal procedures.

Planning

Land Use Planning: The Town of Hartford has a Planning Board and Zoning Board of Appeals which review all applications for development and consider natural hazard risk areas in their review. Many development activities require additional levels of environmental review, specifically NYS SEQR and Federal NEPA requirements. The Town also has several committees, including a Comprehensive Planning Committee, which assisted in drafting the 2012 Town Comprehensive Plan, a Right to Farm committee, and an Agricultural & Farmland Protection Plan Agricultural Advisory Committee, which assists residents in the agricultural economy.

Town of Hartford 2010 Comprehensive Plan: The Town of Hartford Town Council adopted a Comprehensive Plan in 2010 to guide the town's efforts in land use planning, development review, the provision of public facilities and services, environmental protection, economic development and land conservation. The plan includes the identification of natural hazard risk areas, like wetlands and floodplains, as well as land use and zoning recommendations for managing risks and directing growth. Some of the recommendations included the following:

- Encourage maintenance of vegetated buffers along streams and ponds, and keep new buildings a safe distance away from streams to minimize flood hazards.
- Use the town's subdivision law to minimize disturbance of environmentally sensitive features by designating where development may occur on newly created lots.
- Continue to provide emergency services with primarily volunteer staffing.
- Use the town's subdivision and site plan review laws to ensure wastewater and stormwater will be treated and managed to prevent contamination, pollution and other reductions in environmental quality.

Agriculture and Farmland Protection Plan: This plan considers measures necessary to ensure the continuation of agriculture and farmland in the Town of Hartford. The Town identified impacts on natural resources, and physical conditions of the land such as steep slopes as potential threats to the community's agriculture industry. The plan is available publicly on the Town's website.

Lake Champlain Watershed Water Quality Management Planning: Roadside Erosion Assessment and Inventory: The Lake Champlain Watershed Water Quality Management Planning project was one of 11 projects in New York State that was funded through the Federal Government's American Recovery and Reinvestment Act Initiative. The goal of the project was to identify critically eroding roadside banks that have contributed significant sediment loads to the high-quality streams throughout the Champlain Watershed (Clinton, Essex, Franklin, Warren and Washington Counties). The plan identified 319 roadside erosion sites in need to remediation. In Washington County, 31 sites were identified (12 high priority, 11 moderate priority, and 8 low priority). Five sites were located in the Town of Hartford.

Regulatory and Enforcement

Code Enforcement: Washington County provides code enforcement duties and responsibilities to the Town of Hartford.

Construction Codes, Uniform: The building codes are strictly enforced to make new and renovated buildings as prepared as possible for hazard related incidents. The Town complies with New York State Uniform Fire

Prevention and Building Code (the Uniform Code) and the State Energy Conservation Construction Code (the Energy Code).

Flood Damage Prevention Chapter 55: This chapter promotes the public health, safety, and general welfare of residents and seeks to minimize public and private losses due to flood conditions. The chapter regulates development to promote flood resistant structures and controls the alteration of floodplains to prevent increased vulnerability.

The Town of Hartford has no regulatory floodplains as determined by the Federal Emergency Management Agency (FEMA). However, soil maps indicate small areas, primarily adjacent to streams and creeks that may be prone to periodic, seasonal flooding.

Sewers Chapter: The Town abides by the County-wide Sanitary Code, which protects and regulates its sewage collection and treatment facilities as a matter of public health and environmental safety. It seeks to prohibit the introduction of stormwater, surface, or sub-surface waters into sanitary sewers and to control the quantity and quality of wastes in the sewage system.

Site Plan Review Chapter 105: The Town's Planning Board is tasked with site plan review. The purpose of the review is to ensure that developments promote the health, safety and general welfare of the Town while conserving and protecting agricultural resources and safeguarding environmental resources.

Subdivision of Land Chapter 120: The Town's 2012 Subdivision Ordinance includes provisions for stormwater management, erosion and sediment control, and emergency access. The Planning Board is tasked with reviewing subdivision proposals, along with complete site plans, to ensure that developments meet the requirements of Chapter 120 and the stormwater management and erosion and sediment control provisions set by NYS DEC, and mitigate the issues associated natural hazards.

Fiscal

Grants: In 2009, Hartford Volunteer Fire Company was awarded a $176,368 grant from U.S. Department of Homeland Security for the purchase of a new fire tanker to replace two older trucks.

Education and Outreach

Association of towns training – every year the association of towns holds a training school and annual meeting in February in New York City. The town budgeted for the meeting in order that a member of the town board be able to attend.

Public Safety Webpage: Main webpage provides notice of road closures and highlights smoke alarm giveaway program through the American Red Cross and County 911 Disabled Persons Registry.

The Hartford Volunteer Fire Company, which formed in 1927, provides fire protection and emergency response in the town. In 2000, the company initiated a First Response Team to respond to medical emergencies. The fire company responds to 10 to 20 calls each month, a large percentage of which are automobile accidents.

9.17.6 Mitigation Strategy and Prioritization

This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and prioritization.

Past Mitigation Initiative Status

The following table indicates progress on the community's mitigation strategy identified in the 2010 Plan. It should be noted that during the 2010 planning process, only general, countywide actions were identified for each municipality. The Town of Hampton reviewed the previous actions and selected actions they chose to carry forward as part of this plan update. Previous actions that are now on-going programs and capabilities are indicated as such in the following table and may also be found under 'Capability Assessment' presented previously in this annex.

Table 9.17-11. Status of Previous Mitigation Actions

2010 Mitigation Action	Responsible Party	Status (In progress, No progress, Complete)	Describe Status	Next Step (Include in 2018 HMP or Discontinue)	Describe Next Step
Improve drainage at sites where roads have washed out due to natural hazards in the past	County and NYS DHSES	No Progress	Limited funds and staffing	Include in 2018 HMP Update	The town has identified several locations where culverts need to be upgraded; refer to Table 9.17-12 for the revised actions
Purchase equipment to provide for local personnel to conduct the drainage improvement	County and NYS DHSES	No Progress	Limited funds and staffing	Discontinue	At the time of this plan update, this action is not a concern for the community. Therefore, it will not be included in the 2018 HMP Update.
Engineering assessment to determine feasibility of each site improvement	County and NYS DHSES	No Progress	Limited funds and staffing	Include in 2018 HMP Update	The town has identified several locations where culverts need to be upgraded; refer to Table 9.17-12 for the revised actions
Improve dams to prevent flooding causing roads to wash out.	County and NYS DHSES	No Progress	Limited funds and staffing	Discontinue	At the time of this plan update, this action is not a concern for the community. Therefore, it will not be included in the 2018 HMP Update.
Improve identified sites where slope stability is subject to land subsidence and where excavation or planting could mitigate future damage.	County and NYS DHSES	No Progress	Limited funds and staffing	Include in 2018 HMP Update	The town has identified several locations where culverts need to be upgraded; refer to Table 9.17-12 for the revised actions

Completed Mitigation Initiatives Not Identified in the Previous Mitigation Strategy

The Town of Hartford has identified the following mitigation projects/activities that have also been completed but were not identified in the previous mitigation strategy in the 2010 Plan:

- None identified

Proposed Hazard Mitigation Initiatives for the Plan Update

The Town of Harford participated in a mitigation action workshop in September 2016 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).

Table 9.17-12 summarizes the comprehensive-range of specific mitigation initiatives the Town of Hartford would like to pursue in the future to reduce the effects of hazards. Some of these initiatives may be previous actions carried forward for this plan update. These 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. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table below to further demonstrate the wide-range of activities and mitigation measures selected.

As discussed in Section 6, 14 evaluation/prioritization criteria are used 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 your actions as 'High', 'Medium', or 'Low.' The table below summarizes the evaluation of each mitigation initiative, listed by Action Number.

Table 9.17-13 provides a summary of the prioritization of all proposed mitigation initiatives for the Plan update.

Table 9.17-12. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
T. Hartford-1 (previous action)	Warren Road – • Re-grade, install stone and hydroseed with conservation mix • Re-shape ditch and hydroseed with conservation mix and soil amendments • Hydroseed with conservation mix and soil amendments											
	See above	Existing	Flood, Erosion	1	Town with support from Lake Champlain-Lake George Regional Planning Board	Medium	Low	County Soil & Water Conservation district, municipal budget, Water Quality Improvement Project Grants	Short Term	High	SIP	PP, NR
T. Hartford-2 (previous action)	State Route 149 – hydroseed with conservation mix and soil amendments	Existing	Flood, Erosion	1	Town with support from Lake Champlain-Lake George Regional Planning Board	Medium	Low	County Soil & Water Conservation district, municipal budget, Water Quality Improvement Project Grants	Short Term	High	SIP	PP, NR
T. Hartford-3 (previous action)	Washburn Hill Road – hydroseed with conservation mix	Existing	Flood, Erosion	1	Town with support from Lake Champlain-Lake George Regional Planning Board	Medium	Low	County Soil & Water Conservation district, municipal budget, Water Quality Improvement Project Grants	Short Term	Medium	SIP	PP, NR

Notes:

Not all acronyms and abbreviations defined below are included in the table.

**Does this mitigation initiative reduce the effects of hazards on new and/or existing buildings and/or infrastructure? Not applicable (N/A) is inserted if this does not apply.*

Acronyms and Abbreviations:

CAV	*Community Assistance Visit*
CRS	*Community Rating System*
DPW	*Department of Public Works*
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*
PDM	*Pre-Disaster Mitigation Grant Program*
RFC	*Repetitive Flood Claims Grant Program (discontinued in 2015)*
SRL	*Severe Repetitive Loss Grant Program (discontinued in 2015)*

Timeline:

Short	*1 to 5 years*
Long Term	*5 years or greater*
OG	*On-going program*
DOF	*Depending on funding*

Costs:

Where actual project costs have been reasonably estimated:

Low	*< $10,000*
Medium	*$10,000 to $100,000*
High	*> $100,000*

Where actual project costs cannot reasonably be established at this time:

Low	*Possible to fund under existing budget. Project is part of, or can be part of an existing on-going program.*
Medium	*Could budget for under existing work plan, but would require a reapportionment of the budget or a budget amendment, or the cost of the project would have to be spread over multiple years.*
High	*Would require an increase in revenue via an alternative source (i.e., bonds, grants, fee increases) to implement. Existing funding levels are not adequate to cover the costs of the proposed project.*

Benefits:

Where possible, an estimate of project benefits (per FEMA's benefit calculation methodology) has been evaluated against the project costs, and is presented as:

Low=	*< $10,000*
Medium	*$10,000 to $100,000*
High	*> $100,000*

Where numerical project benefits cannot reasonably be established at this time:

Low	*Long-term benefits of the project are difficult to quantify in the short term.*
Medium	*Project will have a long-term impact on the reduction of risk exposure to life and property, or project will provide an immediate reduction in the risk exposure to property.*
High	*Project will have an immediate impact on the reduction of risk exposure to life and property.*

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*

Table 9.17-13. Summary of Prioritization of Actions

Mitigation Action/Project Number	Mitigation Action/Initiative	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
T. Hartford-1	Warren Road	1	1	1	1	1	0	0	1	0	1	1	1	1	0	10	High
T. Hartford-2	State Route 149	1	1	1	1	1	0	0	1	0	1	1	1	1	0	10	High
T. Hartford-3	Washburn Hill Road	1	1	1	1	1	0	0	1	0	1	1	1	1	0	910	Medium

Note: Refer to Section 6 which contains the guidance on conducting the prioritization of mitigation actions.

9.17.7 Future Needs To Better Understand Risk/Vulnerability

None at this time.

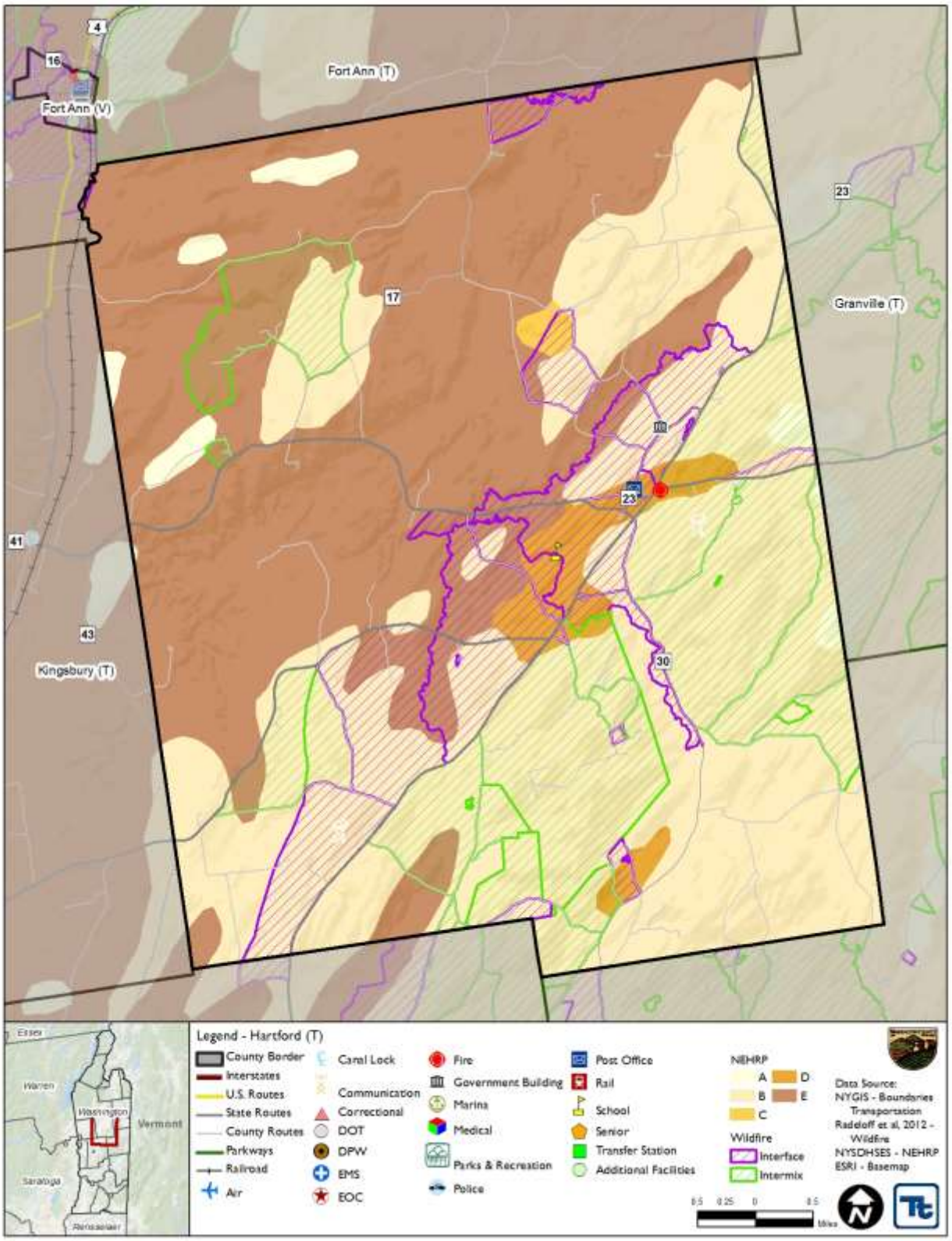
9.17.8 Hazard Area Extent and Location

Hazard area extent and location maps have been generated for the Town of Hartford that illustrate the probable areas impacted within the municipality. These maps are based on the best available data at the time of the preparation of this plan, and are considered to be adequate for planning purposes. Maps have only been generated for those hazards that can be clearly identified using mapping techniques and technologies, and for which the Town of Hartford has significant exposure. These maps are illustrated in the hazard profiles within Section 5.4, Volume I of this Plan.

9.17.9 Additional Comments

None at this time.

Figure 9.17-1. Town of Hartford Hazard Area Extent and Location



Action Number: T. Hartford-1

Mitigation Action Name: Improvements to Warren Road.

Assessing the Risk	
Hazard(s) addressed:	Flood, Erosion
Specific problem being mitigated:	Steep slopes along the stream bank adjacent to Warren Road are subject to erosion.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Relocate Warren Road – not feasible.
Action/Project Intended for Implementation	
Description of Selected Action/Project	This project will include improvements to Warren Road. The area will be regraded and stone will be installed to slow water velocity, catch debris, and provide erosion protection. Another section of the road will have a ditch reshaped. All areas regraded and reshaped will be hydroseeded with a slurry of grass, vegetative seed, mulch, fertilizer, and water. This will be applied to bare soil areas and will help stabilize the area, increase water absorption, and reduce sediment loss.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	Goal 1: Protect Life and Property
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	Medium
Estimated Cost	Low
Priority*	High
Plan for Implementation	
Responsible Organization	Town with support from Lake Champlain-Lake George Regional Planning Board
Local Planning Mechanism	Hazard Mitigation; Engineering
Potential Funding Sources	County Soil & Water Conservation district, municipal budget, Water Quality Improvement Project Grants
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	New project; no progress

Action Number: T. Hartford-1

Mitigation Action Name: Improvements to Warren Road.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	0	
Fiscal	0	
Environmental	1	
Social	0	
Administrative	1	
Multi-Hazard	1	Flood, Erosion
Timeline	1	Short term – proposed to be completed in next five years
Agency Champion	1	
Other Community Objectives	0	
Total	10	
Priority (H/M/L)	High	

Action Number: T. Hartford-2

Mitigation Action Name: State Route 149.

Assessing the Risk	
Hazard(s) addressed:	Flood, Erosion
Specific problem being mitigated:	Moderate slopes along the stream bank adjacent to Route 149 are subject to erosion.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Install retaining wall along stream bank – costly.
Action/Project Intended for Implementation	
Description of Selected Action/Project	State Route 149 –Replanting the erosion area in order to help to control stormwater run-off and erosion. The area will be hydroseeded with a slurry of grass, vegetative seed, mulch, fertilizer, and water. This will be applied to bare soil areas and will help stabilize the area, increase water absorption, and reduce sediment loss.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	Goal 1: Protect Life and Property
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	Medium
Estimated Cost	Low
Priority*	High
Plan for Implementation	
Responsible Organization	Town with support from Lake Champlain-Lake George Regional Planning Board
Local Planning Mechanism	Hazard Mitigation; Engineering
Potential Funding Sources	County Soil & Water Conservation district, municipal budget, Water Quality Improvement Project Grants
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	New project; no progress

Action Number: T. Hartford-2
Mitigation Action Name: State Route 149.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	0	
Fiscal	0	
Environmental	1	
Social	0	
Administrative	1	
Multi-Hazard	1	Flood, Erosion
Timeline	1	Short term – proposed to be completed in next five years
Agency Champion	1	
Other Community Objectives	0	
Total	10	
Priority (H/M/L)	High	

Action Number: T. Hartford-3

Mitigation Action Name: Washburn Hill Road.

Assessing the Risk	
Hazard(s) addressed:	Flood, Erosion
Specific problem being mitigated:	Moderate slopes along the stream bank adjacent to Washburn Hill Road are subject to erosion and increase sediment load to adjacent streams.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Install retaining wall along stream bank – costly.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Washburn Hill Road - Replanting the erosion area in order to help to control stormwater run-off and erosion. The area will be hydroseeded with a slurry of grass, vegetative seed, mulch, fertilizer, and water. This will be applied to bare soil areas and will help stabilize the area, increase water absorption, and reduce sediment loss.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	Goal 1: Protect Life and Property
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	Medium
Estimated Cost	Low
Priority*	Medium
Plan for Implementation	
Responsible Organization	Town with support from Lake Champlain-Lake George Regional Planning Board
Local Planning Mechanism	Hazard Mitigation; Engineering
Potential Funding Sources	County Soil & Water Conservation district, municipal budget, Water Quality Improvement Project Grants
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	New project; no progress

Action Number: T. Hartford-3
Mitigation Action Name: Washburn Hill Road.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	0	
Fiscal	0	
Environmental	1	
Social	0	
Administrative	1	
Multi-Hazard	1	Flood, Erosion
Timeline	1	Short term – proposed to be completed in next five years
Agency Champion	1	
Other Community Objectives	0	
Total	10	
Priority (H/M/L)	High	

9.18 TOWN OF HEBRON

This section presents the jurisdictional annex for the Town of Hebron.

9.18.1 Hazard Mitigation Plan Point of Contact

The following individuals have been identified as the hazard mitigation plan's primary and alternate points of contact.

Primary Point of Contact	Alternate Point of Contact
Floyd Pratt, Highway Superintendent 3163 County Route 30, Salem, NY (518) 854-3078 hebronhighway@yahoo.com	Brian Campbell, Town Supervisor 3163 County Route 30, Salem, NY (518) 642-9505 brian@hebryonny.com

9.18.2 Municipal Profile

The Town of Hebron is located along the eastern border of Washington County. It is bordered to the north by the Towns of Granville and Hartford, to the south by the Town of Salem, to the east by Vermont, and to the west by the Town of Argyle. New York Route 22 is a north-south highway through the eastern part of the Town. Route 30 connects the Towns of Salem and Hartford through the western part of the Town. Route 31 is the longest road through the Town of Hebron and cuts across diagonally from Route 30 connecting West Hebron to West Pawlet (Vermont). There are several communities that are found within the Town and include the following: Belcher, Castle Green, East Hebron, North Hebron, Porter, Slateville, Tiplady, and West Hebron. There are several creeks, ponds and lakes that are located in the Town as well and include: Barkley's Lake, Black Creek, Black Creek Falls, Green Pond, Irwin Road Pond, and Smith Lake.

According to the 2010 Census, the population of the Town was 1,853. The Town of Hebron has a total area of 56.4 square miles, of which 56.2 square miles of it is land and 0.2 square miles of it is water.

Growth/Development Trends

The following table summarizes recent residential/commercial development since 2010 to present and any known or anticipated major residential/commercial development and major infrastructure development that has been identified in the next five years within the municipality.

Table 9.18-1. Growth and Development

Property or Development Name	Type (e.g. Res., Comm.)	# of Units / Structures	Location (address and/or Parcel ID)	Known Hazard Zone(s)*	Description/Status of Development
Recent Development from 2010 to present					
None identified					
Known or Anticipated Development in the Next Five (5) Years					
Upgrade culverts on Cross Road	Comm.	None	Cross Road	Flooding	Upgrade culverts on roadway

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

9.18.3 Natural Hazard Event History Specific to the Municipality

Washington County has a history of natural and non-natural hazard events as detailed in Volume I, Section 5.0 of this plan. 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. For the purpose of this plan update,

events that have occurred in the County from 2008 to present were summarized to indicate the range and impact of hazard events in the community. Information regarding specific damages is included, if available, based on reference material or local sources. This information is presented in the table below. For details of these and additional events, refer to Volume I, Section 5.0 of this plan.

Table 9.18-2. Hazard Event History

Dates of Event	Event Type (Disaster Declaration if applicable)	Washington County Designated?	Summary of Damages/Losses
December 11-31, 2008	Severe Winter Storm DR-1827	Yes	Roads in the Town were closed due to icing conditions and downed trees and power lines. Public assistance was requested by the Town and total losses were over $104,000.
August 26-September 5, 2011	Hurricane/T.S. Irene DR-4020	Yes	Irene led to road closures throughout the Town. Infrastructure was damaged at many locations in the community as well. Public assistance was requested by the Town and losses totaled over $54,000.

Notes:

EM *Emergency Declaration (FEMA)*
FEMA *Federal Emergency Management Agency*
DR *Major Disaster Declaration (FEMA)*
IA *Individual Assistance*
N/A *Not applicable*
PA *Public Assistance*

9.18.4 Hazard Vulnerabilities and Ranking

The hazard profiles in Section 5.0 of this plan have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes the hazard vulnerabilities and their ranking in the Town of Hebron. For additional vulnerability information relevant to this jurisdiction, refer to Section 5.0. Refer to Figure 9.18-1 later in this annex for hazard vulnerable areas located in the Town of Hebron.

Natural Hazard Risk/Vulnerability Risk Ranking

As discussed in Section 5.3 (Hazard Ranking), each participating town or village may have differing degrees of risk exposure and vulnerability compared to Washington County as a whole. Therefore, each municipality 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 Hebron. Table 9.18-12 provides proposed mitigation initiatives for the high ranked hazards.

Table 9.18-3. Hazard Risk/Vulnerability Risk Ranking

Hazard type	Estimate of Potential Dollar Losses to Structures Vulnerable to the Hazard [a, c]	Probability of Occurrence	Risk Ranking Score (Probability x Impact)	Hazard Ranking [b]
Earthquake	100-Year GBS: $0 500-Year GBS: $1,774,192 2,500-Year GBS: $17,310,675	Occasional	28	Medium
Flood	Damage estimate not available.	Frequent	30	Medium
Severe Weather	100-Year MRP: $27,921 500-year MRP: $846,807 Annualized: $4,502	Frequent	48	High

Hazard type	Estimate of Potential Dollar Losses to Structures Vulnerable to the Hazard [a, c]	Probability of Occurrence	Risk Ranking Score (Probability x Impact)	Hazard Ranking [b]
Severe Winter Weather	1% GBS: $3,772,132 5% GBS: $18,860,662	Frequent	51	High
Wildfire	Estimated Value in the WUI Hazard Areas: $354,413,720	Frequent	48	High

Notes:

a. Building damage ratio estimates based on FEMA 386-2 (August 2001)

b. The valuation of general building stock and loss estimates was based on custom inventory for the municipality.
High = Total hazard priority risk ranking score of 31 and above
Medium = Total hazard priority risk ranking of 20-30+
Low = Total hazard risk ranking below 20

c. Loss estimates for the severe storm and severe winter storm hazards are structural values only and do not include the value of contents.

d Loss estimates for the flood and earthquake hazards represent both structure and contents.

e. The HAZUS-MH earthquake model results are reported by Census Tract.

f. Damage estimate for flood unavailable due to lack of digital floodplain data for Washington County.

National Flood Insurance Program (NFIP) Summary

The following table summarizes the NFIP statistics for the Town of Hebron.

Table 9.18-4. NFIP Summary

Municipality	# Policies (1)	# Claims (Losses) (1)	Total Loss Payments (2)	# Rep. Loss Prop. (1)	# Severe Rep. Loss Prop. (1)
Hebron (T)	9	2	$30,912	0	0

Source: FEMA, 2016

Note (1) Policies, claims, repetitive loss and severe repetitive loss statistics provided by FEMA and are current as of April 30, 2016 and are summarized by Community Name. Please note the total number of repetitive loss properties excludes the severe repetitive loss properties. The number of claims represents claims closed by 4/30/2016.

Note (2) Total building and content losses from the claims file provided by FEMA Region 2.

Note (3) The policies inside and outside of the flood zones are unavailable due to lack of digital floodplain for Washington County.

Note (4) FEMA noted that where there is more than one entry for a property, there may be more than one policy in force or more than one GIS possibility.

Critical Facilities

At the time of this HMP Update, digitized flood maps for Washington County are unavailable. In order to provide some level of beneficial analysis, a desktop analysis was performed to identify critical facilities located within the floodplain (refer to Section 5.1 [Methodology and Tools] for details). The following table identifies critical facilities located within the municipality and their exposure, if any, to the possible floodplain. This information is a resource for the municipality to determine if flood mitigation actions are appropriate based on historical events and proximity of the facility to a water body. At the time of this 2018 HMP Update, the municipality did not identify any actions associated with these facilities.

The Town of Hebron understands the limitation of the map data and once the updated maps are available, the municipality will work with Washington County to determine which critical facilities are located within the 1% and 0.2% annual chance flood zones. Once identified, the municipality will work with the property owners and develop mitigation actions for each of the critical facilities, ensuring they will be protected to the 500-year (or worst-case scenario) level.

Table 9.18-5. Potential Flood Losses to Critical Facilities

Name	Type	Potential Flood Exposure
Hebron Court	Court	X
Hebron Fire Dept Sta. 1	Fire	X
Hebron Highway Dept	Highway	X
Hebron Volunteer Fire Department - Station 1	Fire	X
Town of Hebron	Municipal Hall	X
Washington County DPW Hebron Barn	DPW	X

Source: Washington County; NYS GIS Clearinghouse

Other Vulnerabilities Identified

The municipality has identified the following vulnerabilities within their community:

- None identified

9.18.5 Capability Assessment

This section identifies the following capabilities of the local jurisdiction:

- Planning and regulatory capability
- Administrative and technical capability
- Fiscal capability
- Community classification
- National Flood Insurance Program
- Integration of Mitigation Planning into Existing and Future Planning Mechanisms

Planning and Regulatory Capability

The table below summarizes the regulatory tools that are available to the Town of Hebron.

Table 9.18-6. Planning and Regulatory Tools

Tool / Program (code, ordinance, plan)	Do you have this? (Yes/No) If Yes, date of adoption or update	Authority (local, county, state, federal)	Dept. /Agency Responsible	Code Citation and Comments (Code Chapter, name of plan, explanation of authority, etc.)
Planning Capability				
Master Plan	No	-	-	-
Capital Improvements Plan	Yes	Local	Town Board	Information not provided at the time of the 2018 HMP Update
Floodplain Management / Basin Plan	No	-	-	-
Stormwater Management Plan	No	-	-	-
Open Space Plan	Yes	Local	Town Board	Right to Farm law
Stream Corridor Management Plan	No	-	-	-
Watershed Management or Protection Plan	No	-	-	-
Economic Development Plan	No	-	-	-
Comprehensive Emergency Management Plan	Yes	County	County Public Safety	2016 CEMP

Tool / Program (code, ordinance, plan)	Do you have this? (Yes/No) If Yes, date of adoption or update	Authority (local, county, state, federal)	Dept. /Agency Responsible	Code Citation and Comments (Code Chapter, name of plan, explanation of authority, etc.)
Emergency Response Plan	No	-	-	-
Post-Disaster Recovery Plan	No	-	-	-
Transportation Plan	No			
Strategic Recovery Planning Report	No			
Other Plans:	No			
Regulatory Capability				
Building Code	Yes	State & Local	Code Enforcement (county)	Building Code of New York State (NYS), Local Law #1
Zoning Ordinance	No	-	-	-
Subdivision Ordinance	Yes	Local	Planning Board	Information not provided at the time of the 2018 HMP Update
NFIP Flood Damage Prevention Ordinance	Yes	Federal, State, Local	Supervisor	Information not provided at the time of the 2018 HMP Update
NFIP: Cumulative Substantial Damages	No	-	-	-
NFIP: Freeboard	Yes	State, Local	Supervisor and Code Enforcement	State mandated BFE+2 for single and two-family residential construction, BFE+1 for all other construction types
Growth Management Ordinances	No	-	-	-
Site Plan Review Requirements	No	-	-	-
Stormwater Management Ordinance	No	-	-	-
Municipal Separate Storm Sewer System (MS4)	No	-	-	-
Natural Hazard Ordinance	No	-	-	-
Post-Disaster Recovery Ordinance	No	-	-	-
Real Estate Disclosure Requirement	Yes	State	NYS Department of State, Real Estate Agent	NYS mandate, Property Condition Disclosure Act, NY Code - Article 14 §460-467
Other [Special Purpose Ordinances (i.e., sensitive areas, steep slope)]	No	-	-	-

Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the Town of Hebron.

Table 9.18-7. Administrative and Technical Capabilities

Resources	Is this in place? (Yes or No)	Department/ Agency/Position
Administrative Capability		
Planning Board	Yes	Planning Board

Resources	Is this in place? (Yes or No)	Department/ Agency/Position
Mitigation Planning Committee	No	-
Environmental Board/Commission	No	-
Open Space Board/Committee	No	-
Economic Development Commission/Committee	No	-
Maintenance Programs to Reduce Risk	No	-
Mutual Aid Agreements	Yes	surrounding municipalities
Technical/Staffing Capability		
Planner(s) or Engineer(s) with knowledge of land development and land management practices	Yes	Contract engineers when needed; utilize county resources
Engineer(s) or Professional(s) trained in construction practices related to buildings and/or infrastructure	Yes	Contract engineers when needed; utilize county resources
Planners or engineers with an understanding of natural hazards	Yes	Contract engineers when needed; utilize county resources
NFIP Floodplain Administrator	Yes	Supervisor as per Flood Damage Prevention Ordinance
Surveyor(s)	No	-
Personnel skilled or trained in GIS and/or HAZUS-MH applications	No	-
Scientist familiar with natural hazards	No	-
Emergency Manager	Yes	Supervisor
Grant Writer(s)	No	-
Staff with expertise or training in benefit/cost analysis	No	-
Professionals trained in conducting damage assessments	No	-

Fiscal Capability

The table below summarizes financial resources available to the Town of Hebron.

Table 9.18-8. 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	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	No

Community Classifications

The table below summarizes classifications for community program available to the Town of Hebron.

Table 9.18-9. Community Classifications

Program	Do you have this? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Community Rating System (CRS)	No	NP	N/A
Building Code Effectiveness Grading Schedule (BCEGS)	No	NP	N/A
Public Protection (ISO Fire Protection Classes 1 to 10)	Yes	8B/10	9/24/15
NYSDEC Climate Smart Community	No	NP	N/A
Storm Ready	No	NP	N/A
Firewise	No	NP	N/A
Disaster/Safety Programs in/for Schools	No	N/A	N/A
Organizations with Mitigation Focus (advocacy group, non-government)	No	N/A	N/A
Public Education Program/Outreach (through website, social media)	No	N/A	N/A
Public-Private Partnerships	No	N/A	N/A

N/A = Not applicable. NP = Not participating. - = Unavailable. TBD = To be determined.

The classifications listed above relate to the community's ability to provide effective services to lessen its vulnerability to the hazards identified. These classifications can be viewed as a gauge of the community's capabilities in all phases of emergency management (preparedness, response, recovery and mitigation) and are used as an underwriting parameter for determining the costs of various forms of insurance. The CRS class applies to flood insurance while the BCEGS and Public Protection classifications apply to standard property insurance. CRS classifications range on a scale of 1 to 10 with class 1 being the best possible classification, and class 10 representing no classification benefit. Firewise classifications include a higher classification when the subject property is located beyond 1000 feet of a creditable fire hydrant and is within 5 road miles of a recognized Fire Station.

Criteria for classification credits are outlined in the following documents:

- The Community Rating System Coordinators Manual
- The Building Code Effectiveness Grading Schedule website at https://www.isomitigation.com/bcegs/
- The ISO Mitigation online ISO's Public Protection website at https://www.isomitigation.com/ppc/
- The National Weather Service Storm Ready website at https://www.weather.gov/stormready/
- The National Firewise Communities website at https://www.nfpa.org/Public-Education/By-topic/Wildfire/Firewise-USA

Self-Assessment of Capability

The table below provides an approximate measure of the Town of Hebron's capability to work in a hazard-mitigation capacity and/or effectively implement hazard mitigation strategies to reduce hazard vulnerabilities.

Table 9.18-10. Self-Assessment Capability for the Municipality

	Degree of Hazard Mitigation Capability

Area	Limited (If limited, what are your obstacles?)	Moderate	High
Planning and Regulatory Capability	X – limited staff and funding		
Administrative and Technical Capability	X – limited staff and funding		
Fiscal Capability	X – limited staff and funding		
Community Political Capability	X – limited staff and funding		
Community Resiliency Capability	X – limited staff and funding		
Capability to Integrate Mitigation into Municipal Processes and Activities.	X – limited staff and funding		

National Flood Insurance Program

NFIP Floodplain Administrator (FPA)

While the Flood Damage Prevention Ordinance indicates that the supervisor is the FPA; Mr. Floyd Pratt, Highway Superintendent, provided the following information.

Flood Vulnerability Summary

The Town maintains list/inventories of properties that have been damaged by floods; however, it does not identify property owners who are interested in mitigation (elevation or acquisition). During recent flood events in the Town, there were no reports of structures damaged as a result of the storms. The FPA does make substantial damage estimates for the Town. There is currently no interest in mitigation.

Resources

The FPA is the sole person assuming the roles and responsibilities as the municipal FPA. NFIP administration services and functions provided by the FPA include damage assessments. Education and outreach regarding flood hazards/risk and flood risk reduction is not provided by the Town or FPA. The FPA indicated that there are currently no barriers to running an effective floodplain management program; however, he does not feel adequately trained or supported to fulfill his role. The FPA stated that he would consider training if it were offered on floodplain management.

Compliance History

The Town is currently in good standing with the NFIP. According to NYS DEC, the most recent compliance audit was conducted January 19, 2017.

Regulatory

The Town's floodplain management ordinance meets the minimum set by FEMA and New York State. The Town does not have any other local ordinances, plans or programs that support floodplain management in the Town.

Integration of Hazard Mitigation into Existing and Future Planning Mechanisms

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 this planning effort, each community was surveyed to obtain a better understanding of their community's progress in plan integration. A summary is provided below. In

addition, the community identified specific integration activities that will be incorporated into municipal procedures.

Planning

Land Use Planning: The Town of Hebron has a Planning Board which reviews all applications for development and consider natural hazard risk areas in their review.

Regulatory and Enforcement

Code Enforcement: Washington County provides code enforcement duties and responsibilities to the Town of Hebron.

Construction Codes, Uniform: The building codes are strictly enforced to make new and renovated buildings as prepared as possible for hazard related incidents. The Town complies with New York State Uniform Fire Prevention and Building Code (the Uniform Code) and the State Energy Conservation Construction Code (the Energy Code).

Sewers: The Town abides by the County-wide Sanitary Code, which protects and regulates its sewage collection and treatment facilities as a matter of public health and environmental safety. It seeks to prohibit the introduction of stormwater, surface, or sub-surface waters into sanitary sewers and to control the quantity and quality of wastes in the sewage system.

Fiscal

Operating Budget: The Town's operating budget contains provisions for expected repairs like snow removal and infrastructure repair after a storm or natural disaster. Additionally, budgets in the future will include line items for hazard mitigation projects and activities.

9.18.6 Mitigation Strategy and Prioritization

This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and prioritization.

Past Mitigation Initiative Status

The following table indicates progress on the community's mitigation strategy identified in the 2010 Plan. It should be noted that during the 2010 planning process, only general, countywide actions were identified for each municipality. The Town of Hebron reviewed the previous actions and selected actions they chose to carry forward as part of this plan update. Previous actions that are now on-going programs and capabilities are indicated as such in the following table and may also be found under 'Capability Assessment' presented previously in this annex.

Table 9.18-11. Status of Previous Mitigation Actions

2010 Mitigation Action	Responsible Party	Status (In progress, No progress, Complete)	Describe Status	Next Step (Include in 2018 HMP or Discontinue)	Describe Next Step
Improve drainage at sites where roads have washed out due to natural hazards in the past	County and NYS DHSES	No Progress	Town is waiting for possible mitigation grant from Soil Conservation	Include in 2018 HMP	See below
Purchase equipment to provide for local personnel to conduct the drainage improvement	County and NYS DHSES	No Progress	Due to funding, this project has not been completed.	Discontinue	At the time of this plan update, the Town does not wish to include this as part of their mitigation strategy.
Engineering assessment to determine feasibility of each site improvement	County and NYS DHSES	No Progress	Town does not have jurisdiction on these types of projects.	Discontinue	County has jurisdiction over this type of project; therefore, it will not be included in the Town's proposed mitigation actions.
Improve dams to prevent flooding causing roads to wash out.	County and NYS DHSES	No Progress	Due to funding, this project has not been completed.	Discontinue	At the time of this plan update, the Town does not wish to include this as part of their mitigation strategy.
Improve identified sites where slope stability is subject to land subsidence and where excavation or planting could mitigate future damage.	County and NYS DHSES	No Progress	Due to funding, this project has not been completed.	Discontinue	At the time of this plan update, the Town does not wish to include this as part of their mitigation strategy.

Completed Mitigation Initiatives Not Identified in the Previous Mitigation Strategy

The Town of Hebron has identified the following mitigation projects/activities that have also been completed but were not identified in the previous mitigation strategy in the 2010 Plan:

- None identified

Proposed Hazard Mitigation Initiatives for the Plan Update

The Town of Hebron participated in a mitigation action workshop in September 2016 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).

Table 9.18-12 summarizes the comprehensive-range of specific mitigation initiatives the Town of Hebron would like to pursue in the future to reduce the effects of hazards. Some of these initiatives may be previous actions carried forward for this plan update. These 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. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table below to further demonstrate the wide-range of activities and mitigation measures selected.

As discussed in Section 6, 14 evaluation/prioritization criteria are used 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 your actions as 'High', 'Medium', or 'Low.' The table below summarizes the evaluation of each mitigation initiative, listed by Action Number.

Table 9.18-13 provides a summary of the prioritization of all proposed mitigation initiatives for the Plan update.

Table 9.18-12. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures *	Hazard(s) Mitigated	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
T. Hebron-1 (previous action)	Conduct a hydrological study of the flooding condition in the Town of Hebron. Once the study has been completed, within six months, the Town will identify projects to address the flooding issues.	New and Existing	Severe Storm, Flood	1	Town Engineers with support from County Soil and Water	Medium	High	Local Budget for Study; FEMA PDM, HMGP and FMA grants to address issues	Short Term	High	LPR, NSP	PP
T. Hebron-2	Develop a public education and outreach program for town resident; provide literature to educate the public about risk from hazards of concern and methods for protecting themselves and their property from damages. This will include providing information on the Town's municipal website. This project will be completed within one year of adopting the 2018 HMP Update.	N/A	All	All	Town Supervisor and Planning Board	Medium	Low	Municipal Budget	Short Term	Medium	EAP	PI
T. Hebron-3	Have designated NFIP Floodplain Administrator (FPA), and other local officials who would benefit, become a Certified Floodplain Manager (CFM) through the Association of State Floodplain Managers (ASFPM) and New York State Floodplain and Stormwater Managers Association (NYSFSMA), and pursue relevant continuing education training such as FEMA Benefit-Cost Analysis (BCA) and Substantial	N/A	Flood	All	Town FPA and Supervisor	Medium	Low	Municipal Budget	Short	High	LPR, EAP	PR, PI

Table 9.18-12. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures *	Hazard(s) Mitigated	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
	Damage Estimation (SDE).											

Notes:

Not all acronyms and abbreviations defined below are included in the table.

**Does this mitigation initiative reduce the effects of hazards on new and/or existing buildings and/or infrastructure? Not applicable (N/A) is inserted if this does not apply.*

Acronyms and Abbreviations:

CAV	*Community Assistance Visit*
CRS	*Community Rating System*
DPW	*Department of Public Works*
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*
PDM	*Pre-Disaster Mitigation Grant Program*
RFC	*Repetitive Flood Claims Grant Program (discontinued in 2015)*
SRL	*Severe Repetitive Loss Grant Program (discontinued in 2015)*

Timeline:

Short	*1 to 5 years*
Long Term	*5 years or greater*
OG	*On-going program*
DOF	*Depending on funding*

Costs:

Where actual project costs have been reasonably estimated:

Low	*< $10,000*
Medium	*$10,000 to $100,000*
High	*> $100,000*

Where actual project costs cannot reasonably be established at this time:

Low	*Possible to fund under existing budget. Project is part of, or can be part of an existing on-going program.*
Medium	*Could budget for under existing work plan, but would require a reapportionment of the budget or a budget amendment, or the cost of the project would have to be spread over multiple years.*
High	*Would require an increase in revenue via an alternative source (i.e., bonds, grants, fee increases) to implement. Existing funding levels are not adequate to cover the costs of the proposed project.*

Benefits:

Where possible, an estimate of project benefits (per FEMA's benefit calculation methodology) has been evaluated against the project costs, and is presented as:

Low=	*< $10,000*
Medium	*$10,000 to $100,000*
High	*> $100,000*

Where numerical project benefits cannot reasonably be established at this time:

Low	*Long-term benefits of the project are difficult to quantify in the short term.*
Medium	*Project will have a long-term impact on the reduction of risk exposure to life and property, or project will provide an immediate reduction in the risk exposure to property.*
High	*Project will have an immediate impact on the reduction of risk exposure to life and property.*

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*

Table 9.18-13. Summary of Prioritization of Actions

Mitigation Action / Project Number	Mitigation Action/Initiative	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
T. Hebron-1 (previous action)	Conduct a hydrological study of the flooding condition in the Town of Hebron. Once the study has been completed, within six months, the Town will identify projects to address the flooding issues.	1	1	1	1	0	0	0	1	1	1	1	1	1	0	10	High
T. Hebron-2	Develop a public education and outreach program for town resident; provide literature to educate the public about risk from hazards of concern and methods for protecting themselves and their property from damages. This will include providing information on the Town's municipal website. This project will be completed within one year of adopting the 2018 HMP Update.	1	1	0	0	1	1	1	0	1	1	1	1	0	0	9	Medium
T. Hebron-3	Have designated NFIP Floodplain Administrator (FPA), and other local officials who would benefit, become a Certified Floodplain Manager (CFM) through the Association of State Floodplain Managers (ASFPM) and New York State Floodplain and Stormwater Managers Association (NYSFSMA), and pursue relevant continuing education training such as FEMA Benefit-Cost Analysis (BCA) and Substantial Damage Estimation (SDE).	1	1	1	1	1	1	1	0	1	1	0	1	0	0	10	High

Note: Refer to Section 6 which contains the guidance on conducting the prioritization of mitigation actions.

9.18.7 Future Needs To Better Understand Risk/Vulnerability

None at this time.

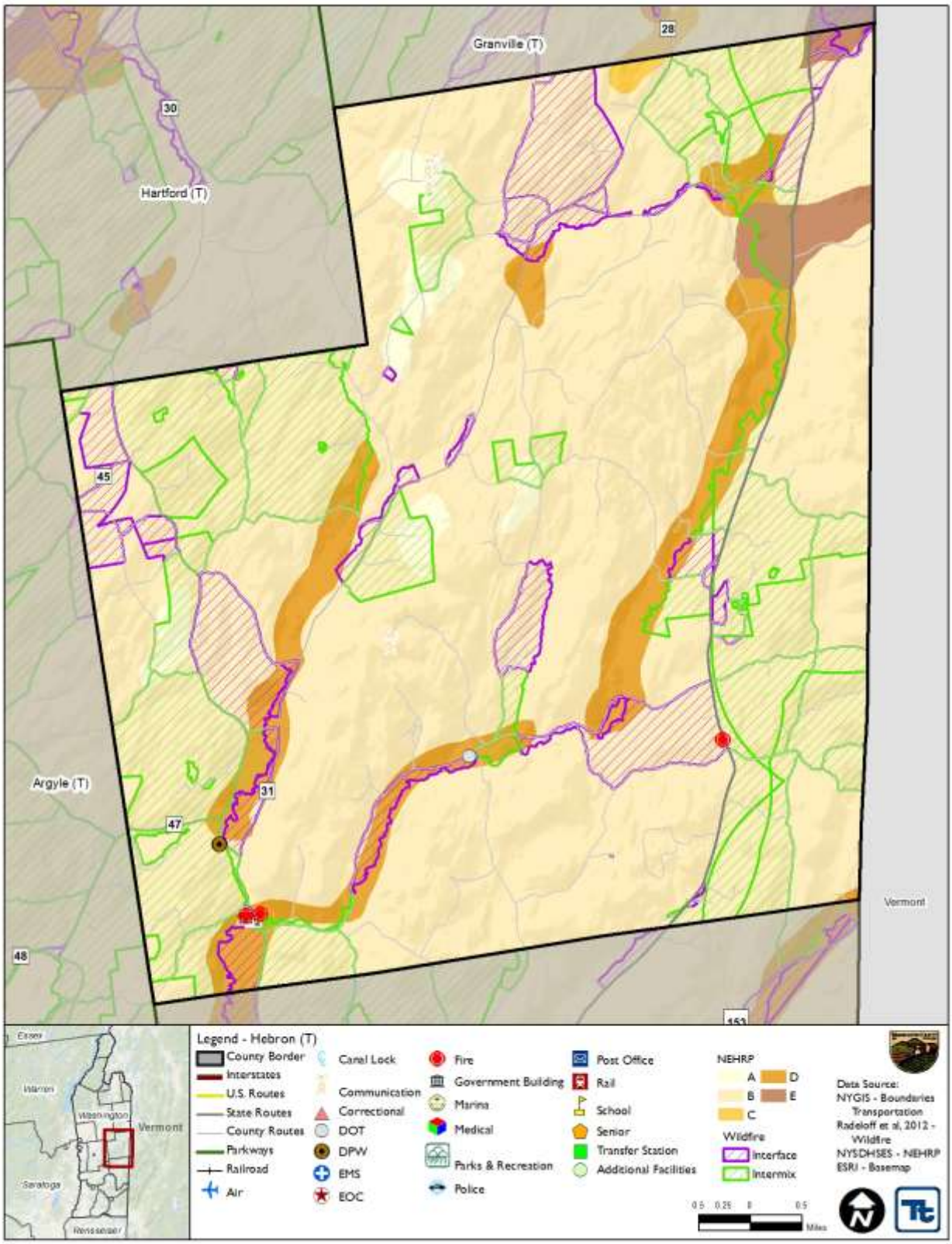
9.18.8 Hazard Area Extent and Location

Hazard area extent and location maps have been generated for the Town of Hebron that illustrate the probable areas impacted within the municipality. These maps are based on the best available data at the time of the preparation of this plan, and are considered to be adequate for planning purposes. Maps have only been generated for those hazards that can be clearly identified using mapping techniques and technologies, and for which the Town of Hebron has significant exposure. These maps are illustrated in the hazard profiles within Section 5.4, Volume I of this Plan.

9.18.9 Additional Comments

None at this time.

Figure 9.18-1. Town of Hebron Hazard Area Extent and Location



Action Number: T. Hebron-1

Mitigation Action Name: Hydrological study of the flooding conditions.

Assessing the Risk	
Hazard(s) addressed:	Severe Storm, Flood
Specific problem being mitigated:	Several areas in the Town are prone to flooding and washing out and are in need of drainage improvement; however, there needs to be a study done to identify the areas of concern and projects to alleviate the flooding issues.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Remove roadways in areas that have previously been washed out – not feasible.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Conduct a hydrological study of the flooding condition in the Town of Hebron. Once the study has been completed, within six months, the Town will identify projects to address the flooding issues.
Mitigation Action Type	Local Plans and Regulations (LPR) Natural Systems Protection (NSP)
Goals Met	Goal 1: Protect Life and Property
Applies to existing and or new development, or not applicable	New and Existing
Benefits (losses avoided)	Medium
Estimated Cost	High
Priority*	High
Plan for Implementation	
Responsible Organization	Town Engineers with support from County Soil and Water
Local Planning Mechanism	Hazard Mitigation
Potential Funding Sources	Local Budget for Study; FEMA PDM, HMGP and FMA grants to address issues
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	No progress; new project

Action Number: T. Hebron-1

Mitigation Action Name: Conduct a hydrological study of the flooding conditions.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	This action is technically feasible
Political	0	
Legal	0	
Fiscal	0	Need to seek funding
Environmental	1	
Social	1	
Administrative	1	The Town has the administrative capabilities to implement this action
Multi-Hazard	1	Flood, Severe Storm
Timeline	1	Short Term
Agency Champion	1	
Other Community Objectives	0	
Total	10	
Priority (H/M/L)	High	

Action Number: T. Hebron-2

Mitigation Action Name: Develop a public education and outreach program for town residents.

Assessing the Risk	
Hazard(s) addressed:	All hazards
Specific problem being mitigated:	Residents are not currently knowledgeable about town hazards and mitigation.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Provide information on as-needed basis – more time consuming and not all residents are educated on the hazards.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Develop a public education and outreach program for town resident; provide literature to educate the public about risk from hazards of concern and methods for protecting themselves and their property from damages. This will include providing information on the Town's municipal website. This project will be completed within one year of adopting the 2018 HMP Update.
Mitigation Action Type	Education and Awareness Programs (EAP)
Goals Met	Goal 1: Protect Life and Property Goal 2: Increase Public Awareness Goal 3: Encourage Partnerships Goal 4: Provide for Emergency Services 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.
Applies to existing and or new development, or not applicable	N/A
Benefits (losses avoided)	Medium
Estimated Cost	Low
Priority*	Medium
Plan for Implementation	
Responsible Organization	Town Supervisor and Planning Board
Local Planning Mechanism	Hazard Mitigation
Potential Funding Sources	Municipal budget
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	No progress; new project

Action Number: T. Hebron-2

Mitigation Action Name: Develop a public education and outreach program for town residents.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	0	
Technical	0	
Political	1	
Legal	1	
Fiscal	1	Municipal budget / staff time
Environmental	0	
Social	1	
Administrative	1	The Town has the administrative capabilities to implement this action
Multi-Hazard	1	All hazards
Timeline	1	Short Term
Agency Champion	0	
Other Community Objectives	0	
Total	9	
Priority (H/M/L)	Medium	

Action Number: T. Hebron-3

Mitigation Action Name: Certified Floodplain Manager Training.

Assessing the Risk	
Hazard(s) addressed:	Flood
Specific problem being mitigated:	Municipal staff involved with floodplain management are not Certified Floodplain Managers (CFMs). Staff may not fully understand the minimum administrative requirements to successfully implement a community Floodplain Management program for the Town.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Staff attend training when needed – too time consuming; staff should be educated before it is needed.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Have designated National Flood Insurance Program Floodplain Administrator (FPA) and other local officials who would benefit become CFMs through the Association of State Floodplain Managers (ASFPM) and New York State Floodplain and Stormwater Managers Association (NYSFSMA), and pursue relevant continuing education training such as FEMA Benefit-Cost Analysis (BCA) and Substantial Damage Estimation (SDE).
Mitigation Action Type	Local Plans and Regulations (LPR) Education and Awareness Programs (EAP)
Goals Met	Goal 1: Protect Life and Property Goal 2: Increase Public Awareness Goal 3: Encourage Partnerships Goal 4: Provide for Emergency Services 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.
Applies to existing and or new development, or not applicable	N/A
Benefits (losses avoided)	Medium
Estimated Cost	Low
Priority*	High
Plan for Implementation	
Responsible Organization	Town FPA and Supervisor
Local Planning Mechanism	Hazard Mitigation
Potential Funding Sources	Municipal budget
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	No progress; new project

Action Number: T. Hebron-3

Mitigation Action Name: Certified Floodplain Manager Training.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	This action is technically feasible
Political	1	
Legal	1	
Fiscal	1	Municipal budget / staff time
Environmental	0	
Social	1	
Administrative	1	The Town has the administrative capabilities to implement this action
Multi-Hazard	0	
Timeline	1	Short Term
Agency Champion	0	
Other Community Objectives	0	
Total	10	
Priority (H/M/L)	High	

9.19 VILLAGE OF HUDSON FALLS

This section presents the jurisdictional annex for the Village of Hudson Falls.

9.19.1 Hazard Mitigation Plan Point of Contact

The following individuals have been identified as the hazard mitigation plan's primary and alternate points of contact.

Primary Point of Contact	Alternate Point of Contact
Michael Fiorillo, Superintendent 220 Main Street, Hudson Falls, NY 518-744-4502 Mfiorillo704@gmail.com	Randy Diamond, Chief of Police 220 Main Street, Hudson Falls, NY 518-361-1068 hfpdchief@roadrunner.com

9.19.2 Municipal Profile

The Village of Hudson Falls is located in central Washington County, in the southwest corner of the Town of Kingsbury. The Village is bordered to the north, south, and east by the Town of Kingsbury and to the west by the Hudson River. New York Routes 196 (Maple Street) and 254 (River Street) intersect Route 4 in the Village. The Village has a total area of 1.9 square miles, of which 1.8 square miles of it is land and 0.04 square miles of it is water. According to the 2010 Census, the Village's population was 7,281.

Growth/Development Trends

The Village of Hudson Falls did not note any recent residential/commercial development since 2010 or any major residential or commercial development, or major infrastructure development planned for the next five years in the municipality.

Table 9.19-1. Growth and Development

Property or Development Name	Type (e.g. Res., Comm.)	# of Units / Structures	Location (address and/or Parcel ID)	Known Hazard Zone(s)	Description/Status of Development
Recent Development from 2010 to present					
None identified					
Known or Anticipated Development in the Next Five (5) Years					
None identified					

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

9.19.3 Natural Hazard Event History Specific to the Municipality

Washington County has a history of natural and non-natural hazard events as detailed in Volume I, Section 5.0 of this plan. 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. For the purpose of this plan update, events that have occurred in the County from 2008 to present were summarized to indicate the range and impact of hazard events in the community. Information regarding specific damages is included, if available, based on reference material or local sources. This information is presented in the table below. For details of these and additional events, refer to Volume I, Section 5.0 of this plan.

Table 9.19-2. Hazard Event History

Dates of Event	Event Type (FEMA Disaster Declaration if applicable)	Washington County Designated?	Summary of Damages/Losses
None identified			

Notes:
EM *Emergency Declaration (FEMA)*
FEMA *Federal Emergency Management Agency*
DR *Major Disaster Declaration (FEMA)*

9.19.4 Hazard Vulnerabilities and Ranking

The hazard profiles in Section 5.0 of this plan have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes the hazard vulnerabilities and their ranking in the Village of Hudson Falls. For additional vulnerability information relevant to this jurisdiction, refer to Section 5.0.

Natural Hazard Risk/Vulnerability Risk Ranking

As discussed in Section 5.3 (Hazard Ranking), each participating town or village may have differing degrees of risk exposure and vulnerability compared to Washington County as a whole. The Village of Hudson Falls did not participate in the 2018 Plan Update; therefore, the County ranked the degree of risk to each hazard as it pertains to the community for informational purposes. The table below summarizes the hazard risk/vulnerability rankings of potential natural hazards for the Village. It should be noted that the information presented in the table below is based on the risk ranking methodology discussed in Section 5.3 (Hazard Ranking) and is for informational purposes only.

Table 9.19-3. Hazard Risk/Vulnerability Risk Ranking

Hazard type	Estimate of Potential Dollar Losses to Structures Vulnerable to the Hazard [a, c]	Probability of Occurrence	Risk Ranking Score (Probability x Impact)	Hazard Ranking [b]
Earthquake	100-Year GBS: $11,236,119 500-Year GBS: $163,147,459 2,500-Year GBS: $1,248,887,933	Occasional	30	Medium
Flood	Damage estimate not available.	Frequent	30	Medium
Severe Weather	100-Year MRP: $1,298,365 500-year MRP: $7,146,354 Annualized: $66,034	Frequent	48	High
Severe Winter Weather	1% GBS: $46,546,363 5% GBS: $232,731,813	Frequent	51	High
Wildfire	Estimated Value in the WUI Hazard Areas: $7,045,957,303	Frequent	48	High

Notes:
a. *Building damage ratio estimates based on FEMA 386-2 (August 2001)*
b. *The valuation of general building stock and loss estimates was based on custom inventory for the municipality.*
High = Total hazard priority risk ranking score of 31 and above
Medium = Total hazard priority risk ranking of 20-30+
Low = Total hazard risk ranking below 20

c. Loss estimates for the severe storm and severe winter storm hazards are structural values only and do not include the value of contents.

d Loss estimates for the flood and earthquake hazards represent both structure and contents.

e. The HAZUS-MH earthquake model results are reported by Census Tract.

f. Damage estimate for flood unavailable due to lack of digital floodplain data for Washington County.

National Flood Insurance Program (NFIP) Summary

The following table summarizes the NFIP statistics for the Village of Hudson Falls.

Table 9.19-4. NFIP Summary

Municipality	# Policies (1)	# Claims (Losses) (1)	Total Loss Payments (2)	# Rep. Loss Prop. (1)	# Severe Rep. Loss Prop. (1)
Hudson Falls (V)	1	0	$0	0	0

Source: FEMA, 2016

Note (1) Policies, claims, repetitive loss and severe repetitive loss statistics provided by FEMA and are current as of April 30, 2016 and are summarized by Community Name. Please note the total number of repetitive loss properties excludes the severe repetitive loss properties. The number of claims represents claims closed by 4/30/2016.

Note (2) Total building and content losses from the claims file provided by FEMA Region 2.

Note (3) The policies inside and outside of the flood zones are unavailable due to lack of digital floodplain for Washington County.

Note (4) FEMA noted that where there is more than one entry for a property, there may be more than one policy in force or more than one GIS possibility.

Critical Facilities

At the time of this HMP Update, digitized flood maps for Washington County are unavailable. In order to provide some level of beneficial analysis, a desktop analysis was performed to identify critical facilities located within the floodplain (refer to Section 5.1 [Methodology and Tools] for details). The following table identifies critical facilities located within the municipality and their exposure, if any, to the possible floodplain. This information is a resource for the municipality to determine if flood mitigation actions are appropriate based on historical events and proximity of the facility to a water body. At the time of this 2018 HMP Update, the county did not identify any actions associated with these facilities.

Washington County understands the limitation of the map data and once the updated maps are available, the County will work with each municipality to determine which critical facilities are located within the 1% and 0.2% annual chance flood zones. Once identified, the municipality will work with the property owners and develop mitigation actions for each of the critical facilities, ensuring they will be protected to the 500-year (or worst-case scenario) level.

Table 9.19-5. Potential Flood Losses to Critical Facilities

Name	Type	Potential Flood Exposure
Warren Washington ARC	Medical	X
Washington County Head Start	County Building	X
Earl Tower/Sprint/Nextel	Communication Tower	X

Source: Washington County; NYS GIS Clearinghouse

Other Vulnerabilities Identified

The municipality has identified the following vulnerabilities within their community:

- None identified

9.19.5 Capability Assessment

This section identifies the following capabilities of the local jurisdiction:

- Planning and regulatory capability
- Administrative and technical capability
- Fiscal capability
- Community classification
- National Flood Insurance Program
- Integration of mitigation planning into existing and future planning mechanisms

Planning and Regulatory Capability

The table below summarizes the regulatory tools that are available to the Village of Hudson Falls.

Table 9.19-6. Planning and Regulatory Tools

Tool / Program (code, ordinance, plan)	Do you have this? (Yes/No) If Yes, date of adoption or update	Authority (local, county, state, federal)	Dept. /Agency Responsible	Code Citation and Comments (Code Chapter, name of plan, explanation of authority, etc.)
Planning Capability				
Master Plan				
Capital Improvements Plan				
Floodplain Management / Basin Plan				
Stormwater Management Plan				
Open Space Plan				
Stream Corridor Management Plan				
Watershed Management or Protection Plan				
Economic Development Plan				
Comprehensive Emergency Management Plan				
Emergency Response Plan				
Post-Disaster Recovery Plan				
Transportation Plan				
Strategic Recovery Planning Report				
Other Plans:				
Regulatory Capability				
Building Code	Yes	Local	Code Enforcement Officer (county)	Chapter 73 – Building Code Administration
Zoning Ordinance	Yes	Local	Zoning Board of Appeals	Chapter 215 – Zoning
Subdivision Ordinance	Yes	Local	Planning Board	Chapter 178 – Subdivision of Land
NFIP Flood Damage Prevention Ordinance				

Tool / Program (code, ordinance, plan)	Do you have this? (Yes/No) If Yes, date of adoption or update	Authority (local, county, state, federal)	Dept. /Agency Responsible	Code Citation and Comments (Code Chapter, name of plan, explanation of authority, etc.)
NFIP: Cumulative Substantial Damages				
NFIP: Freeboard	Yes	State, Local		State mandated BFE+2 for single and two-family residential construction, BFE+1 for all other construction types
Growth Management Ordinances				
Site Plan Review Requirements	Yes (2004)	Local	Zoning Board of Appeals	Chapter 215, Article 4 – Zoning, Site Plan Review
Stormwater Management Ordinance	Yes	Local	DPW	Chapter 171 – Stormwater Management; Erosion and Sediment Control
Municipal Separate Storm Sewer System (MS4)				The Village is a "Regulated Small MS4" community
Natural Hazard Ordinance				
Post-Disaster Recovery Ordinance				
Real Estate Disclosure Requirement	Yes	State	NYS Department of State, Real Estate Agent	NYS mandate, Property Condition Disclosure Act, NY Code - Article 14 §460-467
Other (Special Purpose Ordinances [i.e., sensitive areas, steep slope])				

Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the Village of Hudson Falls.

Table 9.19-7. Administrative and Technical Capabilities

Resources	Is this in place? (Yes or No)	Department/ Agency/Position
Administrative Capability		
Planning Board	Yes	Village Planning Board
Mitigation Planning Committee		
Environmental Board/Commission		
Open Space Board/Committee		
Economic Development Commission/Committee		
Maintenance programs to reduce risk		
Mutual aid agreements		
Technical/Staffing Capability		
Planner(s) or engineer(s) with knowledge of land development and land management practices		
Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure		
Planners or engineers with an understanding of natural hazards		

Resources	Is this in place? (Yes or No)	Department/ Agency/Position
NFIP Floodplain Administrator (FPA)		
Surveyor(s)		
Personnel skilled or trained in GIS and/or Hazards United States (HAZUS) – Multi-Hazards (MH) applications		
Scientist familiar with natural hazards		
Emergency Manager		
Grant writer(s)		
Staff with expertise or training in benefit/cost analysis		
Professionals trained in conducting damage assessments		

Fiscal Capability

The table below summarizes financial resources available to the Village of Hudson Falls.

Table 9.19-8. Fiscal Capabilities

Financial Resources	Accessible or Eligible to Use (Yes/No)
Community Development Block Grants (CDBG, CDBG-DR)	
Capital improvements project funding	
Authority to levy taxes for specific purposes	
User fees for water, sewer, gas or electric service	
Impact fees for homebuyers or developers of new development/homes	
Stormwater utility fee	
Incur debt through general obligation bonds	
Incur debt through special tax bonds	
Incur debt through private activity bonds	
Withhold public expenditures in hazard-prone areas	
Other federal or state Funding Programs	
Open Space Acquisition funding programs	
Other	

Community Classifications

The table below summarizes classifications for community program available to the Village of Hudson Falls.

Table 9.19-9. Community Classifications

Program	Do you have this? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Community Rating System (CRS)	No		
Building Code Effectiveness Grading Schedule (BCEGS)			
Public Protection (ISO Fire Protection Classes 1 to 10)	Yes	4	5/2/17

Program	Do you have this? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
NYSDEC Climate Smart Community	No		
Storm Ready	No		
Firewise	No		
Disaster/safety programs in/for schools			
Organizations with mitigation focus (advocacy group, non-government)			
Public education program/outreach (through website, social media)			
Public-Private Partnerships			

Note:
N/A *Not applicable*
NP *Not participating*
- *Unavailable*

The classifications listed above relate to the community's ability to provide effective services to lessen its vulnerability to the hazards identified. These classifications can be viewed as a gauge of the community's capabilities in all phases of emergency management (preparedness, response, recovery and mitigation) and are used as an underwriting parameter for determining the costs of various forms of insurance. The CRS class applies to flood insurance while the BCEGS and Public Protection classifications apply to standard property insurance. CRS classifications range on a scale of 1 to 10 with class 1 being the best possible classification, and class 10 representing no classification benefit. Firewise classifications include a higher classification when the subject property is located beyond 1000 feet of a creditable fire hydrant and is within 5 road miles of a recognized Fire Station.

Criteria for classification credits are outlined in the following documents:

- The Community Rating System Coordinators Manual
- The Building Code Effectiveness Grading Schedule website at https://www.isomitigation.com/bcegs/
- The ISO Mitigation online ISO's Public Protection website at https://www.isomitigation.com/ppc/
- The National Weather Service Storm Ready website at https://www.weather.gov/stormready/
- The National Firewise Communities website at https://www.nfpa.org/Public-Education/By-topic/Wildfire/Firewise-USA

Self-Assessment of Capability

The table below provides an approximate measure of the Village of Hudson Falls' capability to work in a hazard-mitigation capacity and/or effectively implement hazard mitigation strategies to reduce hazard vulnerabilities.

Table 9.19-10. Self-Assessment Capability for the Municipality

Area	Degree of Hazard Mitigation Capability		
	Limited (If limited, what are your obstacles?)	Moderate	High
Planning and regulatory capability			
Administrative and technical capability			
Fiscal capability			

Area	Degree of Hazard Mitigation Capability		
	Limited (If limited, what are your obstacles?)	Moderate	High
Community political capability			
Community resiliency capability			
Capability to integrate mitigation into municipal processes and activities			

National Flood Insurance Program

As of April 2016, there was one policy and no claims. None of the policies are repetitive loss or severe repetitive loss properties. According to the most recent FEMA Community Status Book Report for New York State (August 2018), the Village of Hudson Falls is in good standing with the NFIP. However, according to the NYS DEC, the Village has not had a compliance audit conducted.

Integration of Hazard Mitigation into Existing and Future Planning Mechanisms

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 this planning effort, each community was surveyed to obtain a better understanding of their community's progress in plan integration. A summary is provided below. In addition, the community identified specific integration activities that will be incorporated into municipal procedures.

Planning

Land Use Planning: The Village of Hudson Falls has a Planning Board and Zoning Board of Appeals which review all applications for development and consider natural hazard risk areas in their review. The Planning Board approves site plans, special permits, subdivisions and signs and gives recommendations to the Zoning Board of Appeals for all variance requests. Many development activities require additional levels of environmental review, specifically NYS SEQR and Federal NEPA requirements.

Hudson Falls Revitalization Opportunities Program (ROP): The Village has received funds through the NYS Department of State's Brownfield Opportunities Area (BOA) program to continue its own Revitalization Opportunities Program (ROP). This is a planning process, that when completed, will provide a blueprint for economic development, increased environmental quality, better housing, more efficient transportation, and better overall quality of life. The ROP is a community-driven plan to return inactive properties to productive use and a plan to revitalize Hudson Falls.

Regulatory and Enforcement

Code Enforcement: Washington County provides code enforcement duties and responsibilities to the Village of Hudson Falls.

Building Code Administration Chapter 73: The building codes are strictly enforced to make new and renovated buildings as prepared as possible for hazard related incidents. The Village complies with New York State Uniform Fire Prevention and Building Code (the Uniform Code) and the State Energy Conservation Construction Code (the Energy Code).

Sewers and Sewage Disposal Chapter 160: The Village protects and regulates its sewage collection and treatment facilities as a matter of public health and environmental safety. It seeks to prohibit the introduction of stormwater, surface, or sub-surface waters into sanitary sewers and to control the quantity and quality of wastes in the sewage system.

Stormwater Management; Erosion and Sediment Control Chapter 171: The Village's stormwater management chapter seeks to mediate the adverse impacts of stormwater runoff, sedimentation, and erosion caused by existing drainage systems. It also serves to control the degradation of water quality in the Village.

The Village's zoning code article on environmental and performance standards also includes sections on stormwater management and erosion and soil control which seek to mediate the adverse impacts of stormwater runoff, sedimentation, and erosion caused by existing drainage systems. It also serves to minimize the danger of flooding and control the degradation of water quality in the village. The code instructs permit applicants to conform to published Guidelines for Erosion and Sediment Control in Urban Areas of New York State by the United States Department of Agriculture Soil Conservation Service, copies of which are maintained at the Washington County Soil and Water Conservation District Office.

Subdivision of Land, Chapter 178: The Village Planning Board is tasked with subdivision review. The board considers multiple objectives during their review, including safety from fire and flood; provision for drainage, water supply, sewerage and other utilities; street design to facilitate fire protection and snow removal; and generally, to ensure that developments mitigate the issues associated natural hazards.

Zoning Chapter 215: The Village of Hudson Falls has an adopted zoning ordinance that is used to promote the "public interest, health, comfort, convenience, safety, morals, order and public interest" of the Village residents. The Village is divided into six classes of districts, along with a single overlay district. While there are no districts specifically pertaining to natural hazard mitigation, the code includes provisions for site plan and environmental reviews which consider flooding, erosion, and other natural hazards.

Fiscal

Operating Budget: The Village operating budget contains provisions for expected expenses including snow removal, street maintenance, and capital outlay on a transportation bond. The Village also budgets for storm sewers, street cleaning, and grant applications.

Grants: The adopted 2016-02017 Village Budget allocates $15,000 for contractual grant application services.

Education and Outreach

The Village website main page lists important emergency numbers, including those for the Village Police, Water Department, and DPW.

9.19.6 Mitigation Strategy and Prioritization

This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and prioritization.

Past Mitigation Initiative Status

The following table indicates progress on the community's mitigation strategy identified in the 2010 Plan. Actions that are carried forward as part of this plan update are included in the following subsection in its own table with prioritization. Previous actions that are now on-going programs and capabilities are indicated as such in the following table and may also be found under 'Capability Assessment' presented previously in this annex.

Table 9.19-11. Status of Previous Mitigation Actions

2010 Mitigation Action	Responsible Party	Status (In progress, No progress, Complete)	Describe Status	Next Step (Include in 2018 HMP or Discontinue)	Describe Next Step
Improve drainage at sites where roads have washed out due to natural hazards in the past	County and NYS DHSES				
Purchase equipment to provide for local personnel to conduct the drainage improvement	County and NYS DHSES				
Engineering assessment to determine feasibility of each site improvement	County and NYS DHSES				
Improve dams to prevent flooding causing roads to wash out.	County and NYS DHSES				
Improve identified sites where slope stability is subject to land subsidence and where excavation or planting could mitigate future damage.	County and NYS DHSES				

Completed Mitigation Initiatives Not Identified in the Previous Mitigation Strategy

The Village of Hudson Falls has identified the following mitigation projects/activities that have also been completed but were not identified in the previous mitigation strategy in the 2010 Plan:

- None identified

Proposed Hazard Mitigation Initiatives for the Plan Update

In September 2016, a mitigation action workshop was held and municipalities were 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).

Table 9.19-12 summarizes the comprehensive-range of specific mitigation initiatives the Village of Hudson Falls would like to pursue in the future to reduce the effects of hazards. Some of these initiatives may be previous actions carried forward for this plan update. These 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. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table below to further demonstrate the wide-range of activities and mitigation measures selected.

As discussed in Section 6, 14 evaluation/prioritization criteria are used 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 your actions as 'High', 'Medium', or 'Low.' The table below summarizes the evaluation of each mitigation initiative, listed by Action Number.

Table 9.19-13 provides a summary of the prioritization of all proposed mitigation initiatives for the Plan update.

Table 9.19-12. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals and Objectives Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category

Notes:

Not all acronyms and abbreviations defined below are included in the table.

**Does this mitigation initiative reduce the effects of hazards on new and/or existing buildings and/or infrastructure? Not applicable (N/A) is inserted if this does not apply.*

Acronyms and Abbreviations:

CAV	*Community Assistance Visit*
CRS	*Community Rating System*
DPW	*Department of Public Works*
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*
PDM	*Pre-Disaster Mitigation Grant Program*
RFC	*Repetitive Flood Claims Grant Program (discontinued in 2015)*
SRL	*Severe Repetitive Loss Grant Program (discontinued in 2015)*

Timeline:

Short	*1 to 5 years*
Long Term	*5 years or greater*
OG	*On-going program*
DOF	*Depending on funding*

Costs:

Where actual project costs have been reasonably estimated:

Low	*< $10,000*
Medium	*$10,000 to $100,000*
High	*> $100,000*

Where actual project costs cannot reasonably be established at this time:

Low	*Possible to fund under existing budget. Project is part of, or can be part of an existing on-going program.*
Medium	*Could budget for under existing work plan, but would require a reapportionment of the budget or a budget amendment, or the cost of the project would have to be spread over multiple years.*
High	*Would require an increase in revenue via an alternative source (i.e., bonds,*

Benefits:

Where possible, an estimate of project benefits (per FEMA's benefit calculation methodology) has been evaluated against the project costs, and is presented as:

Low=	*< $10,000*
Medium	*$10,000 to $100,000*
High	*> $100,000*

Where numerical project benefits cannot reasonably be established at this time:

Low	*Long-term benefits of the project are difficult to quantify in the short term.*
Medium	*Project will have a long-term impact on the reduction of risk exposure to life and property, or project will provide an immediate reduction in the risk exposure to property.*
High	*Project will have an immediate impact on the reduction of risk exposure to*

Costs:

grants, fee increases) to implement. Existing funding levels are not adequate to cover the costs of the proposed project.

Benefits:

life and property.

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*

Table 9.19-13. Summary of Prioritization of Actions

Mitigation Action/Project Number	Mitigation Action/Initiative	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

Note: Refer to Section 6, which conveys guidance on prioritizing mitigation actions.

9.19.7 Future Needs to Better Understand Risk/Vulnerability

None at this time.

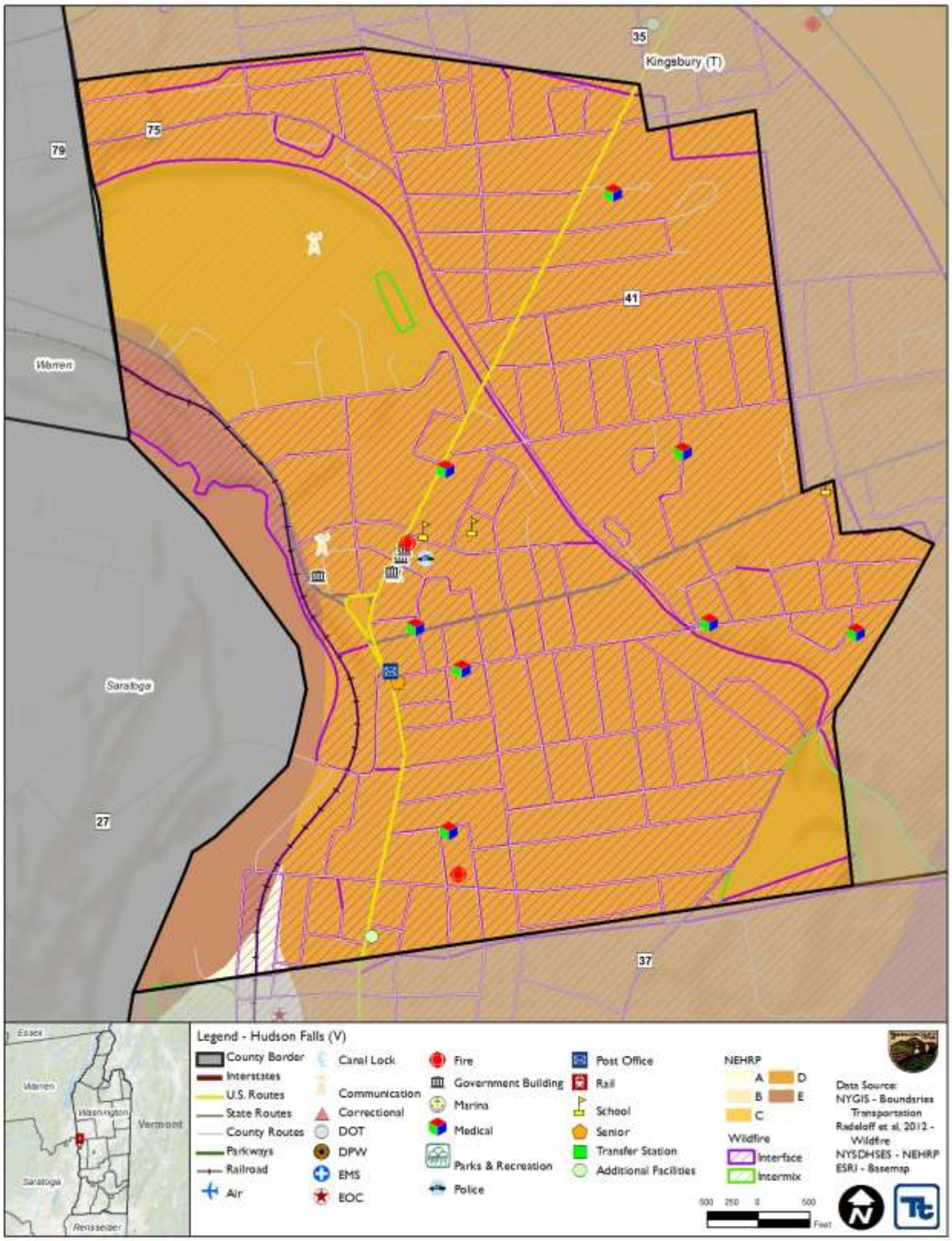
9.19.8 Hazard Area Extent and Location

Hazard area extent and location maps have been generated for the Village of Hudson Falls that illustrate the probable areas impacted within the municipality. These maps are based on the best available data at the time of the preparation of this plan, and are considered to be adequate for planning purposes. Maps have only been generated for those hazards that can be clearly identified using mapping techniques and technologies, and for which the Village of Hudson Falls has significant exposure. These maps are illustrated in the hazard profiles within Section 5.4, Volume I of this Plan.

9.19.9 Additional Comments

None at this time.

Figure 9.19-1. Village of Hudson Falls Hazard Area Extent and Location



9.20 TOWN OF JACKSON

This section presents the jurisdictional annex for the Town of Jackson.

9.20.1 Hazard Mitigation Plan Point of Contact

The following individuals have been identified as the hazard mitigation plan's primary and alternate points of contact.

Primary Point of Contact	Alternate Point of Contact
Sean Carney Highway Superintendent 518-677-3678 jacksontownclerkny@gmail.com	Jay B. Skellie Town Supervisor; NFIP FPA 518-854-7883 jskellie@co.washington.ny.us

9.20.2 Municipal Profile

The Town of Jackson is in southcentral Washington County, with the State of Vermont forming part of its eastern boundary. All of the north town line is defined by 16.5 miles of the Batten Kill, a tributary of the Hudson River. The town is bordered on the northeast by the Town of Salem: the northwest by the Town of Greenwich; to the south by the Towns of Cambridge and White Creek; and a small portion to the west by the Town of Easton.

The town has a total area of 37.5 square miles (approx. 24,000 acres), of which half is devoted to agriculture and 200 acres is water. In addition to the Batten Kill, significant waterbodies in the town include Clark Pond, Dead Pond, Hedges Lake, Lake Lauderdale, the Owl Kill, and Schoolhouse Pond. According to the 2010 Census, the community's population was 1,800.

Growth/Development Trends

The Town of Jackson did not note any recent residential/commercial development since 2010 or any major residential or commercial development, or major infrastructure development planned for the next five years in the municipality.

Table 9.20-1. Growth and Development

Property or Development Name	Type (e.g. Res., Comm.)	# of Units / Structures	Location (address and/or Parcel ID)	Known Hazard Zone(s)	Description/Status of Development
Recent Development from 2010 to present					
None identified by the municipality.					
Known or Anticipated Development in the Next Five (5) Years					
None identified by the municipality.					

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

9.20.3 Natural Hazard Event History Specific to the Municipality

Washington County has a history of natural and non-natural hazard events as detailed in Volume I, Section 5.0 of this plan. 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. For the purpose of this plan update, events that have occurred in the County from 2008 to present were summarized to indicate the range and impact of hazard events in the community. Information regarding specific damages is included, if available,

based on reference material or local sources. This information is presented in the table below. For details of these and additional events, refer to Volume I, Section 5.0 of this plan.

Table 9.20-2. Hazard Event History

Dates of Event	Event Type ((FEMA Disaster Declaration if applicable)	Washington County Designated?	Summary of Damages/Losses
July 2-3, 2005	Flash Flooding	N/A	$5 million in property damage; Hadlock Pond (Fort Ann) breached causing road washouts and destroyed homes below the dam
December 11-31, 2008	Severe Winter Storm DR-1827	Yes	Many town roads were closed for one day, including Hedges Rd., Wood Lane, Colfax Rd., and several others. Residents experienced utility outages for two days. The Town-owned pick-up truck was considered a total loss after a tree fell on the vehicle. The town paid overtime to highway department staff towards cleanup of debris and snow removal (Approximately $101,000). The Town of Jackson received FEMA PA funds from this storm incident.
August 26-September 5, 2011	Hurricane/T.S. Irene (August 26, 2011) T.S. Lee (September 5, 2011) DR-4020	Yes	Town roads were closed for two days starting at the intersection of Skellie and Carney-Cassidy Roads along the Batten Kill heading west about ½ mile. Residents experienced utility outages for one day. Due to the storm, one portion of Skellie Road sank (near #300 portion of Skellie Road) due to high, rushing water beating into the riverbank. Unfortunately, this issue wasn't identified until a year after the storm. The Town applied for grant funds to repair the damage but was declined. Eventually the Town worked with the Battenkill Alliance, NYS Department of Environmental Conservation (NYS DEC) and others to install rock veins to stabilize the riverbank. (Approximate cost was $23,000 of in-kind and Town funds). Although the veins are currently preventing ongoing damage, further mitigation will be needed to sustain the river bank from another flood. Skellie Road runs along the Batten Kill. The majority of the land along the river is farm crops (primarily corn). The result of this storm was significant, causing costly crop damage for the farms. In addition to monitoring the road closures, the Highway Department used overtime pay to fix washouts and pick up debris on numerous Town roads. (approx. $24,000.00) The Town received approximately $24,000.00 in FEMA PA funds.
February 29, 2016	Strong Winds	N/A	Ackley Road was closed for five hours due to 60 yards of mud and debris runoff sliding onto the road and plugging the culvert. Nesbitt Road was closed for a couple hours due to 25 yards of mud runoff sliding onto the road from private camp roads.
July 1, 2016	Heavy Rains	No	A plugged culvert on Ackley Road led to overtime by the Highway Department to clean mud and debris from Ackley and Nesbitt Roads. In addition, Redgate Lane required 14 yards of gravel added to the road from washout. Murdock Lanes required 28 yards of gravel. Total costs of the event were approximately $2,200.

Notes:
EM *Emergency Declaration (FEMA)*
FEMA *Federal Emergency Management Agency*

DR *Major Disaster Declaration (FEMA)*
N/A *Not applicable*
PA *Public Assistance*

9.20.4 Hazard Vulnerabilities and Ranking

The hazard profiles in Section 5.0 of this plan have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes the hazard vulnerabilities and their ranking in the Town of Jackson. For additional vulnerability information relevant to this jurisdiction, refer to Section 5.0.

Natural Hazard Risk/Vulnerability Risk Ranking

As discussed in Section 5.3 (Hazard Ranking), each participating town or village may have differing degrees of risk exposure and vulnerability compared to Washington County as a whole. Therefore, each municipality 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 Jackson. Table 9.20-12 provides proposed mitigation initiatives for the high ranked hazards.

Table 9.20-3. Hazard Risk/Vulnerability Risk Ranking

Hazard type	Estimate of Potential Dollar Losses to Structures Vulnerable to the Hazard [a, c]	Probability of Occurrence	Risk Ranking Score (Probability x Impact)	Hazard Ranking [b]
Earthquake	100-Year GBS: $0 500-Year GBS: $1,741,862 2,500-Year GBS: $17,280,275	Occasional	30	Medium
Flood	Damage estimate not available.	Frequent	36	High
Severe Weather	100-Year MRP: $194,327 500-year MRP: $1,050,050 Annualized: $10,106	Frequent	48	High
Severe Winter Weather	1% GBS: $4,085,574 5% GBS: $20,427,870	Frequent	51	High
Wildfire	Estimated Value in the WUI Hazard Areas: $459,835,050	Frequent	48	High

Notes:

a. *Building damage ratio estimates based on FEMA 386-2 (August 2001)*

b. *The valuation of general building stock and loss estimates was based on custom inventory for the municipality.*
High = Total hazard priority risk ranking score of 31 and above
Medium = Total hazard priority risk ranking of 20-30+
Low = Total hazard risk ranking below 20

c. *Loss estimates for the severe storm and severe winter storm hazards are structural values only and do not include the value of contents.*

d *Loss estimates for the flood and earthquake hazards represent both structure and contents.*

e. *The HAZUS-MH earthquake model results are reported by Census Tract.*

f. *Damage estimate for flood unavailable due to lack of digital floodplain data for Washington County.*

National Flood Insurance Program (NFIP) Summary

The following table summarizes the NFIP statistics for the Town of Jackson.

Table 9.20-4. NFIP Summary

Municipality	# Policies (1)	# Claims (Losses) (1)	Total Loss Payments (2)	# Rep. Loss Prop. (1)	# Severe Rep. Loss Prop. (1)
Jackson (T)	4	0	$0	0	0

Source: FEMA, 2016
Note (1) Policies, claims, repetitive loss and severe repetitive loss statistics provided by FEMA and are current as of April 30, 2016 and are summarized by Community Name. Please note the total number of repetitive loss properties excludes the severe repetitive loss properties. The number of claims represents claims closed by 4/30/2016.
Note (2) Total building and content losses from the claims file provided by FEMA Region 2.
Note (3) The policies inside and outside of the flood zones are unavailable due to lack of digital floodplain for Washington County.
Note (4) FEMA noted that where there is more than one entry for a property, there may be more than one policy in force or more than one GIS possibility.

Critical Facilities

At the time of this HMP Update, digitized flood maps for Washington County are unavailable. In order to provide some level of beneficial analysis, a desktop analysis was performed to identify critical facilities located within the floodplain (refer to Section 5.1 [Methodology and Tools] for details). The following table identifies critical facilities located within the municipality and their exposure, if any, to the possible floodplain. This information is a resource for the municipality to determine if flood mitigation actions are appropriate based on historical events and proximity of the facility to a water body. At the time of this 2018 HMP Update, the municipality did not identify any actions associated with these facilities.

The Town of Jackson understands the limitation of the map data and once the updated maps are available, the municipality will work with Washington County to determine which critical facilities are located within the 1% and 0.2% annual chance flood zones. Once identified, the municipality will work with the property owners and develop mitigation actions for each of the critical facilities, ensuring they will be protected to the 500-year (or worst-case scenario) level.

Table 9.20-5. Potential Flood Losses to Critical Facilities

Name	Type	Potential Flood Exposure
None identified		

Source: Washington County; NYS GIS Clearinghouse

Other Vulnerabilities Identified

The municipality has identified the following vulnerabilities within their community:

- Ackley Road washout (Town of Jackson) - This repeated problem requires the landowner to stabilize the crop field. Current planting methods continually plug the culvert, allow severe erosion of tilled field and mud runoff.

- Nesbitt Road washout (Washington County Soil and Water) - This repeated problem requires approvals, grants and action to stop private road debris from washing onto Nesbitt Road and into Hedges Lake.

- Johnson Road (Town of Jackson and NYS Department of Transportation) - Road experiences heavy runoff water from the west side of State Route 22 and continues to flood the road as well as residential basements. This location is problematic since it's located along Lake Lauderdale where there are numerous residences built very close together. The most recent flooding and mud runoff occurred in the summer of 2016. The Town of Jackson has contacted NYS Department of Transportation to find a resolution however, nothing as this time as has been rectified.

- Roadway flooding off steep grades (Town of Jackson) - Due to steep grade of these roads, flooding continues to be problem.
    - Kenyon Hill Road
    - Colfax Road
    - Hedges Road
    - Carney-Cassidy Road
    - There are several other roads not listed that have steep grades that are also subject to washouts.

- Battenkill Evergreens (Private road) - This road is privately owned with a minimum of 47 residences (on 70+ lots) that is not maintained. Problems include:
    - The road is too narrow for emergency vehicles (i.e. according the local fire department, the large water tanker truck cannot pass through this area);
    - The road is too narrow to pass another oncoming vehicle (the fire department states that if they come upon another vehicle, the other vehicle MUST back up to get out of the fire trucks path);
    - The road surface is unsafe to travel more than 5 mph; and,
    - The residences are not clearly identified with 911 numbers (according to local rescue squad)

- Ways and Lanes – Over 60 privately owned roads exist in Jackson, many located in populated areas around Hedges Lake, Lake Lauderdale and along the Batten Kill. None of the roads are well maintained and are too narrow for emergency vehicles. In addition, the roads as well as the residences are poorly marked for emergency personnel to find them. Education should be a part of the mitigation plan. Residents do not understand the potential problems of having poorly maintained roads and unmarked residences. Although many of the residences are seasonal camps, it's not uncommon for some residents to make their camp a year-round residence The Town has had a long-standing policy to not take on new or additional roads.

- Highway Garage
    - Generator (Town of Jackson) - The building has no backup electricity if a power outage occurred.
    - Building - The highway garage, built in 1950, is rapidly eroding and crumbling. There are many issues associated with safety, available space, repetitive leaking roof, heating, etc. The town is currently seeking funding assistance for a partial remodeling of the highway garage, and is unsure how much money they might receive (or if they will receive any) which limits the scope of improvements that can be completed.

- Shelter for residents (Town of Jackson) - Generally, if our residents need shelter, they would utilize one of the three local school districts that surround the Town of Jackson, as the Town does not have suitable locations for shelters within the municipality. The challenge with two of the three school districts is that two of them have experienced flood damage in the past. The town could benefit from some type of agreement either with the school districts or another location where residents can seek shelter. Another challenge is that southern Washington County lacks facilities that can accommodate large in-door crowds other than the public schools.

- Replacements of culverts & bridges (Town of Jackson) - Several locations in the Town need substantially larger culverts and bridges. Our Town highway budget is so limited that such large projects are cost prohibitive (i.e. new bridge on Murray Hollow Road might cost $400,000 which represents 75% of the highway's total budget)

- Skellie Road (Town of Jackson, NYSDEC, Wash. Co. Soil & Water) - Despite the rock veins that have been installed, the riverbank that runs along the road continues to erode. Any high water from local flooding or from runoff out of Vermont where the Batten Kill begins exacerbates the problem.

- Comprehensive Plan and Site Plan Review (Town of Jackson) - The Town Board needs to approve the draft comprehensive plan to help secure future grant funding. In addition, when the Site Plan Review Law is presented this fall, the Town Board needs to give serious consideration to either modifying the plan or approving it so that Jackson has some input to future development.

9.20.5 Capability Assessment

This section identifies the following capabilities of the local jurisdiction:

- Planning and regulatory capability
- Administrative and technical capability
- Fiscal capability
- Community classification
- National Flood Insurance Program
- Integration of mitigation planning into existing and future planning mechanisms

Planning and Regulatory Capability

The table below summarizes the regulatory tools that are available to the Town of Jackson.

Table 9.20-6. Planning and Regulatory Tools

Tool / Program (code, ordinance, plan)	Do you have this? (Yes/No) If Yes, date of adoption or update	Authority (local, county, state, federal)	Dept. /Agency Responsible	Code Citation and Comments (Code Chapter, name of plan, explanation of authority, etc.)
Planning Capability				
Master/Comprehensive Plan	No	Local	Town Board and Planning Board	A draft Comprehensive Plan has been completed and is currently being edited
Capital Improvements Plan	No	-	-	-
Floodplain Management / Basin Plan	No	-	-	-
Stormwater Management Plan	No	-	-	-
Open Space Plan	No	-	-	-
Stream Corridor Management Plan	Yes	County & State	NYS DEC	Northern Piedmont Unit Management Plan
Watershed Management or Protection Plan	Yes	County & State	NYS DEC	Northern Piedmont Unit Management Plan
Local Waterfront Revitalization Plan	No	-	-	-
Economic Development Plan	No	-	-	-

Tool / Program (code, ordinance, plan)	Do you have this? (Yes/No) If Yes, date of adoption or update	Authority (local, county, state, federal)	Dept. /Agency Responsible	Code Citation and Comments (Code Chapter, name of plan, explanation of authority, etc.)
Comprehensive Emergency Management Plan	No	-	-	-
Emergency Response Plan	No	-	-	-
Post-Disaster Recovery Plan	No	-	-	-
Transportation Plan	No	-	-	-
Strategic Recovery Planning Report	No	-	-	-
Other Plans:	No	-	-	-
Regulatory Capability				
Building Code	Yes	State & Local	County Code Enforcement	Building Code of New York State (NYS), Local Law #1
Zoning Ordinance	No	-	-	-
Subdivision Ordinance	Yes	Local	Planning Bd.	Town of Jackson Land Subdivision Regulations 2/6/1990
NFIP Flood Damage Prevention Ordinance	Yes	Federal, State, Local	Town Supervisor	Local Law #1 of 1992
NFIP: Cumulative Substantial Damages	No	-	-	-
NFIP: Freeboard	Yes	State, Local	Town Supervisor, County Code Enforcement	State mandated BFE+2 for single and two-family residential construction, BFE+1 for all other construction types
Growth Management Ordinances	No	-	-	-
Site Plan Review Requirements	Yes	Local	Planning Bd.	Passed August 2017
Stormwater Management Ordinance	No	-	-	-
Municipal Separate Storm Sewer System (MS4)	No	-	-	-
Natural Hazard Ordinance	No	-	-	-
Post-Disaster Recovery Ordinance	No	-	-	-
Real Estate Disclosure Requirement	Yes	State	NYS Department of State, Real Estate Agent	NYS mandate, Property Condition Disclosure Act, NY Code - Article 14 §460-467
Other (Special Purpose Ordinances [i.e., sensitive areas, steep slope])	No	-	-	-

Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the Town of Jackson.

Table 9.20-7. Administrative and Technical Capabilities

Resources	Is this in place? (Yes or No)	Department/ Agency/Position
Administrative Capability		

Resources	Is this in place? (Yes or No)	Department/ Agency/Position
Planning Board	Yes	Town Planning Board
Mitigation Planning Committee	No	-
Environmental Board/Commission	No	-
Open Space Board/Committee	No	-
Economic Development Commission/Committee	No	-
Maintenance programs to reduce risk	No	-
Mutual aid agreements	Yes	Four Fire Departments
Technical/Staffing Capability		
Planner(s) or engineer(s) with knowledge of land development and land management practices	No	-
Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	No	-
Planners or engineers with an understanding of natural hazards	No	-
NFIP Floodplain Administrator (FPA)	Yes	Town Supervisor
Surveyor(s)	No	-
Personnel skilled or trained in GIS and/or Hazards United States (HAZUS) – Multi-Hazards (MH) applications	No	-
Scientist familiar with natural hazards	No	-
Emergency Manager	No	-
Grant writer(s)	No	-
Staff with expertise or training in benefit/cost analysis	No	-
Professionals trained in conducting damage assessments	No	-

Fiscal Capability

The table below summarizes financial resources available to the Town of Jackson.

Table 9.20-8. 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

Financial Resources	Accessible or Eligible to Use (Yes/No)
Open Space Acquisition funding programs	No
Other	No

Community Classifications

The table below summarizes classifications for community program available to the Town of Jackson.

Table 9.20-9. Community Classifications

Program	Do you have this? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Community Rating System (CRS)	No	N/A	N/A
Building Code Effectiveness Grading Schedule (BCEGS)	No	N/A	N/A
Public Protection (ISO Fire Protection Classes 1 to 10)	No	N/A	N/A
NYSDEC Climate Smart Community	No	N/A	N/A
Storm Ready	No	N/A	N/A
Firewise	No	N/A	N/A
Disaster/safety programs in/for schools	No	N/A	N/A
Organizations with mitigation focus (advocacy group, non-government)	No	N/A	N/A
Public education program/outreach (through website, social media)	No	N/A	N/A
Public-Private Partnerships	No	N/A	N/A

Note:
N/A *Not applicable*
NP *Not participating*
- *Unavailable*

The classifications listed above relate to the community's ability to provide effective services to lessen its vulnerability to the hazards identified. These classifications can be viewed as a gauge of the community's capabilities in all phases of emergency management (preparedness, response, recovery and mitigation) and are used as an underwriting parameter for determining the costs of various forms of insurance. The CRS class applies to flood insurance while the BCEGS and Public Protection classifications apply to standard property insurance. CRS classifications range on a scale of 1 to 10 with class 1 being the best possible classification, and class 10 representing no classification benefit. Firewise classifications include a higher classification when the subject property is located beyond 1000 feet of a creditable fire hydrant and is within 5 road miles of a recognized Fire Station.

Criteria for classification credits are outlined in the following documents:

- The Community Rating System Coordinators Manual
- The Building Code Effectiveness Grading Schedule website at https://www.isomitigation.com/bcegs/
- The ISO Mitigation online ISO's Public Protection website at https://www.isomitigation.com/ppc/
- The National Weather Service Storm Ready website at https://www.weather.gov/stormready/
- The National Firewise Communities website at https://www.nfpa.org/Public-Education/By-topic/Wildfire/Firewise-USA

Self-Assessment of Capability

The table below provides an approximate measure of the Town of Jackson's capability to work in a hazard-mitigation capacity and/or effectively implement hazard mitigation strategies to reduce hazard vulnerabilities.

Table 9.20-10. Self-Assessment Capability for the Municipality

Area	Degree of Hazard Mitigation Capability		
	Limited (If limited, what are your obstacles?)	Moderate	High
Planning and regulatory capability	X – limited staff and funding		
Administrative and technical capability	X – limited staff and funding		
Fiscal capability	X – limited staff and funding		
Community political capability	X – limited staff and funding		
Community resiliency capability	X – limited staff and funding		
Capability to integrate mitigation into municipal processes and activities	X – limited staff and funding		

National Flood Insurance Program

NFIP Floodplain Administrator (FPA)

Jay B. Skellie, Town Supervisor

Flood Vulnerability Summary

The Town does not maintain lists or inventories of properties that have experienced flood damage or have made substantial damage estimates. However, a few businesses have made substantial damage estimates for properties within the Town after past events.

No Town residents have approached the FPA with interest in mitigation activities. Any mitigation underway is being funded through emergency grants.

Resources

The current FPA is the sole person assuming the responsibilities of floodplain administration. The Town, however, utilizes the County Code Enforcement for assistance. The primary responsibilities of the Town FPA/Town Supervisor are pre-approving building permits prior to submission to County Code Enforcement who then, completes site visits, inspections, etc. If a driveway needs to be constructed or upgraded, the Highway Supt. must be involved to determine the appropriate location. The Highway Department is responsible for the authorization of new driveway cuts and installation of new culverts. There are currently no education or outreach programs for the community regarding flood hazards/risk or flood risk reduction through NFIP insurance, mitigation, etc.

The Town does not report any barriers to running an effective floodplain management program. The new FPA is still learning the procedures, and would consider attending continuing education and/or certification training on floodplain management if it were offered in the County for all local floodplain administrators.

Compliance History

The Town is in good standing with the NFIP, and is due for a compliance audit (e.g. Community Assistance Visit [CAV]). According to the NYSDEC, the last compliance audit was May 28, 1992.

Regulatory

The Town Flood Damage Prevention ordinance meets, but does not exceed the FEMA and State minimum requirements. In addition to ensuring all permit requests comply with the Flood Damage Prevention ordinance, the Town Planning Board reviews the location of all subdivisions relative to flood potential.

At the time of this Plan Update, the Town does not participate in the CRS program. However, the town is interested in attending a CRS seminar if offered locally.

Integration of Hazard Mitigation into Existing and Future Planning Mechanisms

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 this planning effort, each community was surveyed to obtain a better understanding of their community's progress in plan integration. A summary is provided below. In addition, the community identified specific integration activities that will be incorporated into municipal procedures.

Planning

Land Use Planning: The Town of Jackson has a Planning Board which reviews all applications for development and considers natural hazard risk areas in their review. The board utilizes flood maps, SEQR, history of property, and site visits by two-three planning board members prior to a public hearing to guide their decisions with respect to natural hazard risk management.

Agriculture is Jackson's predominant land use and is expected to continue to be the major economic activity. Some steps have already been taken for the preservation and protection of agriculture in Jackson. Several smaller agricultural districts have been consolidated into Agricultural District No. CA005, and a portion of Agricultural District No. CA003 is also within the Town of Jackson. In addition, through a combination of purchases and donations of development rights, Agricultural Stewardship Association has enabled the preservation of agriculture on about 17,000 acres in Washington and Rensselaer Counties.

The Batten Kill forms approximately 16.5 miles of the border between Jackson and Salem, and Jackson and Greenwich, giving the three towns incentive to plan compatible uses for their respective banks of the river. Dead Lake, Hedges Lake, Schoolhouse Pond, and Lake Lauderdale lie wholly within Jackson. The intensity of housing development on the shores of the lakes and on the banks of the river and its tributaries presents a planning challenge related to the future growth of the town.

Northern Piedmont Unit Management Plan: The Battenkill State Forest (535 acres) and Eldridge Swamp State Forest (515 acres) are both situated in the Town of Jackson. Both state forests have frontage on the Batten Kill. The state forests are managed to enhance natural resource values for public use with general state land regulations. The New York State Department of Environmental Conservation (NYS DEC) draft Unit Management Plan for the "Northern Piedmont" region includes both the Battenkill State Forest and Eldridge Swamp State Forest. The plan is available at the DEC website.

Town of Jackson Comprehensive Plan: The Town of Jackson Town Board and Planning Board are currently working to edit the draft Comprehensive Plan to guide the town's efforts in land use planning, development review, the provision of public facilities and services, environmental protection, economic development and

land conservation for the immediate and long-range protection, enhancement, growth and development of the town.

The Town has completed a draft Comprehensive Plan; however, it does not have land-use items listed at this time, and it has not been approved by the Town Board. The Town Board has, however, recently passed a site plan review law.

Regulatory and Enforcement

Code Enforcement: Washington County provides code enforcement duties and responsibilities to the Town of Jackson.

Construction Codes, Uniform: The building codes are strictly enforced to make new and renovated buildings as prepared as possible for hazard related incidents. The Town complies with New York State Uniform Fire Prevention and Building Code (the Uniform Code) and the State Energy Conservation Construction Code (the Energy Code).

Flood Damage Prevention: The Town's NFIP Flood Damage Protection Ordinance does not include provisions that exceed the minimum Federal and State NFIP regulatory requirements.

Sewers: The Town abides by the County-wide Sanitary Code, which protects and regulates its sewage collection and treatment facilities as a matter of public health and environmental safety. It seeks to prohibit the introduction of stormwater, surface, or sub-surface waters into sanitary sewers and to control the quantity and quality of wastes in the sewage system.

Subdivision of Land: The adoption of subdivision regulations made applicable to Jackson additional protections for agriculture found in Section 305-a of New York's Agriculture & Markets Law. The Town of Jackson Planning Board is tasked with subdivision review. The Planning Board pays special attention to ensure that developments mitigate the issues associated natural hazards. The board looks at flood maps and considers slopes for every minor and major subdivision. And, as stated earlier in this document, the Highway Supt. is involved with location and installation of driveway entrances.

Fiscal

Operating Budget: The Town operating budget does not include line items for mitigation projects/activities, and does not have any other mechanisms to fiscally support hazard mitigation projects.

Grants: Both the Town Highway Supt. and Town Clerk have written grants for the Town, but have never been the recipients of an award.

Operational

While there is no stormwater management ordinance, the highway superintendent is responsible for stormwater management in the town. The highway department assesses potential problem situations and attempts to engineer solutions to reduce damage.

Education and Outreach

The Town relies on the County Hyper-Reach Reverse 911 System, a phone service to alert residents of emergencies. Other education and outreach efforts are stymied due to weak internet signals throughout the Town. The internet service is better than it used to be, but could still use significant improvements to be accessible to all residents. In addition, the Town codes, ordinances, and annual budgets, are not currently posted to the Town website. The Town Clerk does, however, manage the day-to-day website activity so if an

emergency occurs, information can be posted to the website immediately (assuming the internet service is functional).

Town officials currently have very little knowledge with respect to natural hazard risk management and would benefit from additional training and/or certification, starting with the basics of natural hazard risk management.

9.20.6 Mitigation Strategy and Prioritization

This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and prioritization.

Past Mitigation Initiative Status

The following table indicates progress on the community's mitigation strategy identified in the 2010 Plan. It should be noted that during the 2010 planning process, only general, countywide actions were identified for each municipality. The Town of Jackson reviewed the previous actions and selected actions they chose to carry forward as part of this plan update. Previous actions that are now on-going programs and capabilities are indicated as such in the following table and may also be found under 'Capability Assessment' presented previously in this annex.

Table 9.20-11. Status of Previous Mitigation Actions

2010 Mitigation Action	Responsible Party	Status (In progress, No progress, Complete)	Describe Status	Next Step (Include in 2018 HMP or Discontinue)	Describe Next Step
Improve drainage at sites where roads have washed out due to natural hazards in the past	Town of Jackson	Complete	Kenyon Hill Road - drainage upgraded with larger culverts, transitioned road from gravel to paved, cleaned ditches & updated tiling. Colfax Road - drainage upgraded with larger culverts, transitioned road from gravel to paved, widened road, cleaned ditches & updated tiling. Hedges Road - drainage upgraded with larger culverts, transitioned road from gravel to paved, widened road, cleaned ditches & updated tiling. Murphy's Road – re-graveled and re-graded as well as installed new culverts. Duelle's Road – larger culverts and re-graveled and stone lined the ditches Carney Cassidy Road – widened road, cleaned ditches and installed larger culverts. NOTE: all areas where culverts have been upgraded, we've used larger, plastic culverts	Discontinue	Project has been completed; therefore, it will not be included in the 2018 HMP Update
Purchase equipment to provide for local personnel to conduct the drainage improvement.	County and NYS DHSES	No Progress	Due to limited funding, this project has not been completed	Include in 2018 HMP	An excavator is still need in the town, as well as other neighboring towns. Any time the town needs an excavator, it has to rent it from the local equipment dealership. Earlier this year, the town was fortunate to rent the same equipment the same week as White Creek, so the trucking fees were reduced for both towns because the equipment only had to move from White Creek to Jackson. This type of coordination isn't always possible. The town also needs a building/barn to house excavating equipment. The 66-year-old highway garage is quickly crumbling. There are extensive issues related to available space, roofing, heating, etc. The town is currently seeking funding assistance for a partial remodeling of the highway garage.

2010 Mitigation Action	Responsible Party	Status (In progress, No progress, Complete)	Describe Status	Next Step (Include in 2018 HMP or Discontinue)	Describe Next Step
Engineering assessment to determine feasibility of each site improvement	County and NYS DHSES	No Progress	At the time of this 2018 HMP update, this action is does not pertain to the Town.	Discontinue	At the time of this 2018 HMP update, this action is does not pertain to the Town; therefore, this action will not be included.
Improve dams to prevent flooding causing roads to wash out.	County and NYS DHSES	No Progress	At the time of this 2018 HMP update, this action is does not pertain to the Town.	Discontinue	At the time of this 2018 HMP update, this action is does not pertain to the Town; therefore, this action will not be included.
Improve identified sites where slope stability is subject to land subsidence and where excavation or planting could mitigate future damage.	County and NYS DHSES	No Progress	At the time of this 2018 HMP update, this action is does not pertain to the Town.	Discontinue	At the time of this 2018 HMP update, this action is does not pertain to the Town; therefore, this action will not be included.

Completed Mitigation Initiatives Not Identified in the Previous Mitigation Strategy

The Town of Jackson has identified the following mitigation projects/activities that have also been completed but were not identified in the previous mitigation strategy in the 2010 Plan:

- None identified

Proposed Hazard Mitigation Initiatives for the Plan Update

The Town of Jackson participated in a mitigation action workshop in September 2016 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).

Table 9.20-12 summarizes the comprehensive-range of specific mitigation initiatives the Town of Jackson would like to pursue in the future to reduce the effects of hazards. Some of these initiatives may be previous actions carried forward for this plan update. These 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. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table below to further demonstrate the wide-range of activities and mitigation measures selected.

As discussed in Section 6, 14 evaluation/prioritization criteria are used 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 your actions as 'High', 'Medium', or 'Low.' The table below summarizes the evaluation of each mitigation initiative, listed by Action Number.

Table 9.20-13 provides a summary of the prioritization of all proposed mitigation initiatives for the Plan update.

Table 9.20-12. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
T. Jackson-1	Send Town staff to county and state trainings, and complete certification programs with respect to hazard risk management in Benefit Cost Analysis (BCA), Recovery Planning, Damage Estimates, and Debris Management.	N/A	All hazards	1, 4	Town Highway, Code Enforcement, with support from the County	Medium	Low – Staff Time	Town Budget / Staff Time	Ongoing	Medium	LPR EAP	PI
T. Jackson-2	Send local Floodplain Administrator to County and State trainings and complete certification programs with respect to floodplain management to ensure code enforcement and proper inspections.	N/A	All hazards	1, 2, 4	Town Board, Town Supervisor	Medium	Low – Staff Time	Town Budget / Staff Time	Short term	Medium	EAP	PI
T. Jackson-3	Improve access to internet service throughout the Town.	N/A	All hazards	1, 2, 3, 4, 5	Town Board working with internet providers	High	Medium	Town Budget / Staff Time	Short Term	Medium	LPR	PR PI
T. Jackson-4	Update Town website to include Town codes, ordinances, and annual budgets, as well as links to information on natural hazard and risk management.	N/A	All hazards	1, 2, 4	Town Board, Code and Enforcement, with support from the County Public Safety	High	Low	Town Budget	Ongoing	Medium	EAP	PI
T. Jackson-5	Education and outreach program to inform residents of the risks associated with having poorly maintained roads and unmarked residences.	N/A	All hazards	1, 2, 4	Town Planning Board and Highway Dept. with support from County Public Safety	High	Low	Town Budget	Ongoing	Medium	EAP	PI
T. Jackson-6	Develop a timeline and action plan for the five bridges to be approved by the Town of Jackson for the replacement and upgrades to minimize flood obstructions and alleviate any flooding issues associated with the bridge (According to Washington County DPW, the largest bridge is in need of immediate replacement).											
	(See Action Worksheet)	N/A	Flood, severe storm,	1, 4, 5	Town Highway Dept. with	High	Low for timeline and action	Town Budget for timeline and	Short	High	LRP SIP	SP

Table 9.20-12. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
			wildfire		support from County and State as needed		plan High for bridge repairs / replacements $1 million ($350,000/ bridge)	action plan; potential grants from FHWA, DOT, and bonds with municipal share for repair / replacement				
T. Jackson-7	Initiate engineering study of three roadways in the Town (Kenyon Hill, Colfax, and Carney Cassidy Roads) to devise solutions to reduce incidents of roadway closure from mud slides and debris runoff. The study will be presented to the Highway Department for review and to identify next steps.											
	(See Action Worksheet)	Both	Flood	1, 4, 5	Town Highway Department	Medium	High	Town budget and FEMA HMA Grants (HMGP, FMA, PDM)	Short Term	High	SIP NSP	PR NR
T. Jackson-8	Skellie Road riverbank stabilization. Install additional rock veins and line riverbank with more large rocks.	Existing	Flood	1, 3, 4, 5	Town Highway Department with support from County and NYS DEC as needed	High	Medium	Town budget and FEMA HMA Grants (HMGP, FMA, PDM)	Short Term	Medium	SIP NSP	PR NR
T. Jackson-9	Pass an ordinance to require best practices for erosion-resistant crop planting. If not adhered to, will result in monetary responsibility for cleanup costs following subsequent mudslides and washouts.	Existing	Flood, severe storm	1, 2, 3, 4, 5	Town Board and Code Enforcement	Medium	Low	Town Budget	Short term	High	LPR	PI
T. Jackson-10	Install culvert on Ackley Road – increase culvert size to alleviate road washouts in this area along farming fields.	New and Existing	Flood, Severe Storm	1, 3, 4, 5	Town Highway Department	Medium	Low	Town Budget	Short Term	Medium	SIP	PP
T. Jackson-11	Develop an ordinance to address proper construction	Existing	Flood, severe	1, 2, 3, 4, 5	Town Board and Code	Medium	Low	Town Budget	Short term	High	LPR	PI

Table 9.20-12. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
	and maintenance procedures to avoid debris, runoff, and erosion of private roads impacting Nesbitt Road and Hedges Lake during heavy rain and flooding events.		storm		Enforcement							
T. Jackson-12	Conduct an investigation of the roadway and homes along Johnson Road and determine long-term resolution to reduce or alleviate flooding along this section of the Town. However, the Town will need to work with NYS DOT and private property owners as the Town does not have jurisdiction to install culverts in this area.											
	(See Action Worksheet)	Existing	Flood	1, 2, 3, 4, 5	Town Highway Dept. working NYS DOT and NYS DEC	Medium	Medium	Town Budget for investigation ; grants for work (FEMA HMGP, FMA)	Short Term	High	LPR, SIP	SP
T. Jackson-13	Develop an ordinance to require proper labeling and minimum standard for a driveway and road. This will allow for improvements to roadway and public safety.	Existing	All	1, 2, 3, 4, 5	Town Board, Code Enforcement	High	Low	Town Budget	Short term	Medium	LPR	SP
T. Jackson-14	As part of the structural and safety improvements to the Town Highway Garage, purchase and install backup generator to allow for continuous operations during utility failures.	Existing	All hazards	1, 2, 3, 4, 5	Town Highway Dept.	High	Low	Town Budget, FEMA HMA grants (HMGP, PDM, FMA)	Short term	High	SIP	SP
T. Jackson-15	Complete Town Comprehensive Plan, and get Town board approval to help secure future grant funding for goals/projects identified in plan.	Both	All hazards	1, 3, 5	Town Board, Planning Department	Medium	Low	Town Budget	Short term	Medium	LPR	PR
T. Jackson-16	Conduct a sheltering assessment, identify optimal site for short and long-term sheltering for Town of Jackson residents, and establish a mutual aid	N/A	All Hazards	1, 3, 4	Town Board working with County Public Safety	Medium	Low	Staff Time, Town Budget, Emergency Shelter Grants	Short term	High	EAP	ES

Table 9.20-12. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
	agreement with appropriate municipality or institution.							Program (HUD)				
T. Jackson-17 (previous action)	Purchase an excavator to provide for local personnel to conduct drainage improvements, debris management, and other needs in the town. Once purchase of new equipment is secured, construct additions to the highway department barn to house the new equipment. This construction of the addition will begin once the equipment is ordered.	N/A	Severe storm, severe winter storm, wildfire	1, 3, 4	Town Highway Dept.	Medium	Medium	USDA Community Facilities Grant, State Homeland Security Program, Town Budget	Short term	Medium	NSP	NR, PR

Notes:

Not all acronyms and abbreviations defined below are included in the table.

**Does this mitigation initiative reduce the effects of hazards on new and/or existing buildings and/or infrastructure? Not applicable (N/A) is inserted if this does not apply.*

Acronyms and Abbreviations:

CAV	*Community Assistance Visit*
CRS	*Community Rating System*
DPW	*Department of Public Works*
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*
PDM	*Pre-Disaster Mitigation Grant Program*
RFC	*Repetitive Flood Claims Grant Program (discontinued in 2015)*
SRL	*Severe Repetitive Loss Grant Program (discontinued in 2015)*

Timeline:

Short	*1 to 5 years*
Long Term	*5 years or greater*
OG	*On-going program*
DOF	*Depending on funding*

Costs:

Where actual project costs have been reasonably estimated:

Low	*< $10,000*
Medium	*$10,000 to $100,000*
High	*> $100,000*

Where actual project costs cannot reasonably be established at this time:

Benefits:

Where possible, an estimate of project benefits (per FEMA's benefit calculation methodology) has been evaluated against the project costs, and is presented as:

Low=	*< $10,000*
Medium	*$10,000 to $100,000*
High	*> $100,000*

Costs:

Low *Possible to fund under existing budget. Project is part of, or can be part of an existing on-going program.*

Medium *Could budget for under existing work plan, but would require a reapportionment of the budget or a budget amendment, or the cost of the project would have to be spread over multiple years.*

High *Would require an increase in revenue via an alternative source (i.e., bonds, grants, fee increases) to implement. Existing funding levels are not adequate to cover the costs of the proposed project.*

Benefits:

Where numerical project benefits cannot reasonably be established at this time:

Low *Long-term benefits of the project are difficult to quantify in the short term.*

Medium *Project will have a long-term impact on the reduction of risk exposure to life and property, or project will provide an immediate reduction in the risk exposure to property.*

High *Project will have an immediate impact on the reduction of risk exposure to life and property.*

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*

Table 9.20-13. Summary of Prioritization of Actions

Mitigation Action/ Project Number	Mitigation Action/Initiative	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
T. Jackson-1	Send Town staff to county and state trainings, and complete certification programs with respect to hazard risk management in Benefit Cost Analysis (BCA), Recovery Planning, Damage Estimates, and Debris Management.	1	1	1	1	1	1	0	0	0	0	1	1	0	0	8	Medium
T. Jackson-2	Send local Floodplain Administrator to County and State trainings and complete certification programs with respect to floodplain management to ensure code enforcement and proper inspections.	1	1	1	1	1	1	0	0	0	0	1	1	0	0	8	Medium
T. Jackson-3	Improve access to internet service throughout the Town.	1	1	1	1	1	-1	0	1	0	-1	1	1	1	1	8	Medium
T. Jackson-4	Update Town website to include Town codes, ordinances, and annual budgets, as well as links to information on natural hazard and risk management.	1	1	1	1	1	1	0	0	0	0	1	1	0	0	8	Medium
T. Jackson-5	Education and outreach program to inform residents of the risks associated with having poorly maintained roads and unmarked residences.	1	1	1	1	1	-1	1	1	1	0	1	0	1	0	9	Medium
T. Jackson-6	Develop a timeline and action plan for the five bridges to be approved by the Town of Jackson for the replacement and upgrades to minimize flood obstructions and alleviate any flooding issues associated with the bridge (According to Washington	1	1	1	1	1	1	-1	1	1	1	1	1	1	0	11	High

Table 9.20-13. Summary of Prioritization of Actions

Mitigation Action/ Project Number	Mitigation Action/Initiative	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
	County DPW, the largest bridge is in need of immediate replacement).																
T. Jackson-7	Initiate engineering study of three roadways in the Town (Kenyon Hill, Colfax, and Carney Cassidy Roads) to devise solutions to reduce incidents of roadway closure from mud slides and debris runoff. The study will be presented to the Highway Department for review and to identify next steps.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High
T. Jackson-8	Skellie Road riverbank stabilization. Install additional rock veins and line riverbank with more large rocks.	1	1	1	1	1	-1	1	1	1	1	1	-1	1	1	10	Medium
T. Jackson-9	Pass an ordinance to require best practices for erosion-resistant crop planting. If not adhered to, will result in monetary responsibility for cleanup costs following subsequent mudslides and washouts.	1	1	1	1	1	0	1	1	1	1	1	1	1	1	13	High
T. Jackson-10	Install culvert on Ackley Road – increase culvert size to alleviate road washouts in this area along farming fields.	1	1	1	1	0	0	0	0	1	1	1	1	0	0	8	Medium
T. Jackson-11	Develop an ordinance to address proper construction and maintenance procedures to avoid debris, runoff, and erosion of private roads impacting Nesbitt Road and Hedges Lake during heavy rain and flooding events.	1	1	1	0	1	1	1	1	1	0	1	1	1	1	12	High
T. Jackson-12	Conduct an investigation of the roadway and homes along	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High

Table 9.20-13. Summary of Prioritization of Actions

Mitigation Action/ Project Number	Mitigation Action/Initiative	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
	Johnson Road and determine long-term resolution to reduce or alleviate flooding along this section of the Town. However, the Town will need to work with NYS DOT and private property owners as the Town does not have jurisdiction to install culverts in this area.																
T. Jackson-13	Develop an ordinance to require proper labeling and minimum standard for a driveway and road. This will allow for improvements to roadway and public safety.	1	1	1	1	1	-1	0	0	1	-1	1	1	1	1	8	Medium
T. Jackson-14	As part of the structural and safety improvements to the Town Highway Garage, purchase and install backup generator to allow for continuous operations during utility failures.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High
T. Jackson-15	Complete Town Comprehensive Plan, and get Town board approval to help secure future grant funding.	1	1	1	1	0	0	0	0	1	1	1	1	0	0	8	Medium
T. Jackson-16	Conduct a sheltering assessment, identify optimal site for short and long-term sheltering for Town of Jackson residents, and establish a mutual aid agreement with appropriate municipality or institution.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High
T. Jackson-17 (previous action)	Purchase an excavator to provide for local personnel to conduct drainage improvements, debris management, and other needs	1	1	0	1	0	1	-1	1	0	1	1	1	1	1	9	Medium

Table 9.20-13. Summary of Prioritization of Actions

Mitigation Action/ Project Number	Mitigation Action/Initiative	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
	in the town. Once purchase of new equipment is secured, construct additions to the highway department barn to house the new equipment. This construction of the addition will begin once the equipment is ordered.																

Note: Refer to Section 6, which conveys guidance on prioritizing mitigation actions.

9.20.7 Future Needs to Better Understand Risk/Vulnerability

None at this time.

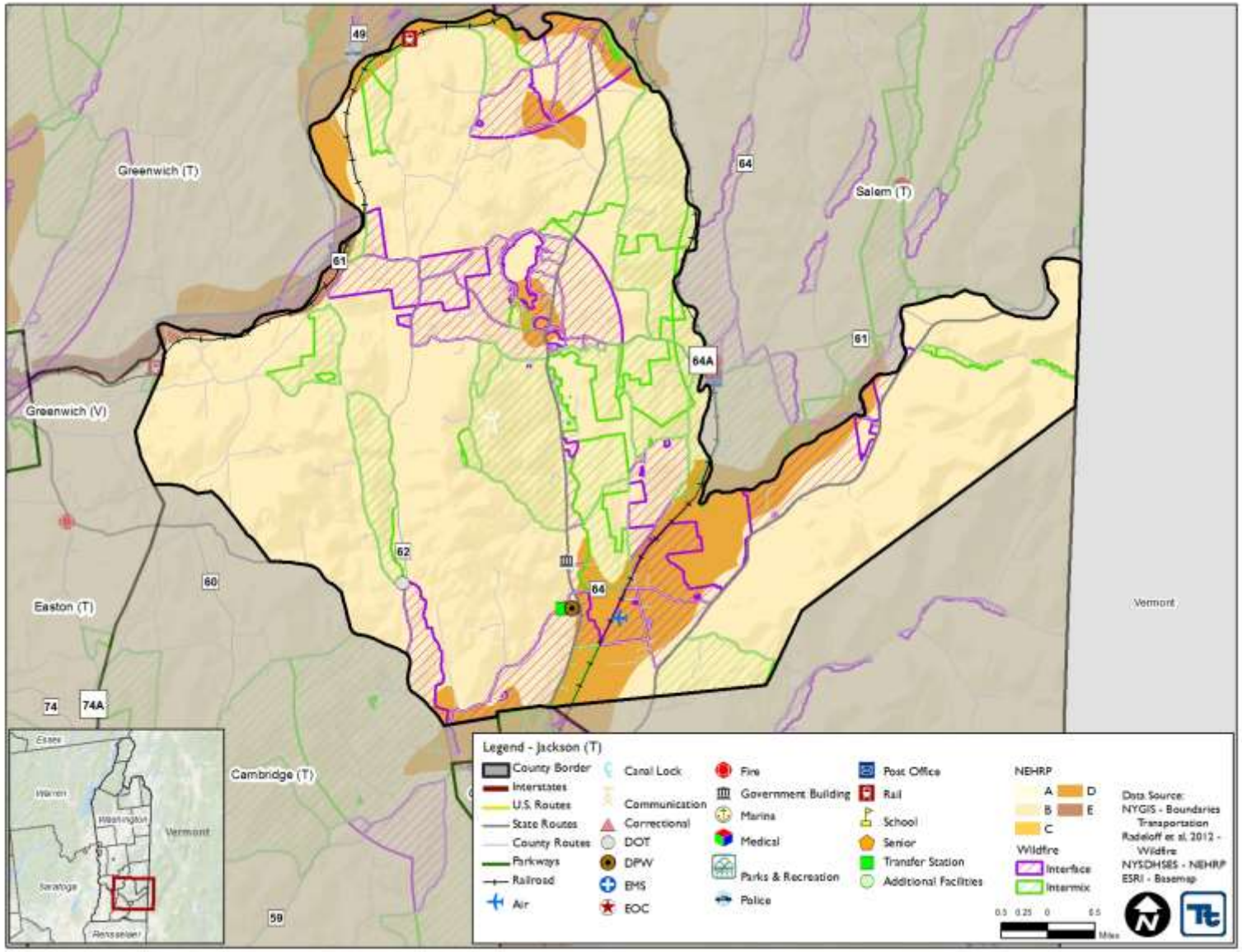
9.20.8 Hazard Area Extent and Location

Hazard area extent and location maps have been generated for the Town of Jackson that illustrate the probable areas impacted within the municipality. These maps are based on the best available data at the time of the preparation of this plan, and are considered to be adequate for planning purposes. Maps have only been generated for those hazards that can be clearly identified using mapping techniques and technologies, and for which the Town of Jackson has significant exposure. These maps are illustrated in the hazard profiles within Section 5.4, Volume I of this Plan.

9.20.9 Additional Comments

None at this time.

Figure 9.20-1. Town of Jackson Hazard Area Extent and Location



Action Number:	T. Jackson-6
Mitigation Action Name:	Murray Hollow Road Bridges.

Assessing the Risk	
Hazard(s) addressed:	Flood, Severe storms, wildfire
Specific problem being mitigated:	Murray Hollow Road is also only access road for thousands of acres used by loggers, hunters and private camps. Concerns include collapse of one or more of five bridges (the largest bridge immediately), road closure, and loss of residential and emergency vehicle access.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	Replace bridges one at a time which will cost $150,000-200,000 per bridge. Re-open old access road so there's another exit to get to State Route 313, as Murray Hollow Road is a dead-end road connecting to the Vermont State border. The problem is the old access road is privately-owned and might not be accessible to every residence on the road depending on which bridge fails.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Develop a timeline and action plan for the five bridges to be approved by the Town of Jackson for the replacement and upgrades to minimize flood obstructions and alleviate any flooding issues associated with the bridge. According to Washington County DPW, the largest bridge is in need of immediate replacement. After the action plan has been completed, the proper repairs or replacements of the five bridges will be done (According to Washington County DPW and NYS DOT the largest bridge is in need of immediate replacement)
Mitigation Action Type	Local Plans and Regulations (LPR) Structure and Infrastructure Project (SIP)
Goals Met	Goal 1: Protect Life and Property Goal 4: Provide for Emergency Services 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.
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	High - Loss of human life and property if bridge collapses or if there's a flood or fire
Estimated Cost	Low for timeline and action plan; High for bridge repairs / replacements $1 million ($350,000/ bridge)
Priority*	High
Plan for Implementation	
Responsible Organization	Town Highway Dept. with support from County and State, as needed
Local Planning Mechanism	Hazard Mitigation, Municipal Budget/General Fund
Potential Funding Sources	Town Budget for timeline and action plan; potential grants from FHWA, DOT, and bonds with municipal share for repair / replacement
Timeline for Completion	Short
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

Action Number: T. Jackson-6

Mitigation Action Name: Murray Hollow Road Bridges.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	If a bridge collapses, there's a threat to human life with no other access off this road
Property Protection	1	If a fire occurs in this forest-dense, residential area, property loss could also occur among the 22 parcels of which ten are residences.
Cost-Effectiveness	1	
Technical	1	These bridges are the original bridges (some over 100 years old)
Political	1	
Legal	1	Murray Hollow Road is a town-owned road
Fiscal	1	The cost to replace each bridge (one per year) reflects 50% of the department annual budget
Environmental	1	There could be a temporary impact to the water and habitat in the creek below the bridges
Social	1	If residents cannot use the bridge(s), their safety is at risk
Administrative	1	Outside expertise would be required as highway department does not have the specific skills to build new bridges and anticipate that the County Highway Department will be partners in rebuilding the bridges
Multi-Hazard	1	Already noted above
Timeline	1	Depends on financial assistance
Agency Champion	1	Jackson Highway Superintendent
Other Community Objectives	0	
Total	11	
Priority (High, Medium, or Low)	High	

Action Number:	T. Jackson-7
Mitigation Action Name:	Engineering study of Kenyon Hill, Colfax, and Carney Cassidy Roads.

Assessing the Risk	
Hazard(s) addressed:	Flood
Specific problem being mitigated:	Kenyon Hill, Colfax, and Carney Cassidy Roads close frequently due to mud slides and debris runoff, impacting access to homes in this area from emergency personnel and vehicles.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	Increase the capacity of the ditches – cost. Place stone barriers in the ditches to reduce erosion – doesn't prevent flooding.
Description of Selected Action/Project	Initiate engineering study of three roadways in the Town (Kenyon Hill, Colfax, and Carney Cassidy Roads) to devise solutions to reduce incidents of roadway closure from mud slides and debris runoff. The study will be presented to the Highway Department for review and to identify next steps. Solutions will include replacing and increasing the size of culverts on these roads and keeping ditches clear of debris.
Mitigation Action Type	Structure and Infrastructure Project (SIP) Natural Systems Protection (NSP)
Goals Met	Goal 1: Protect Life and Property Goal 4: Provide for Emergency Services 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.
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	Medium
Estimated Cost	High
Priority*	High
Plan for Implementation	
Responsible Organization	Town Highway Department
Local Planning Mechanism	Hazard Mitigation
Potential Funding Sources	Town budget and FEMA HMA Grants (HMGP, FMA, PDM)
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

Action Number: T. Jackson-7

Mitigation Action Name: Engineering study of Kenyon Hill, Colfax, and Carney Cassidy Roads.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	Access to properties will be safer
Cost-Effectiveness	1	Some projects can be covered within the current budget
Technical	1	
Political	1	Many residents are aware problems associated with plugged culverts
Legal	1	
Fiscal	1	
Environmental	1	
Social	1	Any specific area experiencing flooding would be much safer
Administrative	1	
Multi-Hazard	1	
Timeline	1	
Agency Champion	1	Highway Superintendent
Other Community Objectives	1	Keep our roads safe for passage and to minimize deterioration of road surfaces
Total	14	
Priority (High, Medium, or Low)	High	

Action Number:	T. Jackson-8
Mitigation Action Name:	Skellie Road Riverbank.

Assessing the Risk	
Hazard(s) addressed:	Flood
Specific problem being mitigated:	Riverbank erodes under Skellie Road following higher than normal waters. Over time, the erosion has forced the road to sink. Due to the growing agricultural businesses on this road, it has experienced a significant increase of heavy-weighted equipment traffic during the past few decades thus increasing the daily impact on the road and riverbank.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	Sheet piling the length of the problem area (approx. 500 ft.) and back filling towards the road – cost. Realign the road by acquiring land from the adjacent farm. This would require a total rebuild of the 1,000 ft. of road with new sub-base and base – cost. If the current rock veins installed in the river give away, then new rock veins could be re-installed – not proactive.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Install additional rock veins and line riverbank with more large rocks. This will stabilize the riverbank along the road and reduce impacts.
Mitigation Action Type	Structure and Infrastructure Project (SIP) Natural Systems Protection (NSP)
Goals Met	Goal 1: Protect Life and Property Goal 3: Encourage Partnerships Goal 4: Provide for Emergency Services 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
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	High - Road collapse and closure; potential loss of life; potential damage to river and its inhabitants
Estimated Cost	Medium - $75,000
Priority*	Medium
Plan for Implementation	
Responsible Organization	Town Highway Department with support from County and NYS DEC as needed
Local Planning Mechanism	Hazard Mitigation, Municipal Budget/General Fund
Potential Funding Sources	Town budget and FEMA HMA Grants (HMGP, FMA, PDM)
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

Action Number: T. Jackson-8

Mitigation Action Name: Skellie Road Riverbank.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	If the road collapses, vehicles could fall into the river
Property Protection	1	Although there are no structures in the vicinity of the problem area, road closure could impact emergency vehicle access for people and property
Cost-Effectiveness	1	Road closure not only impacts emergency vehicles, but also agri-business as well as the NYS Home for Developmental Disabilities located west of the problem area
Technical	1	Rock veins have been installed but to date have been untested; sheet piling and back filling provides a more permanent solution but is extremely expensive
Political	1	If there are no other significant flood events, then the Town Board isn't as concerned about the location; however, this location has experienced many serious flood events over the years
Legal	-1	State and Federal agencies must be involved with this project
Fiscal	1	A full stabilization of the riverbank would cost 25% of the Town's annual highway budget
Environmental	1	Environmental regulations would be followed
Social	1	The proposed action will only delay traffic for about a week
Administrative	1	Staff assisted with installation of the current rock veins; however, additional veins would require outside resources
Multi-Hazard	1	See above
Timeline	-1	Doubtful
Agency Champion	1	The Hwy. Supt. has been concerned about his site for over four years. The local farmers have complained about the damage the dip in the pavement has caused to their equipment.
Other Community Objectives	1	The Batten Kill Watershed Alliance would be supportive of any permanent solution
Total	10	
Priority (High, Medium, or Low)	Medium	

Action Number:	T. Jackson-9
Mitigation Action Name:	Culvert on Ackley Road.

Assessing the Risk	
Hazard(s) addressed:	Flood, Severe Storm
Specific problem being mitigated:	Mudslides and washouts due to inadequate sized culverts lead to road closure. Field crop planting procedures by the agricultural businesses contribute to sediment runoff and erosion patterns that cause flooding.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action – problem persists. Pass an ordinance stating that if field crop planting procedures are not altered, the land owner will pay the cleanup costs following subsequent mudslides/washouts – washouts still occur.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Increase culvert size to alleviate road washouts in this area on Ackley Road along farming fields.
Mitigation Action Type	Local Plans and Regulations (LPR) Structure and Infrastructure Project (SIP) Natural Systems Protection (NSP) Education and Awareness Programs (EAP)
Goals Met	Goal 1: Protect Life and Property Goal 2: Increase Public Awareness Goal 3: Encourage Partnerships Goal 4: Provide for Emergency Services 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.
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	Medium - Road closures, erosion of field/natural resources
Estimated Cost	Low
Priority*	Medium
Plan for Implementation	
Responsible Organization	Town Highway Department
Local Planning Mechanism	Hazard Mitigation, Municipal Budget/General Fund
Potential Funding Sources	Town Budget
Timeline for Completion	Short
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

Action Number: T. Jackson-9
Mitigation Action Name: Culvert on Ackley Road

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	Reduces deterioration of road surface
Cost-Effectiveness	1	This repeated issue utilizes town funds every time mudslides/washouts occur
Technical	1	Altering the planting and crop management practices could greatly reduce the problem at minimal expense to the town and farmer
Political	1	
Legal	0	
Fiscal	0	
Environmental	0	
Social	0	
Administrative	1	
Multi-Hazard	1	
Timeline	1	
Agency Champion	1	Highway Superintendent
Other Community Objectives	1	
Total	10	
Priority (High, Medium, or Low)	medium	

Action Number:	T. Jackson-10
Mitigation Action Name:	Nesbitt Road & Hedges Lake Washouts.

Assessing the Risk	
Hazard(s) addressed:	Mudslides and washouts across Nesbitt Road running into Hedges Lake
Specific problem being mitigated:	This densely populated residential/camp area comprised of 73 year-round and seasonal residences (among 114 parcels) built on a steep hillside experiences repeated runoff of mud and debris onto the town road and into the lake from heavy rain and flooding events. Such events have damaged homes and property. Since most of these properties have private access roads, the town has no jurisdiction.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action – problem persists. Encourage property owners to alter their driveways to reduce runoff – may not be effective.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Develop an ordinance to address proper construction and maintenance procedures to avoid debris, runoff, and erosion of private roads impacting Nesbitt Road and Hedges Lake during heavy rain and flooding events.
Mitigation Action Type	Local Plans and Regulations (LPR)
Goals Met	Goal 1: Protect Life and Property Goal 2: Increase Public Awareness Goal 3: Encourage Partnerships Goal 4: Provide for Emergency Services 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.
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	Medium - Minimizes the long-term damage to Hedges Lake (water quality & species); Town resources would not be constantly utilized every time there's a heavy rain
Estimated Cost	Low
Priority*	High
Plan for Implementation	
Responsible Organization	Town Board and Code Enforcement
Local Planning Mechanism	Hazard Mitigation
Potential Funding Sources	Town Budget
Timeline for Completion	Short
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

Action Number: T. Jackson-10

Mitigation Action Name: Nesbitt Road & Hedges Lake Washouts.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	Minimizes damage to homes, Nesbitt Road and Hedges Lake
Cost-Effectiveness	1	
Technical	0	
Political	1	Soil and Water visited this site in summer of 2016, however, they don't have many options to solve the larger problem
Legal	1	Other agencies have jurisdiction over this project
Fiscal	1	The Town can fund the current cleanup activities, but a long-term solution would fall on other agencies
Environmental	1	Water quality, water species and plant life will be negatively impacted if problem is not mitigated
Social	1	
Administrative	0	The Town Board would support a mitigation plan, but other agencies would be in charge
Multi-Hazard	1	
Timeline	1	
Agency Champion	1	
Other Community Objectives	1	Hedges Lake Association
Total	12	
Priority (High, Medium, or Low)	High	

Action Number:	T. Jackson-11
Mitigation Action Name:	Johnson Road Flooding.

Assessing the Risk	
Hazard(s) addressed:	Flood
Specific problem being mitigated:	Johnson Road has mudslides & washouts across the road and into residences. Due to location, the Town does not have the authority to run water into the lake or into private properties.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	Take no action – problem persists. Dig new ditches to divert water and install new culverts – cost.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Conduct an investigation of the roadway and homes along Johnson Road and determine long-term resolution to reduce or alleviate flooding along this section of the Town. The Town will need to work with NYS DOT and private property owners, as the Town does not have jurisdiction to install culverts in this area.
Mitigation Action Type	Local Plans and Regulations (LPR) Structure and Infrastructure Project (SIP) Natural Systems Protection (NSP) Education and Awareness Programs (EAP)
Goals Met	Goal 1: Protect Life and Property Goal 2: Increase Public Awareness Goal 3: Encourage Partnerships Goal 4: Provide for Emergency Services 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.
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	Medium - Some residents are spending significant money to clean up their properties after flooding occurs because water and mud are flowing into homes and basements
Estimated Cost	Medium
Priority*	High
Plan for Implementation	
Responsible Organization	Town Highway Dept. working NYS DOT and NYS DEC
Local Planning Mechanism	Hazard Mitigation
Potential Funding Sources	Town Budget for investigation; grants for work (FEMA HMGP, FMA)
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

Action Number: T. Jackson-11
Mitigation Action Name: Johnson Road Flooding.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	This has been an ongoing, increasingly, repetitive issue
Cost-Effectiveness	1	This area densely populated and could be a major liability to the Town.
Technical	1	Due to runoff from the State Route 22 and the proximity to the lake, the Town cannot correct the problem without direction cooperation from FEMA, DEC and DOT
Political	1	Residents are very frustrated by this situation
Legal	1	The Town will need other agencies to identify a solution to be implemented
Fiscal	1	Hopefully, but it's unknown without an approved plan
Environmental	1	Johnson Road is located just above Lake Lauderdale. Runoff eventually goes into the lake. No plan would be implemented without other agency's approval.
Social	1	Depending the mitigation plan, residents may have to have their properties dug up
Administrative	1	It will require approvals from FEMA, DEC, DOT and possibly others
Multi-Hazard	1	
Timeline	1	unknown
Agency Champion	1	FEMA, DEC
Other Community Objectives	1	Possibly the Lake Lauderdale Improvement Association
Total	14	
Priority (High, Medium, or Low)	High	

Action Number:	T. Jackson-12
Mitigation Action Name:	Proper labeling of house numbers.

Assessing the Risk	
Hazard(s) addressed:	All
Specific problem being mitigated:	Properties poorly identified for 911 purposes and evacuation of residents in the area inhibits access for emergency vehicles through the area.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	Take no action – problem persists. Establish a Homeowners Association (HOA) which the Town has no jurisdiction – may not be effective or sustainable.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Develop an ordinance to require proper labeling and minimum standard for a driveway and road. This will allow for improvements to roadway and public safety.
Mitigation Action Type	Local Plans and Regulations (LPR)
Goals Met	Goal 1: Protect Life and Property Goal 2: Increase Public Awareness Goal 3: Encourage Partnerships Goal 4: Provide for Emergency Services 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.
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	High - If emergency vehicles cannot pass over this road, there could be devastating loss of life and/or property; without proper 911 identification, vital time during an emergency will be lost
Estimated Cost	Low
Priority*	Medium
Plan for Implementation	
Responsible Organization	Town Board, Code Enforcement
Local Planning Mechanism	Hazard Mitigation, Emergency Management
Potential Funding Sources	Town Budget
Timeline for Completion	Short
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

Action Number: T. Jackson-12
Mitigation Action Name: Proper labeling of house numbers.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Local EMS and Fire Dept. have stated that they struggle to pass through this area
Property Protection	1	Local EMS and Fire Dept. have stated that they struggle to pass through this area
Cost-Effectiveness	1	A cooperative plan could be very cost-effective to the residents
Technical	1	Long term solution
Political	1	
Legal	0	
Fiscal	1	Municipal budget – staff time
Environmental	0	
Social	1	Residents might be required to move fences, or structures to widen road
Administrative	-1	
Multi-Hazard	1	Minimize loss of life and property
Timeline	1	
Agency Champion	1	Highway Superintendent, Town Supervisor and Town Clerk
Other Community Objectives	1	Local Emergency Services would be RELIEVED if conditions in this area were improved
Total	10	
Priority (High, Medium, or Low)	Medium	

Action Number:	T. Jackson-13
Mitigation Action Name:	Town Highway Garage.

Assessing the Risk	
Hazard(s) addressed:	All hazards
Specific problem being mitigated:	The 67-year-old Town Highway Garage does not have a backup generator for use during power outages. In addition, the building has age related issues in that structurally it is crumbling and deteriorating, the heating system does not work effectively, and the size of the bays is not sufficient to safely work on dump trucks.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	Take no action – problem persists. Demolish the existing building and build new structure – cost.
Action/Project Intended for Implementation	
Description of Selected Action/Project	As part of the structural and safety improvements to the Town Highway Garage, purchase and install backup generator to allow for continuous operations during utility failures.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	Goal 1: Protect Life and Property Goal 2: Increase Public Awareness Goal 3: Encourage Partnerships Goal 4: Provide for Emergency Services 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.
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	High
Estimated Cost	Low
Priority*	High
Plan for Implementation	
Responsible Organization	Town Highway Dept.
Local Planning Mechanism	Hazard Mitigation, Emergency Management
Potential Funding Sources	Town Budget, FEMA HMA grants (HMGP, PDM, FMA)
Timeline for Completion	Short
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

Action Number: T. Jackson-13
Mitigation Action Name: Town Highway Garage.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	This is feasible and a past due solution
Political	1	
Legal	1	
Fiscal	1	The Town would need support from State or Federal grants
Environmental	1	All environmental regulations would be followed
Social	1	
Administrative	1	
Multi-Hazard	1	
Timeline	1	
Agency Champion	1	Town Supervisor, Town Board, Highway Supt., some residents
Other Community Objectives	1	
Total	14	
Priority (High, Medium, or Low)	High	

Action Number:	T. Jackson-14
Mitigation Action Name:	Purchase excavator.

Assessing the Risk	
Hazard(s) addressed:	All hazards
Specific problem being mitigated:	The Town currently does not own an excavator. This reduces response time and efforts to conduct essential drainage improvements and debris removal.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	Take no action – problem persists. Rent equipment when needed – may not be able to get equipment quickly or it may not be available.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Purchase an excavator to provide for local personnel to conduct drainage improvements, debris management, and other needs in the town. After new equipment is ordered, construct additions to the highway department barn to house the new equipment.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	Goal 1: Protect Life and Property Goal 2: Increase Public Awareness Goal 3: Encourage Partnerships Goal 4: Provide for Emergency Services 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.
Applies to existing and or new development, or not applicable	N/A
Benefits (losses avoided)	Medium
Estimated Cost	Medium
Priority*	Medium
Plan for Implementation	
Responsible Organization	Town Highway Dept.
Local Planning Mechanism	Hazard Mitigation, Municipal Budget/General Fund
Potential Funding Sources	USDA Community Facilities Grant, State Homeland Security Program, Town Budget
Timeline for Completion	Short
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

Action Number: T. Jackson-14
Mitigation Action Name: Purchase excavator.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	This is feasible and a past due solution
Political	1	
Legal	1	
Fiscal	0	The Town would need support from State or Federal grants
Environmental	0	
Social	0	
Administrative	1	
Multi-Hazard	1	
Timeline	1	
Agency Champion	1	Town Supervisor, Town Board, Highway Superintendent
Other Community Objectives	0	
Total	10	
Priority (High, Medium, or Low)	Medium	

9.21 TOWN OF KINGSBURY

This section presents the jurisdictional annex for the Town of Kingsbury.

9.21.1 Hazard Mitigation Plan Point of Contact

The following individuals have been identified as the hazard mitigation plan's primary and alternate points of contact.

Primary Point of Contact	Alternate Point of Contact
Dana Hogan, Supervisor 6 Michigan Street, Hudson Falls, NY 12839 518-747-2188 ext. 2007 kingsburysupervisor@gmail.com	Not identified at this time

9.21.2 Municipal Profile

The Town of Kingsbury is located along the western border of Washington County. The Town is bordered to the north by the Town of Fort Ann, to the south by the Towns of Fort Edward and Argyle, to the east by the Town of Hartford, and to the west by Warren County. There are several communities found within the Town and include: Adamsville, Baldwin Corner, Dunham Basin, Kingsbury, Pattens Mills, Smiths Basin, and Vaughns Corners. Additionally, there are several water bodies that flow through the Town: Big Creek, Bond Creek, and Wood Creek.

According to the 2010 Census, the Town's population was 12,671. The Town has a total area of 40 square miles, of which 39.9 square miles of it is land and 0.2 square miles of it is water.

Growth/Development Trends

The following table summarizes recent residential/commercial development since 2010 to present and any known or anticipated major residential/commercial development and major infrastructure development that has been identified in the next five years within the municipality.

Table 9.21-1. Growth and Development

Property or Development Name	Type (e.g. Res., Comm.)	# of Units / Structures	Location (address and/or Parcel ID)	Known Hazard Zone(s)	Description/Status of Development
Recent Development from 2010 to present					
Route 4 Project	Comm	Sewer and Utilities	Throughout Town	To be determined once updated maps are finalized	Complete – sewer and utility work within Town limits
Known or Anticipated Development in the Next Five (5) Years					
None identified					

Note: Only location-specific hazard zones or vulnerabilities identified.

9.21.3 Natural Hazard Event History Specific to the Municipality

Washington County has a history of natural and non-natural hazard events as detailed in Volume I, Section 5.0 of this plan. 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. For the purpose of this plan update, events that have occurred in the County from 2008 to present were summarized to indicate the range and impact of hazard events in the community. Information regarding specific damages is included, if available,

based on reference material or local sources. This information is presented in the table below. For details of these and additional events, refer to Volume I, Section 5.0 of this plan.

Table 9.21-2. Hazard Event History

Dates of Event	Event Type (FEMA Disaster Declaration if applicable)	Washington County Designated?	Summary of Damages/Losses
August 26-September 5, 2011	Hurricane Irene DR-4020	Yes	Downed tree branches in the road led to overtime for DPW crew. A culvert failed on New Swamp Road and was replaced with a culvert the Town had on hand.

Notes:

EM *Emergency Declaration (FEMA)*
FEMA *Federal Emergency Management Agency*
DR *Major Disaster Declaration (FEMA)*
IA *Individual Assistance*
N/A *Not applicable*
PA *Public Assistance*

9.21.4 Hazard Vulnerabilities and Ranking

The hazard profiles in Section 5.0 of this plan have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes the hazard vulnerabilities and their ranking in the Town of Kingsbury. For additional vulnerability information relevant to this jurisdiction, refer to Section 5.0.

Natural Hazard Risk/Vulnerability Risk Ranking

As discussed in Section 5.3 (Hazard Ranking), each participating town or village may have differing degrees of risk exposure and vulnerability compared to Washington County as a whole. Therefore, each municipality 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 Kingsbury. Table 9.21-12 provides proposed mitigation initiatives for the high ranked hazards.

Table 9.21-3. Hazard Risk/Vulnerability Risk Ranking

Hazard type	Estimate of Potential Dollar Losses to Structures Vulnerable to the Hazard [a, c]	Probability of Occurrence	Risk Ranking Score (Probability x Impact)	Hazard Ranking [b]
Earthquake	100-Year GBS: $7,963,471 500-Year GBS: $104,697,088 2,500-Year GBS: $757,900,201	Occasional	32	High
Flood	Damage estimate not available.	Frequent	18	Medium
Severe Weather	100-Year MRP: $100,479 500-year MRP: $1,447,091 Annualized: $8,210	Frequent	48	High
Severe Winter Weather	1% GBS: $11,272,270 5% GBS: $56,361,352	Frequent	51	High
Wildfire	Estimated Value in the WUI Hazard Areas: $831,132,233	Frequent	48	High

Notes:

a. *Building damage ratio estimates based on FEMA 386-2 (August 2001)*

b. The valuation of general building stock and loss estimates was based on custom inventory for the municipality.
High = Total hazard priority risk ranking score of 31 and above
Medium = Total hazard priority risk ranking of 20-30+
Low = Total hazard risk ranking below 20

c. Loss estimates for the severe storm and severe winter storm hazards are structural values only and do not include the value of contents.

d Loss estimates for the flood and earthquake hazards represent both structure and contents.

e. The HAZUS-MH earthquake model results are reported by Census Tract.

f. Damage estimate for flood unavailable due to lack of digital floodplain data for Washington County.

National Flood Insurance Program (NFIP) Summary

The following table summarizes the NFIP statistics for the Town of Kingsbury.

Table 9.21-4. NFIP Summary

Municipality	# Policies (1)	# Claims (Losses) (1)	Total Loss Payments (2)	# Rep. Loss Prop. (1)	# Severe Rep. Loss Prop. (1)
Kingsbury (T)	4	0	$0	0	0

Source: FEMA, 2016
Note (1) Policies, claims, repetitive loss and severe repetitive loss statistics provided by FEMA and are current as of April 30, 2016 and are summarized by Community Name. Please note the total number of repetitive loss properties excludes the severe repetitive loss properties. The number of claims represents claims closed by 4/30/2016.
Note (2) Total building and content losses from the claims file provided by FEMA Region 2.
Note (3) The policies inside and outside of the flood zones are unavailable due to lack of digital floodplain for Washington County.
Note (4) FEMA noted that where there is more than one entry for a property, there may be more than one policy in force or more than one GIS possibility.

Critical Facilities

At the time of this HMP Update, digitized flood maps for Washington County are unavailable. In order to provide some level of beneficial analysis, a desktop analysis was performed to identify critical facilities located within the floodplain (refer to Section 5.1 [Methodology and Tools] for details). The following table identifies critical facilities located within the municipality and their exposure, if any, to the possible floodplain. This information is a resource for the municipality to determine if flood mitigation actions are appropriate based on historical events and proximity of the facility to a water body. At the time of this 2018 HMP Update, the municipality did not identify any actions associated with these facilities.

The Town of Kingsbury understands the limitation of the map data and once the updated maps are available, the municipality will work with Washington County to determine which critical facilities are located within the 1% and 0.2% annual chance flood zones. Once identified, the municipality will work with the property owners and develop mitigation actions for each of the critical facilities, ensuring they will be protected to the 500-year (or worst-case scenario) level.

Table 9.21-5. Potential Flood Losses to Critical Facilities

Name	Type	Potential Flood Exposure
None identified		

Source: Washington County; NYS GIS Clearinghouse

Other Vulnerabilities Identified

According to the 2010 Washington County HMP, the following were identified as vulnerable areas in the Town of Kingsbury:

- Champlain Canal Towpath floods annually near New Swamp Road

- New Swamp Road and Wood Creek were damaged in 1996 and 2004
- State Road 32 experiences runoff and floods
- Dean Road is on high ground but there was been water close to flooding

9.21.5 Capability Assessment

This section identifies the following capabilities of the local jurisdiction:

- Planning and regulatory capability
- Administrative and technical capability
- Fiscal capability
- Community classification
- National Flood Insurance Program
- Integration of mitigation planning into existing and future planning mechanisms

Planning and Regulatory Capability

The table below summarizes the regulatory tools that are available to the Town of Kingsbury.

Table 9.21-6. Planning and Regulatory Tools

Tool / Program (code, ordinance, plan)	Do you have this? (Yes/No) If Yes, date of adoption or update	Authority (local, county, state, federal)	Dept. /Agency Responsible	Code Citation and Comments (Code Chapter, name of plan, explanation of authority, etc.)
Planning Capability				
Master Plan	Yes	Local	Town Board	2006
Capital Improvements Plan	No	-	-	-
Floodplain Management / Basin Plan	No	-	-	-
Stormwater Management Plan	Yes	Local	Code Enforcement	MS4
Open Space Plan	No	-	-	-
Stream Corridor Management Plan	No	-	-	-
Watershed Management or Protection Plan	No	-	-	-
Economic Development Plan	No	-	-	-
Comprehensive Emergency Management Plan	No	-	-	-
Emergency Response Plan	No	-	-	-
Post-Disaster Recovery Plan	No	-	-	-
Transportation Plan	No	-	-	-
Strategic Recovery Planning Report	No	-	-	-
Other Plans:	No	-	-	-
Regulatory Capability				
Building Code	Yes	State and Local	Code Enforcement (County)	Building Code of New York State (NYS), Local Law #1
Zoning Ordinance	Yes	Local	Zoning Board of	Chapter 280 – Zoning (adopted

Tool / Program (code, ordinance, plan)	Do you have this? (Yes/No) If Yes, date of adoption or update	Authority (local, county, state, federal)	Dept. /Agency Responsible	Code Citation and Comments (Code Chapter, name of plan, explanation of authority, etc.)
			Appeals	5/29/85)
Subdivision Ordinance	Yes	Local	Zoning Board of Appeals	Chapter 240 – Subdivision of Land
NFIP Flood Damage Prevention Ordinance	Yes	Local	Supervisor	Chapter 145 – Flood Damage Prevention (adopted 5/27/87)
NFIP: Cumulative Substantial Damages	No	-	-	-
NFIP: Freeboard	Yes	State, Local	Supervisor; Code Enforcement	State mandated BFE+2 for single and two-family residential construction, BFE+1 for all other construction types
Growth Management Ordinances	No	-	-	-
Site Plan Review Requirements	Yes (1993)	Local	Code Enforcement	Chapter 280 – Zoning (adopted 5/29/85)
Stormwater Management Ordinance	Yes	Local	Code Enforcement	Chapter 230 – Stormwater Management
Municipal Separate Storm Sewer System (MS4)	Yes	Local	County Sewer District	Chapter 230 – Stormwater Management
Natural Hazard Ordinance	No	-	-	-
Post-Disaster Recovery Ordinance	No	-	-	-
Real Estate Disclosure Requirement	Yes	State	NYS Department of State, Real Estate Agent	NYS mandate, Property Condition Disclosure Act, NY Code - Article 14 §460-467
Other (Special Purpose Ordinances [i.e., sensitive areas, steep slope])	No	-	-	-

Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the Town of Kingsbury.

Table 9.21-7. Administrative and Technical Capabilities

Resources	Is this in place? (Yes or No)	Department/ Agency/Position
Administrative Capability		
Planning Board	Yes	Planning and Zoning Board
Mitigation Planning Committee	No	-
Environmental Board/Commission	No	-
Open Space Board/Committee	No	-
Economic Development Commission/Committee	No	-
Maintenance programs to reduce risk	No	-
Mutual aid agreements	Yes	Fire department
Technical/Staffing Capability		
Planner(s) or engineer(s) with knowledge of land development and land management practices	Yes	Code Enforcement Officer; Planning and Zoning; Town Engineer (consultant to town)

Resources	Is this in place? (Yes or No)	Department/ Agency/Position
Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Yes	Code Enforcement Officer; Planning and Zoning; Town Engineer (consultant to town)
Planners or engineers with an understanding of natural hazards	Yes	Code Enforcement Officer; Planning and Zoning; Town Engineer (consultant to town)
NFIP Floodplain Administrator (FPA)	Yes	Supervisor
Surveyor(s)	No	-
Personnel skilled or trained in GIS and/or Hazards United States (HAZUS) – Multi-Hazards (MH) applications	No	-
Scientist familiar with natural hazards	No	-
Emergency Manager	No	-
Grant writer(s)	No	-
Staff with expertise or training in benefit/cost analysis	No	-
Professionals trained in conducting damage assessments	No	-

Fiscal Capability

The table below summarizes financial resources available to the Town of Kingsbury.

Table 9.21-8. 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	No
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	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	No

Community Classifications

The table below summarizes classifications for community program available to the Town of Kingsbury.

Table 9.21-9. Community Classifications

Program	Do you have this? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Community Rating System (CRS)	No	-	-

Program	Do you have this? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Building Code Effectiveness Grading Schedule (BCEGS)	No	-	-
Public Protection (ISO Fire Protection Classes 1 to 10)	Yes	4/4X	8/25/15
NYSDEC Climate Smart Community	No	-	-
Storm Ready	No	-	-
Firewise	No	-	-
Disaster/safety programs in/for schools	No	-	-
Organizations with mitigation focus (advocacy group, non-government)	No	-	-
Public education program/outreach (through website, social media)	No	-	-
Public-Private Partnerships	No	-	-

Note:
N/A *Not applicable*
NP *Not participating*
- *Unavailable*

The classifications listed above relate to the community's ability to provide effective services to lessen its vulnerability to the hazards identified. These classifications can be viewed as a gauge of the community's capabilities in all phases of emergency management (preparedness, response, recovery and mitigation) and are used as an underwriting parameter for determining the costs of various forms of insurance. The CRS class applies to flood insurance while the BCEGS and Public Protection classifications apply to standard property insurance. CRS classifications range on a scale of 1 to 10 with class 1 being the best possible classification, and class 10 representing no classification benefit. Firewise classifications include a higher classification when the subject property is located beyond 1000 feet of a creditable fire hydrant and is within 5 road miles of a recognized Fire Station.

Criteria for classification credits are outlined in the following documents:

- Th The Community Rating System Coordinators Manual
- The Building Code Effectiveness Grading Schedule website at https://www.isomitigation.com/bcegs/
- The ISO Mitigation online ISO's Public Protection website at https://www.isomitigation.com/ppc/
- The National Weather Service Storm Ready website at https://www.weather.gov/stormready/
- The National Firewise Communities website at https://www.nfpa.org/Public-Education/By-topic/Wildfire/Firewise-USA

Self-Assessment of Capability

The table below provides an approximate measure of the Town of Kingsbury's capability to work in a hazard-mitigation capacity and/or effectively implement hazard mitigation strategies to reduce hazard vulnerabilities.

Table 9.21-10. Self-Assessment Capability for the Municipality

Area	Degree of Hazard Mitigation Capability		
	Limited (If limited, what are your obstacles?)	Moderate	High

Area	Degree of Hazard Mitigation Capability		
	Limited (If limited, what are your obstacles?)	Moderate	High
Planning and regulatory capability		X	
Administrative and technical capability	X – limited expertise		
Fiscal capability		X	
Community political capability		X	
Community resiliency capability		X	
Capability to integrate mitigation into municipal processes and activities		X	

National Flood Insurance Program

NFIP Floodplain Administrator (FPA)

While Flood Damage Prevention Ordinance indicates the Town Supervisor is the Floodplain Administrator, Mr. Ross Cortese, Code Enforcement Officer, provided the following information.

Flood Vulnerability Summary

The Town does not maintain lists or inventories of properties that have been damaged by flooding. During Floyd, Irene and other recent events, there is no knowledge of any structures that were damaged. There is currently no interest in mitigation (elevation or acquisition) within the Town at the time of this plan update.

Resources

The Town FPA, Ross Corese, is the sole person assuming the responsibilities of floodplain administration for the Town. NFIP services and functions provided by the FPA includes permit review and inspections. There is some education and outreach provided to the community regarding flood hazards/risk and flood risk reduction that includes the distribution of floodplain brochures as needed. The FPA indicated that there are currently no barriers to running an effective floodplain management program in the Town. The FPA also stated that more training would be beneficial to help him fulfill his responsibilities as the municipal floodplain administrator. He would consider attending continuing education and training on floodplain management if it were offered in the County.

Compliance History

According to the most recent FEMA Community Status Book Report, the Town of Kingsbury is currently in good standing with the NFIP. However, according to information provided by NYS DEC, a compliance audit has not been conducted for the Town.

Regulatory

The Town's flood damage prevention ordinance meets the minimum set by FEMA and the State of New York. There are other local ordinances, plans and programs that support floodplain management within the community that includes the consideration of efforts to reduce flood risk by the planning and zoning boards when reviewing variances. The Town has not considered joining CRS but would consider attending a CRS seminar if it were offered locally.

Integration of Hazard Mitigation into Existing and Future Planning Mechanisms

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 this planning effort, each community was surveyed to obtain a better understanding of their community's progress in plan integration. A summary is provided below. In addition, the community identified specific integration activities that will be incorporated into municipal procedures.

Planning

Land Use Planning: The Town of Kingsbury has a Planning Board and Zoning Board of Appeals which review all applications for development and consider natural hazard risk areas in their review. Many development activities require additional levels of environmental review, specifically NYS SEQR and Federal NEPA requirements.

Master Plan: The Town currently has an outdated master plan. They are currently in the process of discussing the update process of the plan.

Stormwater Management Plan: The Town is an MS4 Regulated Community and has a formal Stormwater Management Plan. The Plan specifies projects, actions and initiatives to reduce the volume of stormwater and/or mitigation stormwater flooding within the Town.

Lake Champlain Watershed Water Quality Management Planning: Roadside Erosion Assessment and Inventory: The Lake Champlain Watershed Water Quality Management Planning project was one of 11 projects in New York State that was funded through the Federal Government's American Recovery and Reinvestment Act Initiative. The goal of the project was to identify critically eroding roadside banks that have contributed significant sediment loads to the high-quality streams throughout the Champlain Watershed (Clinton, Essex, Franklin, Warren and Washington Counties). The plan identified 319 roadside erosion sites in need to remediation. In Washington County, 31 sites were identified (12 high priority, 11 moderate priority, and 8 low priority). Two sites were located in the Town of Kingsbury.

Regulatory and Enforcement (Ordinances)

Code Enforcement: Washington County provides code enforcement duties and responsibilities to the Town of Kingsbury.

Building Construction and Fire Prevention Codes Chapter 95: The building codes are strictly enforced to make new and renovated buildings as prepared as possible for hazard related incidents. The Town complies with New York State Uniform Fire Prevention and Building Code (the Uniform Code) and the State Energy Conservation Construction Code (the Energy Code). Washington County works with the Town and Village of Kingsbury through an Intermunicipal Agreement conducting inspections and issuing building permits.

Flood Damage Prevention Chapter 145: This chapter promotes the public health, safety, and general welfare of residents and seeks to minimize public and private losses, rescue and relief expenditures, and business interruptions due to flood conditions. The chapter regulates development to promote flood resistant structures and controls the alteration of floodplains to prevent increased vulnerability.

Sewers Chapter 210: The Town sewer code protects and regulates its sewage collection and treatment facilities as a matter of public health and environmental safety. The code sets forth uniform requirements for direct and indirect contributors to the wastewater collection and treatment system for the Kingsbury Sewer District No. 1, and seeks to prohibit the introduction of stormwater, surface, or sub-surface waters into sanitary sewers and to control the quantity and quality of wastes in the sewage system.

Stormwater Management Chapter 230: Kingsbury participates in a Federal Environmental Protection Agency (EPA) mandated program for Municipal Separate Storm Sewer Systems (MS4). The purpose of this program is to control the inflow of pollutants into the town's storm sewers and drainage ditches. The Town is an MS4 Regulated Community.

Stormwater Management and Erosion and Sediment Control Chapter 230. Part 2: The Town's stormwater management chapter seeks to mediate the adverse impacts of stormwater runoff, sedimentation, and erosion

Subdivision of Land Chapter 240: The Town's Planning Board is tasked with site plan/subdivision review. Design standards consider storm drainage, water mains, transportation infrastructure, sanitary sewers, and other infrastructure that can exacerbate or conversely, mitigate hazard impacts.

Zoning Chapter 280: The Town of Kingsbury's zoning code includes districts and standards pertaining to the health and safety of the population, and contains references to associated chapters on environmental quality review, flood damage prevention, and stormwater management.

Operational and Administration

Stormwater Management: Town Code Enforcement and Washington County Sewer District performs stormwater management functions within the town.

9.21.6 Mitigation Strategy and Prioritization

This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and prioritization.

Past Mitigation Initiative Status

The following table indicates progress on the community's mitigation strategy identified in the 2010 Plan. It should be noted that during the 2010 planning process, only general, countywide actions were identified for each municipality. The Town of Kingsbury reviewed the previous actions and selected actions they chose to carry forward as part of this plan update. Previous actions that are now on-going programs and capabilities are indicated as such in the following table and may also be found under 'Capability Assessment' presented previously in this annex.

Table 9.21-11. Status of Previous Mitigation Actions

2010 Mitigation Action	Responsible Party	Status (In progress, No progress, Complete)	Describe Status	Next Step (Include in 2018 HMP or Discontinue)	Describe Next Step
Improve drainage at sites where roads have washed out due to natural hazards in the past	County and NYS DHSES	No Progress	Several projects were identified in Lake Champlain Watershed Water Quality Management Planning Roadside Erosion Assessment and Inventory Report	Include in 2018 HMP	See below – refer to actions T. Kingsbury-3 and T. Kingsbury-4 – several sites in the Town were identified as needing drainage improvements. The sites include County 41 and County Route 36. The Lake Champlain Watershed Water Quality Management Planning Roadside Erosion Assessment and Inventory Report identified the sites and solutions, which are presented as actions T. Kingsbury-3 and T. Kingsbury-4.
Purchase equipment to provide for local personnel to conduct the drainage improvement	County and NYS DHSES	No Progress	Due to lack of funding, this action has not been completed.	Discontinue	At the time of this plan update, the Town does not wish to keep this action in their mitigation strategy as it is not a high-priority concern.
Engineering assessment to determine feasibility of each site improvement	County and NYS DHSES	Complete	Several projects were identified in Lake Champlain Watershed Water Quality Management Planning Roadside Erosion Assessment and Inventory Report	Discontinue	As part of the Lake Champlain Watershed Water Quality Management Planning Roadside Erosion Assessment and Inventory Report, several sites in need of improvement were identified.
Improve dams to prevent flooding causing roads to wash out.	County and NYS DHSES	No Progress	Due to lack of funding and staff, this action has not been completed.	Include in 2018 HMP	See below – refer to action T. Kingsbury-5 – several dams are located in the Town; however, the condition of the dams is unknown and the risk of the dams is unknown.
Improve identified sites where slope stability is subject to land subsidence and where excavation or planting could mitigate future damage.	County and NYS DHSES	No Progress	Several projects were identified in Lake Champlain Watershed Water Quality Management Planning Roadside Erosion Assessment and Inventory Report	Include in 2018 HMP	See below – refer to action T. Kingsbury-3 – the sloped areas along County Route 41 are unstable and cannot divert runoff properly.

Completed Mitigation Initiatives Not Identified in the Previous Mitigation Strategy

The Town of Kingsbury has identified the following mitigation projects/activities that have also been completed but were not identified in the previous mitigation strategy in the 2010 Plan:

- None identified

Proposed Hazard Mitigation Initiatives for the Plan Update

The Town of Kingsbury participated in a mitigation action workshop in September 2016 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).

Table 9.21-12 summarizes the comprehensive-range of specific mitigation initiatives the Town of Kingsbury would like to pursue in the future to reduce the effects of hazards. Some of these initiatives may be previous actions carried forward for this plan update. These 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. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table below to further demonstrate the wide-range of activities and mitigation measures selected.

As discussed in Section 6, 14 evaluation/prioritization criteria are used 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 your actions as 'High', 'Medium', or 'Low.' The table below summarizes the evaluation of each mitigation initiative, listed by Action Number.

Table 9.21-13 provides a summary of the prioritization of all proposed mitigation initiatives for the Plan update.

Table 9.21-12. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
T. Kingsbury-1	During the update of the Master Plan, take into consideration the location, frequency, and severity of hazards when updating the land use portion of the plan.	New and Existing	All	All	Town Planning Board	High	Low	Municipal Budget	Short Term	High	LPR	PR
T. Kingsbury-2	Develop and implement a multi-hazard public awareness program for Town residents and business owners.	N/A	All	All	Planning Board	High	Low	Municipal Budget	Short Term	High	EAP	PI
T. Kingsbury-3 (previous action)	County Route 41 – stabilize slope, construct containment earth dike with water retention, stone-line outlet and hydroseed with conservation mix	Existing	Flood, Severe Storm	1	Town Highway Dept. with support from Lake Champlain-Lake George Regional Planning Board	Medium	Low	County Soil & Water Conservation district, municipal budget, Water Quality Improvement Project Grants	Short Term	High	SIP	PP, NR
T. Kingsbury-4 (previous action)	County Route 36 – re-shape swale and hydroseed with conservation mix	Existing	Flood, Severe Storm	1	Town Highway Dept. with support from Lake Champlain-Lake George Regional Planning Board	Medium	Low	County Soil & Water Conservation district, municipal budget, Water Quality Improvement Project Grants	Short Term	High	SIP	PP, NR
T. Kingsbury-5 (previous action)	Evaluate risk associated with the dams located in the Town. Once evaluated, within six months, identify projects to reduce risk, if any.	New and Existing	Flood, Dam Failure, Severe Storm	1	Town Highway, Town Engineer	High	Medium	Local Budget for Study; FEMA PDM, HMGP and FMA grants to address issues	Short Term	Medium	LPR	PP

Notes:

Not all acronyms and abbreviations defined below are included in the table.

**Does this mitigation initiative reduce the effects of hazards on new and/or existing buildings and/or infrastructure? Not applicable (N/A) is inserted if this does not apply.*

Acronyms and Abbreviations: *Potential FEMA HMA Funding Sources:* *Timeline:*

CAV	*Community Assistance Visit*
CRS	*Community Rating System*
DPW	*Department of Public Works*
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*
PDM	*Pre-Disaster Mitigation Grant Program*
RFC	*Repetitive Flood Claims Grant Program (discontinued in 2015)*
SRL	*Severe Repetitive Loss Grant Program (discontinued in 2015)*
Short	*1 to 5 years*
Long Term	*5 years or greater*
OG	*On-going program*
DOF	*Depending on funding*

Costs:

Where actual project costs have been reasonably estimated:

Low	*< $10,000*
Medium	*$10,000 to $100,000*
High	*> $100,000*

Where actual project costs cannot reasonably be established at this time:

Low	*Possible to fund under existing budget. Project is part of, or can be part of an existing on-going program.*
Medium	*Could budget for under existing work plan, but would require a reapportionment of the budget or a budget amendment, or the cost of the project would have to be spread over multiple years.*
High	*Would require an increase in revenue via an alternative source (i.e., bonds, grants, fee increases) to implement. Existing funding levels are not adequate to cover the costs of the proposed project.*

Benefits:

Where possible, an estimate of project benefits (per FEMA's benefit calculation methodology) has been evaluated against the project costs, and is presented as:

Low=	*< $10,000*
Medium	*$10,000 to $100,000*
High	*> $100,000*

Where numerical project benefits cannot reasonably be established at this time:

Low	*Long-term benefits of the project are difficult to quantify in the short term.*
Medium	*Project will have a long-term impact on the reduction of risk exposure to life and property, or project will provide an immediate reduction in the risk exposure to property.*
High	*Project will have an immediate impact on the reduction of risk exposure to life and property.*

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*

Table 9.21-13. Summary of Prioritization of Actions

Mitigation Action / Project Number	Mitigation Action/Initiative	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
T. Kingsbury-1	During the update of the Master Plan, take into consideration the location, frequency, and severity of hazards when updating the land use portion of the plan.	1	1	1	1	1	1	1	0	1	1	1	1	0	0	11	High
T. Kingsbury-2	Develop and implement a multi-hazard public awareness program for Town residents and business owners.	1	1	1	1	1	1	1	0	1	1	1	1	0	0	11	High
T. Kingsbury-3 (previous action)	County Route 41 – stabilize slope, construct containment earth dike with water retention, stone-line outlet and hydroseed with conservation mix	1	1	1	1	0	0	0	1	1	1	1	1	1	0	10	High
T. Kingsbury-4 (previous action)	County Route 36 – re-shape swale and hydroseed with conservation mix	1	1	1	1	0	0	0	1	1	1	1	1	1	0	10	High
T. Kingsbury-5 (previous action)	Evaluate risk associated with the dams located in the Town. Once evaluated, within six months, identify projects to reduce risk, if any.	1	1	1	1	0	0	0	1	0	1	1	0	0	0	7	Medium

Note: Refer to Section 6, which conveys guidance on prioritizing mitigation actions.

9.21.7 Future Needs to Better Understand Risk/Vulnerability

None at this time.

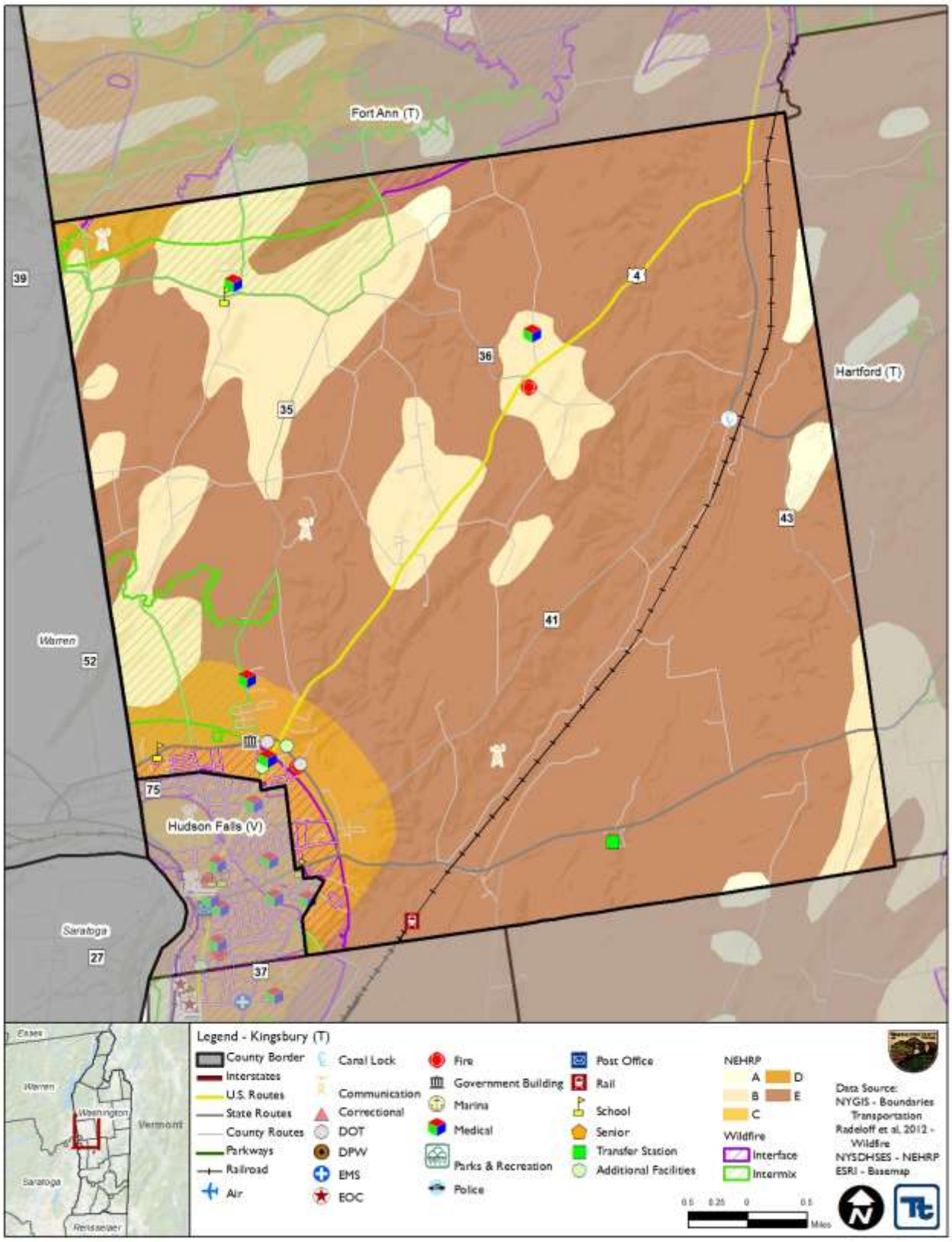
9.21.8 Hazard Area Extent and Location

Hazard area extent and location maps have been generated for the Town of Kingsbury that illustrate the probable areas impacted within the municipality. These maps are based on the best available data at the time of the preparation of this plan, and are considered to be adequate for planning purposes. Maps have only been generated for those hazards that can be clearly identified using mapping techniques and technologies, and for which the Town of Kingsbury has significant exposure. These maps are illustrated in the hazard profiles within Section 5.4, Volume I of this Plan.

9.21.9 Additional Comments

None at this time.

Figure 9.21-1. Town of Kingsbury Hazard Area Extent and Location



Action Number: T. Kingsbury-1

Mitigation Action Name: Update the Master Plan and incorporate areas of natural hazard risk.

Assessing the Risk	
Hazard(s) addressed:	All
Specific problem being mitigated:	Current master plan does not incorporate areas of natural hazard risk, which results in little to no collaboration between planners and emergency managers, resulting in hazard assessment information not being imported into future land use and other elements of the master plan.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	Do nothing - current problem continues. Update Master Plan without incorporating natural hazard risk – current problem continues.
Action/Project Intended for Implementation	
Description of Selected Action/Project	During the update of the Master Plan, take into consideration the location, frequency, and severity of hazards when updating the land use portion of the plan. This creates opportunities to guide future growth and development away from areas with known hazards. It also sets forth recommendations that influence development in a way that does not increase risks to life and property in the Town.
Mitigation Action Type	Local Plans and Regulations (LPR)
Goals Met	Goal 1: Protect Life and Property Goal 2: Increase Public Awareness Goal 3: Encourage Partnerships Goal 4: Provide for Emergency Services 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.
Applies to existing and or new development, or not applicable	New and Existing
Benefits (losses avoided)	High
Estimated Cost	Low
Priority*	High
Plan for Implementation	
Responsible Organization	Town Planning Board
Local Planning Mechanism	Hazard Mitigation, Planning
Potential Funding Sources	Municipal Budget
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

Action Number: T. Kingsbury-1

Mitigation Action Name: Update the Master Plan and incorporate areas of natural hazard risk.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	The costs to implement this project correspond with the benefits achieved
Technical	1	This action is technically feasible
Political	1	
Legal	1	
Fiscal	1	Municipal Budget
Environmental	0	No known environmental impacts
Social	1	No known social impacts
Administrative	1	The Town has the administrative capabilities to complete the action
Multi-Hazard	1	All
Timeline	1	Short Term
Agency Champion	0	
Other Community Objectives	0	
Total	11	
Priority (H/M/L)	High	

Action Number: T. Kingsbury-2

Mitigation Action Name: Identify areas of enhancements to promote public outreach and education.

Assessing the Risk	
Hazard(s) addressed:	All
Specific problem being mitigated:	Public education and outreach programs need to be enhanced because they do not include natural hazard risk management.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	Do nothing - current problem continues. Rely on outside groups to conduct public outreach – may not be sustainable or at high enough standards.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Identify areas of enhancements to promote public outreach and education in the Town regarding natural hazard risk management. This will include social media and public outreach / awareness.
Mitigation Action Type	Local Plans and Regulations (LPR) Education and Awareness Programs (EAP)
Goals Met	Goal 1: Protect Life and Property Goal 2: Increase Public Awareness Goal 3: Encourage Partnerships Goal 4: Provide for Emergency Services 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.
Applies to existing and or new development, or not applicable	N/A
Benefits (losses avoided)	High
Estimated Cost	Low
Priority*	High
Plan for Implementation	
Responsible Organization	Town Planning Board
Local Planning Mechanism	Hazard Mitigation
Potential Funding Sources	Municipal Budget
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

Action Number: T. Kingsbury-2

Mitigation Action Name: Identify areas of enhancements to promote public outreach and education.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Provide education mechanism to residents and inform them on natural hazards in the Town
Property Protection	1	
Cost-Effectiveness	1	The costs to implement this project correspond with the benefits achieved
Technical	1	This action is technically feasible
Political	1	
Legal	1	
Fiscal	1	Municipal Budget
Environmental	0	No known environmental impacts
Social	1	No known social impacts
Administrative	1	The Town has the administrative capabilities to complete the action
Multi-Hazard	1	All
Timeline	1	Short Term
Agency Champion	0	
Other Community Objectives	0	
Total	11	
Priority (H/M/L)	High	

Action Number: T. Kingsbury-3

Mitigation Action Name: County Route 41.

Assessing the Risk	
Hazard(s) addressed:	Flood, Severe Storm
Specific problem being mitigated:	Eroding slope sides along the roadway can lead to flooding, closed roadways, impacting accessibility, and contributing to significant sediment loads to the stream. Roadway is more susceptible to inundation during periods of heavy rain.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	Do nothing - current problem continues. Install retaining wall – not effective at reducing flooding.
Action/Project Intended for Implementation	
Description of Selected Action/Project	County Route 41 – stabilize slope, construct containment earth dike with water retention, stone-line outlet and hydroseed with conservation mix of grass and vegetative seed, mulch, fertilizer, and water. Stone lining the outlet slows water velocity, catches debris, and provides erosion protection. Hydroseeding provides deep rooted plants that hold sediment and grow to produce thicker vegetation cover over the eroded area. All these enhancements help to reduce flooding and erosion in this area of the town.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	Goal 1: Protect Life and Property
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	Medium
Estimated Cost	Low
Priority*	High
Plan for Implementation	
Responsible Organization	Town Highway Dept. with support from Lake Champlain-Lake George Regional Planning Board
Local Planning Mechanism	Hazard Mitigation
Potential Funding Sources	County Soil & Water Conservation district, municipal budget, Water Quality Improvement Project Grants
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

Action Number: T. Kingsbury-3
Mitigation Action Name: County Route 41.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	The costs to implement this project correspond with the benefits achieved
Technical	1	This action is technically feasible
Political	0	
Legal	0	
Fiscal	0	Municipal Budget or Grant Funding
Environmental	1	No known negative environmental impacts
Social	1	No known social impacts
Administrative	1	The Town has the administrative capabilities to complete the action
Multi-Hazard	1	Flood, Severe Storm
Timeline	1	Short Term
Agency Champion	1	
Other Community Objectives	0	
Total	10	
Priority (H/M/L)	High	

Action Number: T. Kingsbury-4

Mitigation Action Name: County Route 36.

Assessing the Risk	
Hazard(s) addressed:	Flood, Severe Storm
Specific problem being mitigated:	Eroding slope sides along the roadway can lead to flooding, closed roadways, impacting accessibility, and contributing to significant sediment loads to the stream. Roadway is more susceptible to inundation during periods of heavy rain.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	Do nothing - current problem continues. Move Route 36 outside of hazard area – not feasible.
Action/Project Intended for Implementation	
Description of Selected Action/Project	County Route 36 – re-shape swale and hydroseed with conservation mix of grass and vegetative seed, mulch, fertilizer, and water. Hydroseeding provides deep rooted plants that hold sediment and grow to produce thicker vegetation cover over the eroded area. All these enhancements aids in reducing flooding and erosion in this area of the town.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	Goal 1: Protect Life and Property
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	Medium
Estimated Cost	Low
Priority*	High
Plan for Implementation	
Responsible Organization	Town Highway Dept. with support from Lake Champlain-Lake George Regional Planning Board
Local Planning Mechanism	Hazard Mitigation
Potential Funding Sources	County Soil & Water Conservation district, municipal budget, Water Quality Improvement Project Grants
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

Action Number: T. Kingsbury-4
Mitigation Action Name: County Route 36.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	The costs to implement this project correspond with the benefits achieved
Technical	1	This action is technically feasible
Political	0	
Legal	0	
Fiscal	0	Municipal Budget or Grant Funding
Environmental	1	No known negative environmental impacts
Social	1	No known social impacts
Administrative	1	The Town has the administrative capabilities to complete the action
Multi-Hazard	1	Flood, Severe Storm
Timeline	1	Short Term
Agency Champion	1	
Other Community Objectives	0	
Total	10	
Priority (H/M/L)	High	

Action Number: T. Kingsbury-5

Mitigation Action Name: Evaluate risk associated with the dams located in the Town.

Assessing the Risk	
Hazard(s) addressed:	Flood, Dam Failure, Severe Storm
Specific problem being mitigated:	Dams in the Town are in need of improvement; however, the extent of improvements is unknown.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	Do nothing - current problem continues. Replace all dams – cost.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Evaluate risk associated with the dams located in the Town. Once evaluated, within six months, identify projects to reduce risk, if any.
Mitigation Action Type	Local Plans and Regulations (LPR)
Goals Met	Goal 1: Protect Life and Property
Applies to existing and or new development, or not applicable	New and Existing
Benefits (losses avoided)	High
Estimated Cost	Medium
Priority*	Medium
Plan for Implementation	
Responsible Organization	Town Highway, Town Engineer
Local Planning Mechanism	Hazard Mitigation
Potential Funding Sources	Local Budget for Study; FEMA PDM, HMGP and FMA grants to address issues
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

Action Number: T. Kingsbury-5

Mitigation Action Name: Evaluate risk associated with the dams located in the Town.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	The costs to implement this project correspond with the benefits achieved
Technical	1	This action is technically feasible
Political	0	
Legal	0	
Fiscal	0	
Environmental	1	No known negative environmental impacts
Social	0	No known social impacts
Administrative	1	The Town has the administrative capabilities to complete the action
Multi-Hazard	1	Flood, Dam Failure, Severe Storm
Timeline	0	
Agency Champion	0	
Other Community Objectives	0	
Total	7	
Priority (H/M/L)	Medium	

9.22 TOWN OF PUTNAM

This section presents the jurisdictional annex for the Town of Putnam.

9.22.1 Hazard Mitigation Plan Point of Contact

The following individuals have been identified as the hazard mitigation plan's primary and alternate points of contact.

Primary Point of Contact	Alternate Point of Contact
Gary Treadway – Highway Superintendent 10 Putnam Center Road, Putnam, NY Phone: 518-796-3509 Email: grtreadway@gmail.com	John R. LaPointe – Town Supervisor 10 Putnam Center Road, Putnam, NY Phone: 518-547-9591 Email: putsup1138@gmail.com

9.22.2 Municipal Profile

The Town of Putnam is in the Adirondack Mountains in New York State and is located between the shores of Lake George to the west and Lake Champlain to the east. It is found in northern Washington County. The Town is bordered to the north by the Town of Ticonderoga, which is located in Essex County, and to the south by the Town of Dresden. The following hamlets are found in the Town: Clenburnie, Putnam, Putnam Station, and Wright. Pine Lake, Lake George, Lake Champlain, and South Bay are the major bodies of water found throughout the Town.

The Town has a total area of 35.5 square miles, of which, 33.2 square miles is land and 2.3 square miles is water. According to the 2010 Census, the community's population was 677. The Town is governed by the Town Board consisting of the town council and the town supervisor.

Growth/Development Trends

The Town of Putnam did not note any recent residential/commercial development since 2010 or any major residential or commercial development, or major infrastructure development planned for the next five years in the municipality.

Table 9.22-1. Growth and Development

Property or Development Name	Type (e.g. Res., Comm.)	# of Units / Structures	Location (address and/or Parcel ID)	Known Hazard Zone(s)	Description/Status of Development
Recent Development from 2010 to present					
None identified					
Known or Anticipated Development in the Next Five (5) Years					
None identified					

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

9.22.3 Natural Hazard Event History Specific to the Municipality

Washington County has a history of natural and non-natural hazard events as detailed in Volume I, Section 5.0 of this plan. 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. For the purpose of this plan update, events that have occurred in the County from 2008 to present were summarized to indicate the range and impact of hazard events in the community. Information regarding specific damages is included, if available,

based on reference material or local sources. This information is presented in the table below. For details of these and additional events, refer to Volume I, Section 5.0 of this plan.

Table 9.22-2. Hazard Event History

Dates of Event	Event Type (FEMA Disaster Declaration if applicable)	Washington County Designated?	Summary of Damages/Losses
December 11-31, 2008	Severe Winter Storm DR-1827	Yes	Overtime costs
August 26-September 5, 2011	Hurricane/T.S. Irene DR-4020	Yes	Cummings Road was washed out; Breakage in Beaver Dam
June 15, 2009	"Microburst" storm event	No	Undermining of asphalt on Writs Ferry Road and culvert replacement. Ferry Lane and ditches total loss – rebuilt road with gravel, cleaned trees and debris, and replaced culvert.

Notes:

EM *Emergency Declaration (FEMA)*
FEMA *Federal Emergency Management Agency*
DR *Major Disaster Declaration (FEMA)*
IA *Individual Assistance*
N/A *Not applicable*
PA *Public Assistance*

9.22.4 Hazard Vulnerabilities and Ranking

The hazard profiles in Section 5.0 of this plan have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes the hazard vulnerabilities and their ranking in the Town of Putnam. For additional vulnerability information relevant to this jurisdiction, refer to Section 5.0.

Natural Hazard Risk/Vulnerability Risk Ranking

As discussed in Section 5.3 (Hazard Ranking), each participating town or village may have differing degrees of risk exposure and vulnerability compared to Washington County as a whole. Therefore, each municipality 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 Putnam. Table 9.22-12 provides proposed mitigation initiatives for the high ranked hazards.

Table 9.22-3. Hazard Risk/Vulnerability Risk Ranking

Hazard type	Estimate of Potential Dollar Losses to Structures Vulnerable to the Hazard [a, c]	Probability of Occurrence	Risk Ranking Score (Probability x Impact)	Hazard Ranking [b]
Earthquake	100-Year GBS: $0 500-Year GBS: $2,844,861 2,500-Year GBS: $33,492,916	Occasional	28	Medium
Flood	Damage estimate not available.	Frequent	36	High
Severe Weather	100-Year MRP: $55,658 500-year MRP: $554,374 Annualized: $3,951	Frequent	48	High

Hazard type	Estimate of Potential Dollar Losses to Structures Vulnerable to the Hazard [a, c]	Probability of Occurrence	Risk Ranking Score (Probability x Impact)	Hazard Ranking [b]
Severe Winter Weather	1% GBS: $2,742,811 5% GBS: $13,714,054	Frequent	51	High
Wildfire	Estimated Value in the WUI Hazard Areas: $265,660,169	Frequent	48	High

Notes:

a. Building damage ratio estimates based on FEMA 386-2 (August 2001)

b. The valuation of general building stock and loss estimates was based on custom inventory for the municipality.
High = Total hazard priority risk ranking score of 31 and above
Medium = Total hazard priority risk ranking of 20-30+
Low = Total hazard risk ranking below 20

c. Loss estimates for the severe storm and severe winter storm hazards are structural values only and do not include the value of contents.

d Loss estimates for the flood and earthquake hazards represent both structure and contents.

e. The HAZUS-MH earthquake model results are reported by Census Tract.

f. Damage estimate for flood unavailable due to lack of digital floodplain data for Washington County.

National Flood Insurance Program (NFIP) Summary

The following table summarizes the NFIP statistics for the Town of Putnam.

Table 9.22-4. NFIP Summary

Municipality	# Policies (1)	# Claims (Losses) (1)	Total Loss Payments (2)	# Rep. Loss Prop. (1)	# Severe Rep. Loss Prop. (1)
Putnam (T)	5	6	$9,832	0	0

Source: FEMA, 2016

Note (1) Policies, claims, repetitive loss and severe repetitive loss statistics provided by FEMA and are current as of April 30, 2016 and are summarized by Community Name. Please note the total number of repetitive loss properties excludes the severe repetitive loss properties. The number of claims represents claims closed by 4/30/2016.

Note (2) Total building and content losses from the claims file provided by FEMA Region 2.

Note (3) The policies inside and outside of the flood zones are unavailable due to lack of digital floodplain for Washington County.

Note (4) FEMA noted that where there is more than one entry for a property, there may be more than one policy in force or more than one GIS possibility.

Critical Facilities

At the time of this HMP Update, digitized flood maps for Washington County are unavailable. In order to provide some level of beneficial analysis, a desktop analysis was performed to identify critical facilities located within the floodplain (refer to Section 5.1 [Methodology and Tools] for details). The following table identifies critical facilities located within the municipality and their exposure, if any, to the possible floodplain. This information is a resource for the municipality to determine if flood mitigation actions are appropriate based on historical events and proximity of the facility to a water body. At the time of this 2018 HMP Update, the municipality did not identify any actions associated with these facilities.

The Town of Putnam understands the limitation of the map data and once the updated maps are available, the municipality will work with Washington County to determine which critical facilities are located within the 1% and 0.2% annual chance flood zones. Once identified, the municipality will work with the property owners and develop mitigation actions for each of the critical facilities, ensuring they will be protected to the 500-year (or worst-case scenario) level.

Table 9.22-5. Potential Flood Losses to Critical Facilities

Name	Type	Exposure
None identified		

Source: Washington County; NYS GIS Clearinghouse

Other Vulnerabilities Identified

The municipality has identified the following vulnerabilities within their community:

- None identified

9.22.5 Capability Assessment

This section identifies the following capabilities of the local jurisdiction:

- Planning and regulatory capability
- Administrative and technical capability
- Fiscal capability
- Community classification
- National Flood Insurance Program
- Integration of Mitigation Planning into Existing and Future Planning Mechanisms

Planning and Regulatory Capability

The table below summarizes the regulatory tools that are available to the Town of Putnam.

Table 9.22-6. Planning and Regulatory Tools

Tool / Program (code, ordinance, plan)	Do you have this? (Yes/No) If Yes, date of adoption or update	Authority (local, county, state, federal)	Dept. /Agency Responsible	Code Citation and Comments (Code Chapter, name of plan, explanation of authority, etc.)
Planning Capability				
Master Plan	No	-	-	-
Capital Improvements Plan	No	-	-	-
Floodplain Management / Basin Plan	No	-	-	-
Stormwater Management Plan	No	-	-	-
Open Space Plan	No	-	-	-
Stream Corridor Management Plan	No	-	-	-
Watershed Management or Protection Plan	No	-	-	-
Economic Development Plan	No	-	-	-
Comprehensive Emergency Management Plan	No	-	-	-
Emergency Response Plan	No	-	-	-
Post-Disaster Recovery Plan	No	-	-	-
Transportation Plan	No	-	-	-
Strategic Recovery Planning Report	No	-	-	-
Other Plans:	No	-	-	-

Tool / Program (code, ordinance, plan)	Do you have this? (Yes/No) If Yes, date of adoption or update	Authority (local, county, state, federal)	Dept. /Agency Responsible	Code Citation and Comments (Code Chapter, name of plan, explanation of authority, etc.)
Regulatory Capability				
Building Code	Yes	County	County CEO	Building Code of New York State (NYS), Local Law #1
Zoning Ordinance	Yes	County	County CEO	Washington County provides code enforcement for the Town
Subdivision Ordinance	Yes	Local	County CEO	Washington County provides code enforcement for the Town
NFIP Flood Damage Prevention Ordinance	Yes	Local	Supervisor	Not provided during this HMP Update
NFIP: Cumulative Substantial Damages	No	-	-	-
NFIP: Freeboard	Yes	State, Local	Supervisor, CEO	State mandated BFE+2 for single and two-family residential construction, BFE+1 for all other construction types
Growth Management Ordinances	No	-	-	-
Site Plan Review Requirements	Yes	Local	Planning Board	Not provided during this HMP Update
Stormwater Management Ordinance	No	-	-	-
Municipal Separate Storm Sewer System (MS4)	No	-	-	-
Natural Hazard Ordinance	No	-	-	-
Post-Disaster Recovery Ordinance	No	-	-	-
Real Estate Disclosure Requirement	Yes	State	NYS Department of State, Real Estate Agent	NYS mandate, Property Condition Disclosure Act, NY Code - Article 14 §460-467
Other [Special Purpose Ordinances (i.e., sensitive areas, steep slope)]	No	-	-	-

Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the Town of Putnam.

Table 9.22-7. Administrative and Technical Capabilities

Resources	Is this in place? (Yes or No)	Department/ Agency/Position
Administrative Capability		
Planning Board	Yes	Planning Board
Mitigation Planning Committee	No	-
Environmental Board/Commission	No	-
Open Space Board/Committee	No	-
Economic Development Commission/Committee	No	-
Maintenance Programs to Reduce Risk	No	-

Resources	Is this in place? (Yes or No)	Department/ Agency/Position
Mutual Aid Agreements	Yes	Surrounding municipalities
Technical/Staffing Capability		
Planner(s) or Engineer(s) with knowledge of land development and land management practices	No	-
Engineer(s) or Professional(s) trained in construction practices related to buildings and/or infrastructure	No	-
Planners or engineers with an understanding of natural hazards	No	-
NFIP Floodplain Administrator	Yes	Supervisor
Surveyor(s)	No	-
Personnel skilled or trained in GIS and/or HAZUS-MH applications	No	-
Scientist familiar with natural hazards	No	-
Emergency Manager	No	-
Grant Writer(s)	No	-
Staff with expertise or training in benefit/cost analysis	No	-
Professionals trained in conducting damage assessments	No	-

Fiscal Capability

The table below summarizes financial resources available to the Town of Putnam.

Table 9.22-8. 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	No
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	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	Yes
Other	No

Community Classifications

The table below summarizes classifications for community program available to the Town of Putnam.

Table 9.22-9. Community Classifications

Program	Do you have this? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Community Rating System (CRS)	No	N/A	N/A
Building Code Effectiveness Grading Schedule (BCEGS)	No	N/A	N/A
Public Protection (ISO Fire Protection Classes 1 to 10)	No	N/A	N/A
NYSDEC Climate Smart Community	No	N/A	N/A
Storm Ready	No	N/A	N/A
Firewise	No	N/A	N/A
Disaster/Safety Programs in/for Schools	No	N/A	N/A
Organizations with Mitigation Focus (advocacy group, non-government)	No	N/A	N/A
Public Education Program/Outreach (through website, social media)	Yes	Municipal website, social media	N/A
Public-Private Partnerships	No	N/A	N/A

N/A = Not applicable. NP = Not participating. - = Unavailable. TBD = To be determined.

The classifications listed above relate to the community's ability to provide effective services to lessen its vulnerability to the hazards identified. These classifications can be viewed as a gauge of the community's capabilities in all phases of emergency management (preparedness, response, recovery and mitigation) and are used as an underwriting parameter for determining the costs of various forms of insurance. The CRS class applies to flood insurance while the BCEGS and Public Protection classifications apply to standard property insurance. CRS classifications range on a scale of 1 to 10 with class 1 being the best possible classification, and class 10 representing no classification benefit. Firewise classifications include a higher classification when the subject property is located beyond 1000 feet of a creditable fire hydrant and is within 5 road miles of a recognized Fire Station.

Criteria for classification credits are outlined in the following documents:

- The Community Rating System Coordinators Manual
- The Building Code Effectiveness Grading Schedule website at https://www.isomitigation.com/bcegs/
- The ISO Mitigation online ISO's Public Protection website at https://www.isomitigation.com/ppc/
- The National Weather Service Storm Ready website at https://www.weather.gov/stormready/
- The National Firewise Communities website at https://www.nfpa.org/Public-Education/By-topic/Wildfire/Firewise-USA

Self-Assessment of Capability

The table below provides an approximate measure of the Town of Putnam's capability to work in a hazard-mitigation capacity and/or effectively implement hazard mitigation strategies to reduce hazard vulnerabilities.

Table 9.22-10. Self-Assessment Capability for the Municipality

Area	Degree of Hazard Mitigation Capability		
	Limited (If limited, what are your obstacles?)	Moderate	High

Area	Degree of Hazard Mitigation Capability		
	Limited (If limited, what are your obstacles?)	Moderate	High
Planning and Regulatory Capability	X – limited staff and budget		
Administrative and Technical Capability	X – limited staff and budget		
Fiscal Capability	X – limited staff and budget		
Community Political Capability	X – limited staff and budget		
Community Resiliency Capability	X – limited staff and budget		
Capability to Integrate Mitigation into Municipal Processes and Activities.	X – limited staff and budget		

National Flood Insurance Program

NFIP Floodplain Administrator (FPA)

The Town Supervisor is the floodplain administrator for the Town of Putnam, as per New York State Department of Environmental Conservation.

Flood Vulnerability Summary

The Town does not maintain lists or inventories of properties that have been flood damaged.

Resources

The Town Board reviews building permits prior to submission to County Code Enforcement who completes site visits and inspections. There are currently no education or outreach programs to the community regarding flood hazards/risk, or flood risk reduction through NFIP insurance, mitigation, etc.

Compliance History

According to the most recent National Flood Insurance Program Community Status Book, the community is in good standing with the NFIP. According to information provided by the NYS DEC, the date of the most recent compliance audit is April 2, 1992.

Regulatory

The Town does not participate in the CRS program. The Town does have additional ordinances or laws pertaining to flooding or floodplain management in the municipality.

Integration of Hazard Mitigation into Existing and Future Planning Mechanisms

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 this planning effort, each community was surveyed to obtain a better understanding of their community's progress in plan integration. A summary is provided below. In addition, the community identified specific integration activities that will be incorporated into municipal procedures.

Planning

Land Use Planning: The Town of Putnam has a Planning Board which review all applications for development and consider natural hazard risk areas in their review. Many development activities require

additional levels of environmental review, specifically NYS SEQR and Federal NEPA requirements. The Town of Putman falls under the jurisdiction of the Adirondack Park Agency (APA), and therefore is subject to the APA Land Area Use Classification. In addition, Lake George Park Commission (LGPC) is a State agency that issues construction permits in and adjacent to Lake George that may apply to projects/ properties in the Town of Putnam. LGPC permits, SEQRA Review or other approvals may be needed for Stormwater management Docks, wharfs and moorings, projects in a wetland, fish spawning areas or other environmentally sensitive areas, and excavation and fill (cribs and seawalls).

Lake Champlain Watershed Water Quality Management Planning: Roadside Erosion Assessment and Inventory: The Lake Champlain Watershed Water Quality Management Planning project was one of 11 projects in New York State that was funded through the Federal Government's American Recovery and Reinvestment Act Initiative. The goal of the project was to identify critically eroding roadside banks that have contributed significant sediment loads to the high-quality streams throughout the Champlain Watershed (Clinton, Essex, Franklin, Warren and Washington Counties). The plan identified 319 roadside erosion sites in need to remediation. In Washington County, 31 sites were identified (12 high priority, 11 moderate priority, and 8 low priority). Four sites were in the Town of Putnam.

Regulatory and Enforcement

Code Enforcement: Washington County provides code enforcement duties and responsibilities to the Town of Putnam.

Construction Codes, Uniform: The building codes are strictly enforced to make new and renovated buildings as prepared as possible for hazard related incidents. The Town complies with New York State Uniform Fire Prevention and Building Code (the Uniform Code) and the State Energy Conservation Construction Code (the Energy Code).

Sewers: The Town abides by the County-wide Sanitary Code, which protects and regulates its sewage collection and treatment facilities as a matter of public health and environmental safety. It seeks to prohibit the introduction of stormwater, surface, or sub-surface waters into sanitary sewers and to control the quantity and quality of wastes in the sewage system.

Site Plan Review Local Law #1 of 2003: The Town's Planning Board is tasked with site plan/subdivision review. Design standards consider proposed roads and accesses, water supply and sewage disposal systems, environmental impact, and other infrastructure that can exacerbate or conversely, mitigate hazard impacts.

Subdivision of Land: The Town's Planning Board is tasked with site plan/subdivision review. The Planning Board pays special attention to ensure that developments mitigate the issues associated natural hazards.

Fiscal

Operating Budget: The Town's operating budget contains minimal provisions for expected repairs like snow removal and infrastructure repair after a storm or natural disaster.

Grants: In 2016, the Town had roughly $97,000 in CHIPS (Consolidated Local Street and Highway Improvement Program) money for local roadway improvements.

Education and Outreach

The town provides information on its homepage for local technology tutoring workshops, current weather reports, and burn permit availability.

9.22.6 Mitigation Strategy and Prioritization

This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and prioritization.

Past Mitigation Initiative Status

The following table indicates progress on the community's mitigation strategy identified in the 2010 Plan. It should be noted that during the 2010 planning process, only general, countywide actions were identified for each municipality. The Town of Putnam reviewed the previous actions and selected actions they chose to carry forward as part of this plan update. Previous actions that are now on-going programs and capabilities are indicated as such in the following table and may also be found under 'Capability Assessment' presented previously in this annex.

Table 9.22-11. Status of Previous Mitigation Actions

2010 Mitigation Action	Responsible Party	Status (In progress, No progress, Complete)	Describe Status	Next Step (Include in 2018 HMP or Discontinue)	Describe Next Step
Improve drainage at sites where roads have washed out due to natural hazards in the past	County and NYS DHSES	No Progress	No funding to complete the projects	Include in the 2018 HMP	Individual locations and projects have been identified and will be included in the 2018 HMP Update
Purchase equipment to provide for local personnel to conduct the drainage improvement	County and NYS DHSES	No Progress	No funding	Discontinue	This action is currently not applicable to the municipality; therefore, it will not be included in the 2018 HMP Update.
Engineering assessment to determine feasibility of each site improvement	County and NYS DHSES	No Progress	No funding	Discontinue	This action is currently not applicable to the municipality; therefore, it will not be included in the 2018 HMP Update.
Improve dams to prevent flooding causing roads to wash out.	County and NYS DHSES	No Progress	No funding	Discontinue	This action is currently not applicable to the municipality; therefore, it will not be included in the 2018 HMP Update.
Improve identified sites where slope stability is subject to land subsidence and where excavation or planting could mitigate future damage.	County and NYS DHSES	No Progress	No funding to complete the projects	Include in the 2018 HMP	Individual locations and projects have been identified and will be included in the 2018 HMP Update

Completed Mitigation Initiatives Not Identified in the Previous Mitigation Strategy

The Town of Putnam has identified the following mitigation projects/activities that have also been completed but were not identified in the previous mitigation strategy in the 2010 Plan:

- None identified

Proposed Hazard Mitigation Initiatives for the Plan Update

The Town of Putnam participated in a mitigation action workshop in September 2016 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).

Table 9.22-12 summarizes the comprehensive-range of specific mitigation initiatives the Town of Putnam would like to pursue in the future to reduce the effects of hazards. Some of these initiatives may be previous actions carried forward for this plan update. These 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. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table below to further demonstrate the wide-range of activities and mitigation measures selected.

As discussed in Section 6, 14 evaluation/prioritization criteria are used 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 your actions as 'High', 'Medium', or 'Low.' The table below summarizes the evaluation of each mitigation initiative, listed by Action Number.

Table 9.22-13 provides a summary of the prioritization of all proposed mitigation initiatives for the Plan update.

Table 9.22-12. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
T. Putnam-1 (previous action)	County Route 1 – work with the Washington County Public Works Department to re-grade slope and hydroseed with conservation mix and soil amendments	Existing	Flood, Severe Storm	1	Town Highway Department and Washington County Public Works with support from SWCD and Lake Champlain-Lake George Regional Planning Board	Medium	Low	SWCD, municipal budget, WQIP Grants	Short Term – Less than 5 years	Medium	SIP	PP, NR
T. Putnam-2 (previous action)	Best Road – re-grade slope, install erosion and sediment control blankets and hydroseed with reclamation mix and soil amendments	Existing	Flood, Severe Storm	1	Town Highway Department with support from Lake Champlain-Lake George Regional Planning Board	Medium	Low	SWCD, municipal budget, WQIP Grants	Short Term – Less than 5 years	Medium	SIP	PP, NR
T. Putnam-3 (previous action)	Pulpit Point – hydroseed with conservation mix and soil amendments	Existing	Flood, Severe Storm	1	Town Highway Department with support from Lake Champlain-Lake George Regional Planning Board	Medium	Low	SWCD, municipal budget, WQIP Grants	Short Term – Less than 5 years	Medium	SIP	PP, NR
T. Putnam-4	Cumming Road Wetland	Existing	Flood, Severe Storm	1	Town of Putnam Highway Department	Medium	Low	Municipal Budget	Long Term – at least 5 years	Low	SIP, NSP	PP, NR
T. Putnam-5	Glenburnie/Sucker Brook Watershed	Existing	Flood	1, 5	Town Highway Department, Planning Board, and Town Board; with support from Army Corp. of Engineers, Dept. of Environmental Conservation	High	High	Municipal Budget, NYS Environmental Protection Fund (EPF), and USDA Emergency Watershed Protection (EWP) Program	Long Term – at least 5 years	Low	LPR, SIP, NSP	PP, NR, PI

Notes:

Not all acronyms and abbreviations defined below are included in the table.

**Does this mitigation initiative reduce the effects of hazards on new and/or existing buildings and/or infrastructure? Not applicable (N/A) is inserted if this does not apply.*

Acronyms and Abbreviations:

CAV	*Community Assistance Visit*
CRS	*Community Rating System*
DPW	*Department of Public Works*
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*
SWCD	*Soil & Water Conservation District*
WQIP	*Water Quality Improvement Project Grants*

Potential FEMA HMA Funding Sources:

FMA	*Flood Mitigation Assistance Grant Program*
HMGP	*Hazard Mitigation Grant Program*
PDM	*Pre-Disaster Mitigation Grant Program*
RFC	*Repetitive Flood Claims Grant Program (discontinued in 2015)*
SRL	*Severe Repetitive Loss Grant Program (discontinued in 2015)*

Timeline:

Short	*1 to 5 years*
Long Term	*5 years or greater*
OG	*On-going program*
DOF	*Depending on funding*

Costs:

Where actual project costs have been reasonably estimated:

Low	*< $10,000*
Medium	*$10,000 to $100,000*
High	*> $100,000*

Where actual project costs cannot reasonably be established at this time:

Low	*Possible to fund under existing budget. Project is part of, or can be part of an existing on-going program.*
Medium	*Could budget for under existing work plan, but would require a reapportionment of the budget or a budget amendment, or the cost of the project would have to be spread over multiple years.*
High	*Would require an increase in revenue via an alternative source (i.e., bonds, grants, fee increases) to implement. Existing funding levels are not adequate to cover the costs of the proposed project.*

Benefits:

Where possible, an estimate of project benefits (per FEMA's benefit calculation methodology) has been evaluated against the project costs, and is presented as:

Low=	*< $10,000*
Medium	*$10,000 to $100,000*
High	*> $100,000*

Where numerical project benefits cannot reasonably be established at this time:

Low	*Long-term benefits of the project are difficult to quantify in the short term.*
Medium	*Project will have a long-term impact on the reduction of risk exposure to life and property, or project will provide an immediate reduction in the risk exposure to property.*
High	*Project will have an immediate impact on the reduction of risk exposure to life and property.*

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*

Table 9.22-13. Summary of Prioritization of Actions

Mitigation Action/Project Number	Mitigation Action/Initiative	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
T. Putnam-1 (previous action)	County Route 1	1	1	1	1	1	0	0	1	0	1	1	0	0	0	8	Medium
T. Putnam-2 (previous action)	Best Road	1	1	1	1	1	0	0	1	0	1	1	0	0	0	8	Medium
T. Putnam-3 (previous action)	Pulpit Point	1	1	1	1	1	0	0	1	0	1	1	0	0	0	8	Medium
T. Putnam-4	Cumming Road Wetland	1	1	1	0	0	0	1	0	0	0	1	0	0	0	5	Low
T. Putnam-5	Glenburnie/Sucker Brook Watershed	1	1	1	1	0	0	-1	1	0	-1	1	-1	0	1	4	Low

Note: Refer to Section 6 which contains the guidance on conducting the prioritization of mitigation actions.

9.22.7 Future Needs to Better Understand Risk/Vulnerability

None at this time.

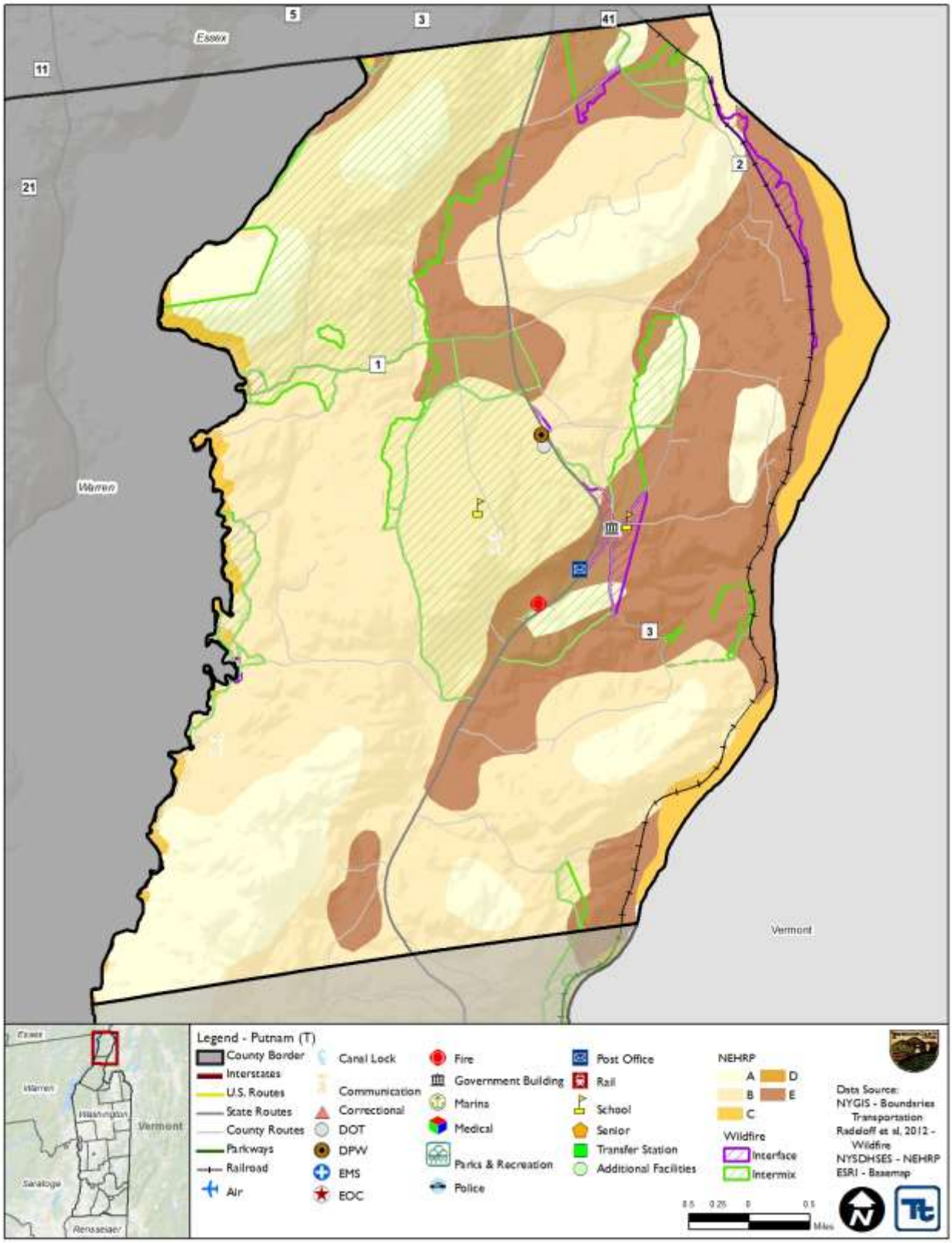
9.22.8 Hazard Area Extent and Location

Hazard area extent and location maps have been generated for the Town of Putnam that illustrate the probable areas impacted within the municipality. These maps are based on the best available data at the time of the preparation of this plan, and are considered to be adequate for planning purposes. Maps have only been generated for those hazards that can be clearly identified using mapping techniques and technologies, and for which the Town of Putnam has significant exposure. These maps are illustrated in the hazard profiles within Section 5.4, Volume I of this Plan.

9.22.9 Additional Comments

None at this time.

Figure 9.22-1. Town of Putnam Hazard Area Extent and Location



Action Number: T. Putnam-1

Mitigation Action Name: County Route 1.

Assessing the Risk	
Hazard(s) addressed:	Flood, Severe Storm
Specific problem being mitigated:	Eroding slope sides along the roadway can lead to flooding, closed roadways, impacting accessibility, and contributing to significant sediment loads to the stream. Roadway is more prone to inundation during periods of heavy rain.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	Do nothing - current problem continues; risk of slope failure. Install retaining wall – costly.
Action/Project Intended for Implementation	
Description of Selected Action/Project	County Route 1 – re-grade slope and hydroseed with conservation mix and soil amendments to reduce flooding and erosion.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	Goal 1: Protect Life and Property
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	Medium
Estimated Cost	Low - $750-$1,000
Priority*	Medium
Plan for Implementation	
Responsible Organization	Town Highway Department and Washington County Public Works with support from Lake Champlain-Lake George Regional Planning Board
Local Planning Mechanism	Hazard Mitigation
Potential Funding Sources	County Soil & Water Conservation district, municipal budget, Water Quality Improvement Project Grants
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

Action Number: T. Putnam-1
Mitigation Action Name: County Route 1.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	The costs to implement this project correspond with the benefits achieved
Technical	1	This action is technically feasible
Political	1	
Legal	0	
Fiscal	0	County Soil & Water Conservation district, municipal budget, Water Quality Improvement Project Grants
Environmental	1	No known negative environmental impacts
Social	0	No known social impacts
Administrative	1	The Town has the administrative capabilities to complete the action
Multi-Hazard	1	Flood, Severe Storm
Timeline	0	Short Term
Agency Champion	0	
Other Community Objectives	0	
Total	8	
Priority (H/M/L)	Medium	

Action Number: T. Putnam-2

Mitigation Action Name: Best Road

Assessing the Risk	
Hazard(s) addressed:	Flood, Severe Storm
Specific problem being mitigated:	Eroding slope sides along the roadway can lead to flooding, closed roadways, impacting accessibility, and contributing to significant sediment loads to the stream. Roadway is more prone to inundation during periods of heavy rain.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	Do nothing - current problem continues; risk of slope failure. Install retaining wall – costly.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Best Road – re-grade slope, install erosion and sediment control blankets and hydroseed with reclamation mix and soil amendments to reduce flooding and erosion.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	Goal 1: Protect Life and Property
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	Medium
Estimated Cost	$2,000-$2,500
Priority*	Medium
Plan for Implementation	
Responsible Organization	Town Highway Department with support from Lake Champlain-Lake George Regional Planning Board
Local Planning Mechanism	Hazard Mitigation
Potential Funding Sources	County Soil & Water Conservation district, municipal budget, Water Quality Improvement Project Grants
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

Action Number: T. Putnam-2
Mitigation Action Name: Best Road.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	The costs to implement this project correspond with the benefits achieved
Technical	1	This action is technically feasible
Political	1	
Legal	0	
Fiscal	0	County Soil & Water Conservation district, municipal budget, Water Quality Improvement Project Grants
Environmental	1	No known negative environmental impacts
Social	0	No known social impacts
Administrative	1	The Town has the administrative capabilities to complete the action
Multi-Hazard	1	Flood, Severe Storm
Timeline	0	Short Term
Agency Champion	0	
Other Community Objectives	0	
Total	8	
Priority (H/M/L)	Medium	

Action Number: T. Putnam-3

Mitigation Action Name: Pulpit Point.

Assessing the Risk	
Hazard(s) addressed:	Flood, Severe Storm
Specific problem being mitigated:	Eroding slope sides along the roadway can lead to flooding, closed roadways, impacting accessibility, and contributing to significant sediment loads to the stream. Roadway is more prone to inundation during periods of heavy rain.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	Do nothing - current problem continues; risk of slope failure. Install retaining wall – costly.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Pulpit Point – hydroseed with conservation mix and soil amendments to reduce flooding and erosion. This will reduce/prevent further erosion of the slope, reduce flooding, and lessen the sediment load flowing into the stream.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	Goal 1: Protect Life and Property
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	Medium
Estimated Cost	$450-$500
Priority*	Medium
Plan for Implementation	
Responsible Organization	Town Highway Department with support from Lake Champlain-Lake George Regional Planning Board
Local Planning Mechanism	Hazard Mitigation
Potential Funding Sources	County Soil & Water Conservation district, municipal budget, Water Quality Improvement Project Grants
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

Action Number: T. Putnam-3
Mitigation Action Name: Pulpit Point.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	The costs to implement this project correspond with the benefits achieved
Technical	1	This action is technically feasible
Political	1	
Legal	0	
Fiscal	0	County Soil & Water Conservation district, municipal budget, Water Quality Improvement Project Grants
Environmental	1	No known negative environmental impacts
Social	0	No known social impacts
Administrative	1	The Town has the administrative capabilities to complete the action
Multi-Hazard	1	Flood, Severe Storm
Timeline	0	Short Term
Agency Champion	0	
Other Community Objectives	0	
Total	8	
Priority (H/M/L)	Medium	

Action Number: T. Putnam-4

Mitigation Action/Initiative: Cumming Road Wetland.

Assessing the Risk	
Hazard(s) addressed:	Flood – Beaver Dam Failure
Specific problem being mitigated:	The beaver dams in the area of Cumming Road are prone to failure which leads to roadway flooding during periods of heavy rain. There is currently no barrier to prevent the area from the impacts of a beaver dam failure.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	Do nothing – current problem continues. Construct approximate 10-acre wetland to eliminate heavy stormwater caused from Beaver Dam Failure – preferred solution. Remove beavers to prevent dams from being built – not preferred solution.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Construct an approximately 10-acre wetland along Cumming Road to help eliminate high volumes of stormwater flow resulting from beaver dam failures in the area. The wetland will provide protection from flooding and provide a natural habitat for plant and animal species.
Action/Project Category	Structure and Infrastructure Project (SIP) Natural Systems Protection (NSP)
Goals/Objectives Met	Goal 1: Protect Life and Property
Applies to existing and/or new development; or not applicable	Existing
Benefits (losses avoided)	High
Estimated Cost	Low (less than $10,000)
Priority*	Low
Plan for Implementation	
Responsible/Lead Agency/Department	Town of Putnam Highway Department
Local Planning Mechanism	Hazard Mitigation, Town Budget
Potential Funding Sources	Municipal Budget
Timeline for Completion	Long-term – project itself will take less than five years; however, the growing of vegetation in the wetland will take longer than 5 years
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: - Progress on Action/Project: Not completed

Action Number: T. Putnam-4

Mitigation Action/Initiative: Cummings Road Wetland.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Eliminate road washouts
Property Protection	1	Eliminate damage caused by debris being washed on to private lands
Cost-Effectiveness	1	
Technical	0	
Political	0	
Legal	0	
Fiscal	1	
Environmental	0	
Social	0	
Administrative	0	
Multi-Hazard	1	
Timeline	0	
Local Champion	0	
Other Community Objectives	1	
Total	5	
Priority (High/Med/Low)	**Low**	

Action Number: T. Putnam-5

Mitigation Action/Initiative: Glenburnie/Sucker Brook Watershed.

Assessing the Risk	
Hazard(s) addressed:	Flood (dam failure)
Specific problem being mitigated:	When a dam failure occurs during periods of heavy rain, private roads and bridges are damaged, and Lake George is contaminated from sediment runoff. The dam is in need of improvement; however, the Town needs to work with the U.S. Army Corps of Engineers and New York State Department of Environmental Conservation to address the problem.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	Do nothing – current problem continues. Control water level by re-enforcement of dam, or man-made structure – Dam is on private land. Create secondary dam on Town land – cost.
Action/Project Intended for Implementation	
Description of Selected Action/Project	A study has been conducted by the Town, U.S. Army Corps of Engineers, and NYS DEC. The Town needs to secure funding and permission from private land owners to complete the project. The project will include reinforcement and improvement of the dam and provide stormwater control to approximately 100 acres of watershed that flows into Lake George.
Action/Project Category	Local Plans and Regulations (LPR) Structure and Infrastructure Project (SIP) Natural Systems Protection (NSP)
Goals/Objectives Met	Goal 1: Protect Life and Property 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.
Applies to existing and/or new development; or not applicable	Existing
Benefits (losses avoided)	High
Estimated Cost	Medium
Priority*	Low
Plan for Implementation	
Responsible/Lead Agency/Department	Town Highway Department, Planning Board, and Town Board; Army Corp. of Engineers, Dept. of Environmental Conservation
Local Planning Mechanism	Town Board, Lake George Association, Lake George Park Commission
Potential Funding Sources	Municipal Budget, NYS Environmental Protection Fund (EPF), and USDA Emergency Watershed Protection (EWP) Program
Timeline for Completion	Long-term
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: 9/2009 – All agencies met, study conducted Progress on Action/Project: Not completed, continuing issues – private lands and funds

Action Number: T. Putnam-5

Mitigation Action/Initiative: Glenburnie/Sucker Brook Watershed.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Prevent Washouts of road and bridge
Property Protection	1	Camps along stream at lower risk
Cost-Effectiveness	1	
Technical	1	
Political	0	
Legal	0	Dam is on private lands
Fiscal	-1	
Environmental	1	ACE, DEC, local agencies involved
Social	0	
Administrative	-1	
Multi-Hazard	1	
Timeline	-1	
Local Champion	0	
Other Community Objectives	1	Will improve water quality of Lake George and reduce contamination by debris wasted into the bay
Total	4	
Priority (High/Med/Low)	**Low**	

9.23 TOWN OF SALEM

This section presents the jurisdictional annex for the Town of Salem.

9.23.1 Hazard Mitigation Plan Point of Contact

The following individuals have been identified as the hazard mitigation plan's primary and alternate points of contact.

Primary Point of Contact	Alternate Point of Contact
Seth M. Pitts, Town Supervisor PO Box 575, Town Hall, 214 Main Street, Salem NY 12865 518-791-8485 smpitts45@msn.com	Travis Keys, Deputy Superintendent of Highways PO Box 575, Town Hall, 214 Main Street, Salem NY 12865 518-854-3353 salemnyhwy@hotmail.com

9.23.2 Municipal Profile

The Town of Salem is located in southeastern Washington County and is bordered to the north by the Town of Hebron, to the south by the Towns of White Creek and Jackson, to the east by Vermont, and to the west by the Towns of Greenwich and Jackson. There are several communities located within the Town and includes: Eagleville, Fitch Point, Greenwich Junction, Rexleigh, Salem, and Shushan. On April 1, 2016, the Village of Salem was dissolved and is now part of the Town. Additionally, there are several streams, brooks and lakes located in the Town: Black Creek, Blind Buck Brook, Camden Creek, East Beaver Brook, Juniper Swamp Brook, Steele Brook, and West Beaver Brook.

According to the 2010 Census, the Town's population was 2,715. The Town has a total area of 52.5 square miles, of which 52.5 square miles of it is land and 0.1 square miles of it is water.

Growth/Development Trends

The Town of Salem did not note any recent residential/commercial development since 2010 or any major residential or commercial development, or major infrastructure development planned for the next five years in the municipality.

Table 9.23-1. Growth and Development

Property or Development Name	Type (e.g. Res., Comm.)	# of Units / Structures	Location (address and/or Parcel ID)	Known Hazard Zone(s)	Description/Status of Development
Recent Development from 2010 to present					
None identified					
Known or Anticipated Development in the Next Five (5) Years					
None identified					

Note: Only location-specific hazard zones or vulnerabilities identified.

9.23.3 Natural Hazard Event History Specific to the Municipality

Washington County has a history of natural and non-natural hazard events as detailed in Volume I, Section 5.0 of this plan. 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. For the purpose of this plan update, events that have occurred in the County from 2008 to present were summarized to indicate the range and impact of hazard events in the community. Information regarding specific damages is included, if available,

based on reference material or local sources. This information is presented in the table below. For details of these and additional events, refer to Volume I, Section 5.0 of this plan.

Table 9.23-2. Hazard Event History

Dates of Event	Event Type (FEMA Disaster Declaration if applicable)	Washington County Designated?	Summary of Damages/Losses
August 26-September 5, 2011	Hurricane Irene (DR-4020)	Yes	Utility outages for four days along Nichol Street and Archibald Street. County Route 153 and Mahaffey Lane washed out. The school's basement flooded. Over 50 homes were damaged by flood waters; mostly basements.

Notes:
EM *Emergency Declaration (FEMA)*
FEMA *Federal Emergency Management Agency*
DR *Major Disaster Declaration (FEMA)*

9.23.4 Hazard Vulnerabilities and Ranking

The hazard profiles in Section 5.0 of this plan have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes the hazard vulnerabilities and their ranking in the Town of Salem. For additional vulnerability information relevant to this jurisdiction, refer to Section 5.0.

Natural Hazard Risk/Vulnerability Risk Ranking

As discussed in Section 5.3 (Hazard Ranking), each participating town or village may have differing degrees of risk exposure and vulnerability compared to Washington County as a whole. Therefore, each municipality 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 Salem. Table 9.23-12 provides proposed mitigation initiatives for the high ranked hazards. The Town has identified specific mitigation initiatives for flood and severe storm, while wildfire and severe winter weather are addressed through a public education and outreach program.

Table 9.23-3. Hazard Risk/Vulnerability Risk Ranking

Hazard type	Estimate of Potential Dollar Losses to Structures Vulnerable to the Hazard [a, c]	Probability of Occurrence	Risk Ranking Score (Probability x Impact)	Hazard Ranking [b]
Earthquake	100-Year GBS: $0 500-Year GBS: $2,740,491 2,500-Year GBS: $26,747,483	Occasional	28	Medium
Flood	Damage estimate not available.	Frequent	24	Medium
Severe Weather	100-Year MRP: $1,058,261 500-year MRP: $5,431,322 Annualized: $57,212	Frequent	48	High
Severe Winter Weather	1% GBS: $6,115,824 5% GBS: $30,579,122	Frequent	51	High
Wildfire	Estimated Value in the WUI Hazard Areas: $772,975,526	Frequent	48	High

Notes:

a. Building damage ratio estimates based on FEMA 386-2 (August 2001)
b. The valuation of general building stock and loss estimates was based on custom inventory for the municipality.
High = Total hazard priority risk ranking score of 31 and above
Medium = Total hazard priority risk ranking of 20-30+
Low = Total hazard risk ranking below 20
c. Loss estimates for the severe storm and severe winter storm hazards are structural values only and do not include the value of contents.
d Loss estimates for the flood and earthquake hazards represent both structure and contents.
e. The HAZUS-MH earthquake model results are reported by Census Tract.
f. Damage estimate for flood unavailable due to lack of digital floodplain data for Washington County.

National Flood Insurance Program (NFIP) Summary

The following table summarizes the NFIP statistics for the Town of Salem.

Table 9.23-4. NFIP Summary

Municipality	# Policies (1)	# Claims (Losses) (1)	Total Loss Payments (2)	# Rep. Loss Prop. (1)	# Severe Rep. Loss Prop. (1)
Salem (T)	16	10	$169,438	1	0

Source: FEMA, 2016
Note (1) Policies, claims, repetitive loss and severe repetitive loss statistics provided by FEMA and are current as of April 30, 2016 and are summarized by Community Name. Please note the total number of repetitive loss properties excludes the severe repetitive loss properties. The number of claims represents claims closed by 4/30/2016.
Note (2) Total building and content losses from the claims file provided by FEMA Region 2.
Note (3) The policies inside and outside of the flood zones are unavailable due to lack of digital floodplain for Washington County.
Note (4) FEMA noted that where there is more than one entry for a property, there may be more than one policy in force or more than one GIS possibility.

Critical Facilities

At the time of this HMP Update, digitized flood maps for Washington County are unavailable. In order to provide some level of beneficial analysis, a desktop analysis was performed to identify critical facilities located within the floodplain (refer to Section 5.1 [Methodology and Tools] for details). The following table identifies critical facilities located within the municipality and their exposure, if any, to the possible floodplain. This information is a resource for the municipality to determine if flood mitigation actions are appropriate based on historical events and proximity of the facility to a water body. At the time of this 2018 HMP Update, the municipality did not identify any actions associated with these facilities.

The Town of Salem understands the limitation of the map data and once the updated maps are available, the municipality will work with Washington County to determine which critical facilities are located within the 1% and 0.2% annual chance flood zones. Once identified, the municipality will work with the property owners and develop mitigation actions for each of the critical facilities, ensuring they will be protected to the 500-year (or worst-case scenario) level.

Table 9.23-5. Potential Flood Losses to Critical Facilities

Name	Type	Potential Flood Exposure
Capital District DDSO	Medical	X
Salem DPW	DPW	X
Salem Volunteer Fire Company	Fire	X
US Postal Service - Shushan	Post Office	X
Washington County Sheriff	Police	X

Source: Washington County; NYS GIS Clearinghouse

Other Vulnerabilities Identified

The municipality has identified the following vulnerabilities within their community:

- None identified

9.23.5 Capability Assessment

This section identifies the following capabilities of the local jurisdiction:

- Planning and regulatory capability
- Administrative and technical capability
- Fiscal capability
- Community classification
- National Flood Insurance Program
- Integration of mitigation planning into existing and future planning mechanisms

Planning and Regulatory Capability

The table below summarizes the regulatory tools that are available to the Town of Salem.

Table 9.23-6. Planning and Regulatory Tools

Tool / Program (code, ordinance, plan)	Do you have this? (Yes/No) If Yes, date of adoption or update	Authority (local, county, state, federal)	Dept. /Agency Responsible	Code Citation and Comments (Code Chapter, name of plan, explanation of authority, etc.)
Planning Capability				
Master Plan	No	-	-	-
Capital Improvements Plan	No	-	-	-
Floodplain Management / Basin Plan	No	-	-	-
Stormwater Management Plan	No	-	-	-
Open Space Plan	No	-	-	-
Stream Corridor Management Plan	No	-	-	-
Watershed Management or Protection Plan	No	-	-	-
Economic Development Plan	No – in progress	Local	Town Board	-
Comprehensive Emergency Management Plan	Yes	County	County Public Safety	2013
Emergency Response Plan	No	-	-	-
Post-Disaster Recovery Plan	No	-	-	-
Transportation Plan	No	-	-	-
Strategic Recovery Planning Report	No	-	-	-
Other Plans:	No	-	-	-
Regulatory Capability				
Building Code	Yes	State & Local	County CEO	Building Code of New York State (NYS), Local Law #1
Zoning Ordinance	Yes	Local	Planning	Zoning Law of The Town of Salem

Tool / Program (code, ordinance, plan)	Do you have this? (Yes/No) If Yes, date of adoption or update	Authority (local, county, state, federal)	Dept. /Agency Responsible	Code Citation and Comments (Code Chapter, name of plan, explanation of authority, etc.)
			Board, CEO	2016
Subdivision Ordinance	Yes	Local	Planning Board, CEO	Town of Salem Land Subdivision Regulations 9/9/1987
NFIP Flood Damage Prevention Ordinance	Yes	Federal, State & Local	Town Supervisor	Not identified at the time of this plan update
NFIP: Cumulative Substantial Damages	No	-	-	-
NFIP: Freeboard	Yes	State, Local	Town Supervisor, CEO	State mandated BFE+2 for single and two-family residential construction, BFE+1 for all other construction types
Growth Management Ordinances	No	-	-	-
Site Plan Review Requirements	Yes	Local	Planning Board	1999
Stormwater Management Ordinance	No	-	-	-
Municipal Separate Storm Sewer System (MS4)	No	-	-	-
Natural Hazard Ordinance	No	-	-	-
Post-Disaster Recovery Ordinance	No	-	-	-
Real Estate Disclosure Requirement	Yes	State	NYS Department of State, Real Estate Agent	NYS mandate, Property Condition Disclosure Act, NY Code - Article 14 §460-467
Other (Special Purpose Ordinances [i.e., sensitive areas, steep slope])	No	-	-	-

Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the Town of Salem.

Table 9.23-7. Administrative and Technical Capabilities

Resources	Is this in place? (Yes or No)	Department/ Agency/Position
Administrative Capability		
Planning Board	Yes	Town Planning Board
Mitigation Planning Committee	No	-
Environmental Board/Commission	No	-
Open Space Board/Committee	No	-
Economic Development Commission/Committee	No	-
Maintenance programs to reduce risk	No	-
Mutual aid agreements	Yes	Washington County, neighboring municipalities
Technical/Staffing Capability		
Planner(s) or engineer(s) with knowledge of land	No	-

Resources	Is this in place? (Yes or No)	Department/ Agency/Position
development and land management practices		
Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	No	-
Planners or engineers with an understanding of natural hazards	No	-
NFIP Floodplain Administrator (FPA)	Yes	Town Supervisor
Surveyor(s)	No	-
Personnel skilled or trained in GIS and/or Hazards United States (HAZUS) – Multi-Hazards (MH) applications	No	-
Scientist familiar with natural hazards	No	-
Emergency Manager	No	-
Grant writer(s)	No	-
Staff with expertise or training in benefit/cost analysis	No	-
Professionals trained in conducting damage assessments	No	-

Fiscal Capability

The table below summarizes financial resources available to the Town of Salem.

Table 9.23-8. 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	No
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	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	No
Open Space Acquisition funding programs	No
Other	No

Community Classifications

The table below summarizes classifications for community program available to the Town of Salem.

Table 9.23-9. Community Classifications

Program	Do you have this? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)

Program	Do you have this? (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 (Salem FPD)	4/4X	8/25/15
NYSDEC Climate Smart Community	No	-	-
Storm Ready	No	-	-
Firewise	No	-	-
Disaster/safety programs in/for schools	No	-	-
Organizations with mitigation focus (advocacy group, non-government)	No	-	-
Public education program/outreach (through website, social media)	No	-	-
Public-Private Partnerships	No	-	-

Note:
N/A *Not applicable*
NP *Not participating*
- *Unavailable*

The classifications listed above relate to the community's ability to provide effective services to lessen its vulnerability to the hazards identified. These classifications can be viewed as a gauge of the community's capabilities in all phases of emergency management (preparedness, response, recovery and mitigation) and are used as an underwriting parameter for determining the costs of various forms of insurance. The CRS class applies to flood insurance while the BCEGS and Public Protection classifications apply to standard property insurance. CRS classifications range on a scale of 1 to 10 with class 1 being the best possible classification, and class 10 representing no classification benefit. Firewise classifications include a higher classification when the subject property is located beyond 1000 feet of a creditable fire hydrant and is within 5 road miles of a recognized Fire Station.

Criteria for classification credits are outlined in the following documents:

- The Community Rating System Coordinators Manual
- The Building Code Effectiveness Grading Schedule website at https://www.isomitigation.com/bcegs/
- The ISO Mitigation online ISO's Public Protection website at https://www.isomitigation.com/ppc/
- The National Weather Service Storm Ready website at https://www.weather.gov/stormready/
- The National Firewise Communities website at https://www.nfpa.org/Public-Education/By-topic/Wildfire/Firewise-USA

Self-Assessment of Capability

The table below provides an approximate measure of the Town of Salem's capability to work in a hazard-mitigation capacity and/or effectively implement hazard mitigation strategies to reduce hazard vulnerabilities.

Table 9.23-10. Self-Assessment Capability for the Municipality

	Degree of Hazard Mitigation Capability

Area	Limited (If limited, what are your obstacles?)	Moderate	High
Planning and regulatory capability		X	
Administrative and technical capability		X	
Fiscal capability		X	
Community political capability		X	
Community resiliency capability		X	
Capability to integrate mitigation into municipal processes and activities		X	

National Flood Insurance Program

NFIP Floodplain Administrator (FPA)

While the Flood Damage Prevention Ordinances identifies the town supervisor as the FPA, Mr. Alton Knapp, CEO, provided the following information.

Flood Vulnerability Summary

The Town of Salem maintains lists/inventories of properties that have been damaged by flooding. During Hurricane Irene, over 50 homes on Nichol Street, Park Place, and Archibald Street were damaged by flooding. Substantial Damage estimates were not made during Irene or other events. There is currently no interest in mitigation (elevation or acquisition).

Resources

The municipal FPA is the sole person assuming the role and responsibilities as floodplain administrator for the town. The town does not provide any education or outreach to the community regarding flood hazards/risk or flood risk reduction. The FPA indicated that he would consider attending continuing education and/or certification training on floodplain management if it were offered.

Compliance History

The town is currently in good standing with the NFIP. Per NYS DEC, the most recent compliance audit was conducted in the town was on August 7, 2012.

Regulatory

The town's flood damage prevention ordinance meets the minimum set by FEMA and New York State.

Integration of Hazard Mitigation into Existing and Future Planning Mechanisms

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 this planning effort, each community was surveyed to obtain a better understanding of their community's progress in plan integration. A summary is provided below. In addition, the community identified specific integration activities that will be incorporated into municipal procedures.

Planning

Land Use Planning: The Town of Salem has a Planning Board and Zoning Board of Appeals which review all applications for development and consider natural hazard risk areas in their review. Many development

activities require additional levels of environmental review, specifically NYS SEQR and Federal NEPA requirements.

Town of Salem Comprehensive Plan: The Town Comprehensive Plan was most recently written in 1997 with an update currently underway. Recommendations from the plan pertaining to hazard mitigation include establishing a committee to report on the desirability of establishing land use controls governing the building of dwellings, e.g. a zoning code, and regulating land use and construction along the Battenkill and other water resources within the town.

Salem 2010 Agriculture and Farm Viability Plan: The plan is designed to serve as a long-range framework for sustaining and improving agriculture in the Town. A majority of the town of Salem are enrolled in state-certified Consolidated Agricultural Districts #5 and #8, which provide important right to farm protections to farmers operating on enrolled properties. They also require additional planning measures, such as Notice of Intent filings and Agricultural Data statements, for publicly funded projects and land use activities in these districts. Plan recommendations include supporting opportunities for compatible renewable energy generation on farms, and supporting efforts to renovate rail infrastructure in Salem. This plan is available publicly on the Town's website.

White Creek Watershed Infrastructure Flood Vulnerability and Mitigation Assessment, 2016 Draft: White Creek has a drainage area of approximately 36 square miles in Salem. Our hydraulic analysis included an evaluation of bridge flood capacity for all 17 public and private bridges on White Creek. Ten of the 17 bridges have limited capacity to pass only the 10- year flood or less, indicating that most bridges on White Creek are hydraulically undersized by county and state standards. A hydraulic analysis of the White Creek corridor indicated that there are greater opportunities to mitigate flooding depths and extents during moderate floods. The study evaluated over 10 project alternatives in Salem, and summarized the benefits and costs for 7 alternatives in greater detail. These alternatives included removal of berms, channel widening and deepening, and floodplain restoration with home buyouts. The report also evaluated 8 project alternatives upstream of Salem.

Project Work Plan for DEC/ESD Grant Application Post-Hurricane Irene, Tropical Storm Lee Stream Restoration White Creek, Salem, NY: This document is a work plan for restoration of the White Creek stream corridor in both the Town of Salem. The report was written to provide technical support for a grant application that is being submitted by Washington County to secure funds to restore White Creek to Pre-Hurricane and Tropical Storm Lee conditions. It identifies twelve distinct project work areas related to White Creek stream corridor to mitigate future flooding, gravel deposition and streambank erosion. Relevant projects include:

- 1.3 Downstream RR Bridge and Adjacent Farm Access Bridge: This project involves installing two rock vanes upstream from the two bridges.
- 3.1 Flood Control Berm: This project involves installing a 1,200-foot-long by 24-foot-wide by 4-foot-high flood control berm along the east side of Route 153 to the north side of residential properties that front on Blind Buck Road.
- 3.2 Flood Control Channel: This project involves installation of a depressed grass-lined channel near Blind Buck Road, and lowering Blind Buck Road near the bridge crossing over the White Creek. This would increase flood flow capacity in that area.
- 4.2 Protect Embankment at Inlet of Beattie Hollow Bridge: This project involves stabilizing erosion around abutments at Beattie Bridge. This will be accomplished by placing large diameter rock in the cavity between the bridge inlet and Route 153.

- 4.3 Remove Former Bridge Abutment Across from Braymer Lane: This project involves removal of the old bridge abutment located across from Braymer Lane, and construction of a small berm atop the right stream bank (near Route 153).
- 4.4 Construct Meander Upstream of Gravel Deposits: This project involves construction of a meander upstream of the gravel deposits located between Braymer Lane and McKeighan Lane. This meander once existed based upon historical aerial photography. This meander will be re-established leaving the main stream flow untouched. The meander will be connected to the main stream channel so that the stream channel can be diverted into the meander.
- 4.5 Remove Gravel Deposits: This project involves removal of the gravel deposits from either side of the low flow channel located between Braymer Lane and McKeighan Lane. Approximately 1,550 cubic feet of gravel are estimated to be removed. Soil from construction of the meander (Item 4.4) will be used in conjunction with plantings to recreate vegetative cover in the gravel deposit area
- 4.6 Improvements between the Chambers Road Bridge and Rail Road Bridge: This project involves three items:
    - North of Chambers Road Bridge - remove large rocks on the west stream bank, approximately 40 linear feet. Relocate to railroad bridge to prevent scour.
    - Replace existing large stones with smaller stone filling to approximately 5 feet in height that would protect the stream bank, but would allow flow to breach the main stream channel and continue into the floodplain on the south side of the railroad bed.
    - Form a relief channel above the stone filling approximately 20 feet wide by 50 feet long.
- 4.7 Supplement Flow Capacity of Chambers Road Bridge: This project involves constructing a box culvert through the embankment approaching the south side of the Chambers Road Bridge. The new culvert would be designed to connect with the new relief channel constructed as part of Item 4.6

Regulatory and Enforcement (Ordinances)

Code Enforcement: Washington County provides code enforcement duties and responsibilities to the Town of Salem.

Construction Codes, Uniform: The building codes are strictly enforced to make new and renovated buildings as prepared as possible for hazard related incidents. The Town complies with New York State Uniform Fire Prevention and Building Code (the Uniform Code) and the State Energy Conservation Construction Code (the Energy Code).

Sewers: The Town abides by the County-wide Sanitary Code, which protects and regulates its sewage collection and treatment facilities as a matter of public health and environmental safety. It seeks to prohibit the introduction of stormwater, surface, or sub-surface waters into sanitary sewers and to control the quantity and quality of wastes in the sewage system.

Town of Salem Site Plan Review Law: The Planning Board reviews and approves site plans for land uses within the town. Design standards consider proposed roads and accesses, water supply and sewage disposal systems, environmental impact, and other infrastructure that can exacerbate or conversely, mitigate hazard impacts. Among other elements, each site plan must include a statement and rough sketch showing the anticipated changes in the existing topography and natural features and, where applicable, measures and features to comply with flood hazard and flood insurance regulations. The sketch must also show all pertinent features within 200 feet of the boundaries of the parcel including surface and ground water related natural features and the location of the site in relation to aquifer and aquifer tributary areas, and downslope surface water bodies.

Land Subdivision Regulations: The Town's Planning Board is tasked with subdivision permitting and site plan review. The Planning Board pays special attention to ensure that developments meet the requirements of

the stormwater management and erosion and sediment control provisions set by NYS DEC, and mitigate the issues associated with flood, fire, or other natural hazards.

Zoning: The Town of Salem's 2016 zoning code includes districts and standards pertaining to the mitigation of hazards. These sections include the floodway district and floodplain district.

Funding

Operating Budget: The Town's operating budget contains a section on Highway Appropriations with provisions for expected expenses like snow removal, equipment and bridge repair including infrastructure repair after a storm or natural disaster. The Town also allots funding for contractual expenses related to environmental control which may reduce flood vulnerability.

Grants: The Town of Salem actively pursues grant funding for priority municipal projects. In 2012, the Town was awarded funding through the Hurricane Irene-Tropical Storm Lee Flood Mitigation Grant Program. In addition, the 2016 adopted budget includes line items for $115,000 from a Citizens Funding Grant, and $178,876 in Consolidated Local Street and Highway Improvement Program (CHIPS) Capital Outlay funding.

Education and Outreach

The municipal website currently serves as a clearinghouse of information about Salem for visitors and residents. Specifically, the website offers news for area seniors, and a direct link to an interactive floodplain map.

9.23.6 Mitigation Strategy and Prioritization

This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and prioritization.

Past Mitigation Initiative Status

The following table indicates progress on the community's mitigation strategy identified in the 2010 Plan. It should be noted that during the 2010 planning process, only general, countywide actions were identified for each municipality. The Town of Salem reviewed the previous actions and selected actions they chose to carry forward as part of this plan update. Previous actions that are now on-going programs and capabilities are indicated as such in the following table and may also be found under 'Capability Assessment' presented previously in this annex.

Table 9.23-11. Status of Previous Mitigation Actions

2010 Mitigation Action	Responsible Party	Status (In progress, No progress, Complete)	Describe Status	Next Step (Include in 2018 HMP or Discontinue)	Describe Next Step
Improve drainage at sites where roads have washed out due to natural hazards in the past	County and NYS DHSES	Complete	Roads repaired after Hurricane Irene	Discontinue	Project has been completed; will not be included in the 2018 HMP Update
Purchase equipment to provide for local personnel to conduct the drainage improvement	County and NYS DHSES	No progress	Due to lack of funding, project has not been completed	Discontinue	At the time of this plan update, the town did not identify any actions related to purchasing equipment. It is not a concern at this time.
Engineering assessment to determine feasibility of each site improvement	County and NYS DHSES	Complete	Watershed study completed to determine areas of flooding in the Town.	Discontinue	Study has been completed; therefore, this action will not be included in the 2018 HMP Update
Improve dams to prevent flooding causing roads to wash out.	County and NYS DHSES	No Progress	This action does not pertain to the Town; there are no dams located in the municipality	Discontinue	This action does not pertain to the Town; there are no dams located in the municipality
Improve identified sites where slope stability is subject to land subsidence and where excavation or planting could mitigate future damage.	County and NYS DHSES	In Progress	Hydrological study has been completed but sites have not been improved	Include in 2018 HMP	See below – refer to actions T. Salem-1 through T. Salem-3; three sites and potential projects to fix the problems have been identified in the Town. The sites include: areas along White Creek (T. Salem-1 and T. Salem-2) and between Route 22 and Archibald Street (T. Salem-3).
Complete a hydrological study of flooding conditions in the Village of Salem to determine Appropriate mitigation strategies.	County, NYS DHSES and NYSDEC	Complete	Hydrological study has been completed	Discontinue	Study has been completed; therefore, this action will not be included in the 2018 HMP Update

Completed Mitigation Initiatives Not Identified in the Previous Mitigation Strategy

The Town of Salem has identified the following mitigation projects/activities that have also been completed but were not identified in the previous mitigation strategy in the 2010 Plan:

- None identified

Proposed Hazard Mitigation Initiatives for the Plan Update

The Town of Salem participated in a mitigation action workshop in September 2016 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).

Table 9.23-12 summarizes the comprehensive-range of specific mitigation initiatives the Town of Salem would like to pursue in the future to reduce the effects of hazards. Some of these initiatives may be previous actions carried forward for this plan update. These 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. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table below to further demonstrate the wide-range of activities and mitigation measures selected.

As discussed in Section 6, 14 evaluation/prioritization criteria are used 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 your actions as 'High', 'Medium', or 'Low.' The table below summarizes the evaluation of each mitigation initiative, listed by Action Number.

Table 9.23-13 provides a summary of the prioritization of all proposed mitigation initiatives for the Plan update.

Table 9.23-12. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
T. Salem-1	Deepen channel of White Creek from the Route 22 bridge through cross section 7117; develop sediment maintenance plan. This would protect the area to the 10-year flood level.	New and Existing	Flood, Severe Storm	All	Town Highway with support from County and NYS DEC	High	Medium	Municipal Budget, Water Quality Improvement Project Grants, FEMA HMA – HMGP and FMA	Short Term	High	SIP	PP
T. Salem-2 (former action)	Remove berms on south bank downstream of Salem; develop sediment maintenance plan. This would protect the area to the 10-year flood level.	New and Existing	Flood, Severe Storm	All	Town Highway with support from County and NYS DEC	High	Medium	Natural Resources Conservation Service, Municipal Budget, FEMA HMA – HMGP and FMA	Short Term	High	SIP	PP
T. Salem-3 (former action)	Bank cut on north bank in-between Route 22 and Archibald Street. This would protect the area to the 10-year flood level.	Existing	Flood, Severe Storm	All	Town Highway with support from County and NYS DEC	High	Medium	Natural Resources Conservation Service, Municipal Budget, FEMA HMA – HMGP and FMA	Short Term	High	SIP	PP
T. Salem-4	Acquire home on Archibald Street. This project will protect the area to the 500-year flood level.	Existing	Flood	All	Town Board and Planning Board	High	High	FEMA HMA – FMA and HMGP, Local Share	Short Term	High	SIP	PP
T. Salem-5	Acquire homes along White Creek. This project will protect the area to the 500-year flood level.	Existing	Flood	All	Town Board and Planning Board	High	High	FEMA HMA – FMA and HMGP, Local Share	Short Term	High	SIP	PP
T. Salem-6	Remove Archibald Street bride and the north abutment to increase channel width	New and Existing	Flood, Severe Storm	All	Town Highway with support from County and NYS DEC	High	Medium	Natural Resources Conservation Service,	Short Term	High	SIP	PP

Table 9.23-12. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
	and capacity. This would protect the area to the 10-year flood level.							Municipal Budget, FEMA HMA – HMGP and FMA				

Notes:

Not all acronyms and abbreviations defined below are included in the table.

**Does this mitigation initiative reduce the effects of hazards on new and/or existing buildings and/or infrastructure? Not applicable (N/A) is inserted if this does not apply.*

Acronyms and Abbreviations:

CAV	*Community Assistance Visit*
CRS	*Community Rating System*
DPW	*Department of Public Works*
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*
PDM	*Pre-Disaster Mitigation Grant Program*
RFC	*Repetitive Flood Claims Grant Program (discontinued in 2015)*
SRL	*Severe Repetitive Loss Grant Program (discontinued in 2015)*

Timeline:

Short	*1 to 5 years*
Long Term	*5 years or greater*
OG	*On-going program*
DOF	*Depending on funding*

Costs:

Where actual project costs have been reasonably estimated:

Low	*< $10,000*
Medium	*$10,000 to $100,000*
High	*> $100,000*

Where actual project costs cannot reasonably be established at this time:

Low	*Possible to fund under existing budget. Project is part of, or can be part of an existing on-going program.*
Medium	*Could budget for under existing work plan, but would require a reapportionment of the budget or a budget amendment, or the cost of the project would have to be spread over multiple years.*
High	*Would require an increase in revenue via an alternative source (i.e., bonds, grants, fee increases) to implement. Existing funding levels are not adequate to cover the costs of the proposed project.*

Benefits:

Where possible, an estimate of project benefits (per FEMA's benefit calculation methodology) has been evaluated against the project costs, and is presented as:

Low=	*< $10,000*
Medium	*$10,000 to $100,000*
High	*> $100,000*

Where numerical project benefits cannot reasonably be established at this time:

Low	*Long-term benefits of the project are difficult to quantify in the short term.*
Medium	*Project will have a long-term impact on the reduction of risk exposure to life and property, or project will provide an immediate reduction in the risk exposure to property.*
High	*Project will have an immediate impact on the reduction of risk exposure to life and property.*

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*

Table 9.23-13. Summary of Prioritization of Actions

Mitigation Action / Project Number	Mitigation Action/Initiative	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
T. Salem-1	Deepen channel of White Creek from the Route 22 bridge through cross section 7117; develop sediment maintenance plan. This would protect the area to the 10-year flood level.	1	1	1	1	0	0	0	1	1	1	1	1	1	0	10	High
T. Salem-2 (former action)	Remove berms on south bank downstream of Salem; develop sediment maintenance plan. This would protect the area to the 10-year flood level.	1	1	1	1	0	0	0	1	1	1	1	1	1	0	10	High
T. Salem-3 (former action)	Bank cut on north bank in-between Route 22 and Archibald Street.	1	1	1	1	0	0	0	1	1	1	1	1	1	0	10	High
T. Salem-4	Acquire home on Archibald Street.	1	1	1	1	1	0	0	1	1	1	0	0	1	0	9	High
T. Salem-5	Acquire homes along White Creek	1	1	1	1	1	0	0	1	1	1	0	0	1	0	9	High
T. Salem-6	Remove Archibald Street bride and the north abutment to increase channel width and capacity.	1	1	1	1	0	0	0	1	1	1	1	1	1	0	10	High

Note: Refer to Section 6, which conveys guidance on prioritizing mitigation actions.

9.23.7 Future Needs to Better Understand Risk/Vulnerability

None at this time.

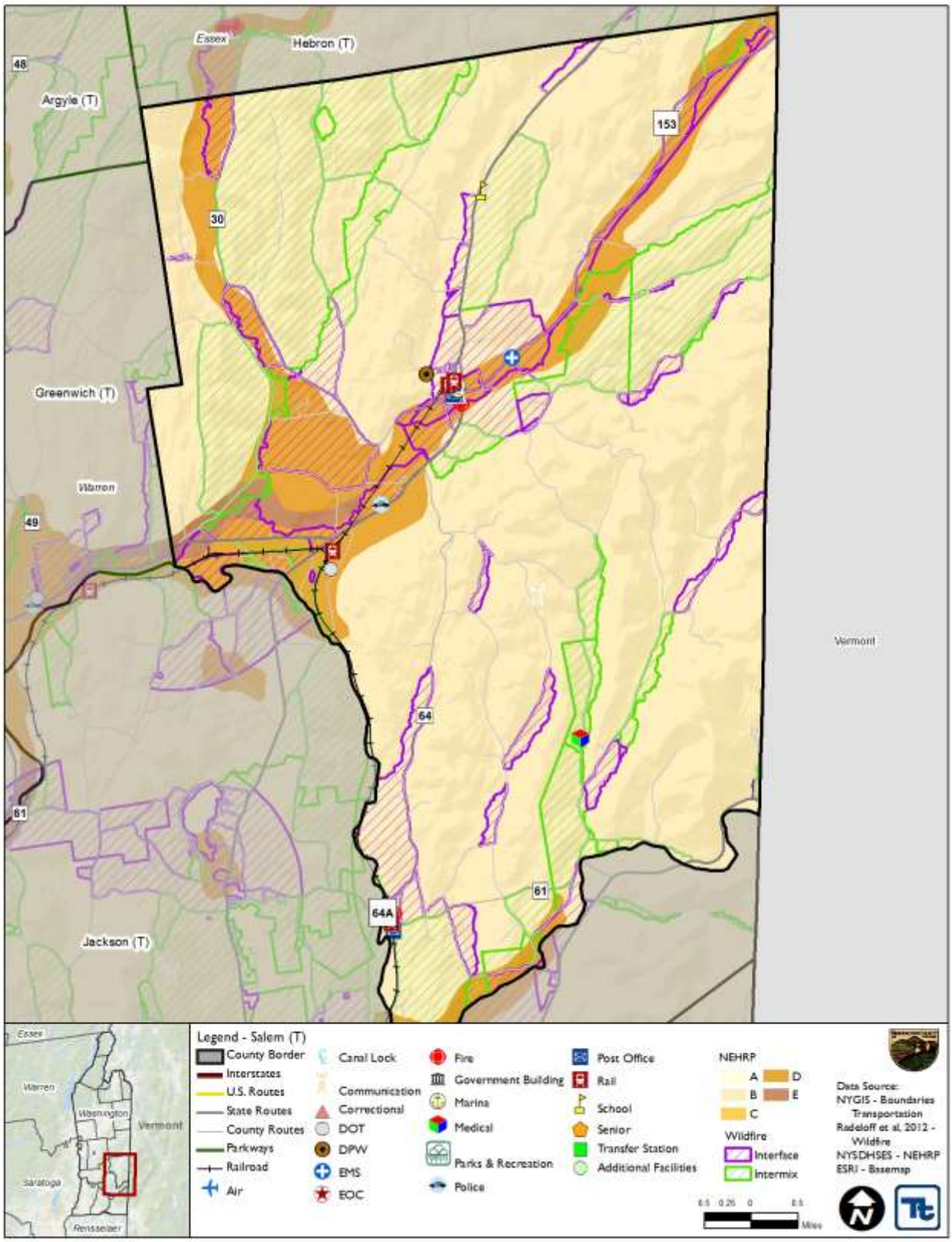
9.23.8 Hazard Area Extent and Location

Hazard area extent and location maps have been generated for the Town of Salem that illustrate the probable areas impacted within the municipality. These maps are based on the best available data at the time of the preparation of this plan, and are considered to be adequate for planning purposes. Maps have only been generated for those hazards that can be clearly identified using mapping techniques and technologies, and for which the Town of Salem has significant exposure. These maps are illustrated in the hazard profiles within Section 5.4, Volume I of this Plan.

9.23.9 Additional Comments

None at this time.

Figure 9.23-1. Town of Salem Hazard Area Extent and Location



Action Number: T. Salem-1

Mitigation Action Name: Deepen channel of White Creek and develop sediment maintenance plan.

Assessing the Risk	
Hazard(s) addressed:	Flood and Severe Storm
Specific problem being mitigated:	Channel of stream has aggraded approximately one to two feet since Irene. This has led to flooding in the area which is impacting homes, businesses, and town infrastructure. Flooded roadways lead to road closures, which can reduce emergency vehicle access.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	Do nothing - current problem continues. Buyout properties exposed to flooding – cost.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Removal of berms along the south bank extending from the end of Park Place to the railroad crossing and deepening the channel from Route 22 bridge through cross section 7117. Some minor bank shaping may be required. It is estimated that approximately 3,000-4,000 cubic yards of material would be removed over the 2,200-foot length of channel. A sediment maintenance plan would need to be established in conjunction with state and federal agencies. This would require additional channel survey work to establish benchmarks associated with levels of aggradation that increase flood vulnerability. This project would protect the area to the 10-year flood level.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	Goal 1: Protect Life and Property Goal 2: Increase Public Awareness Goal 3: Encourage Partnerships Goal 4: Provide for Emergency Services Goal 5: Encourage development and implementation of long-term, cost-effective, and resilient mitigation projects to preserve or restore the functions of natural systems.
Applies to existing and or new development, or not applicable	New and Existing
Benefits (losses avoided)	High
Estimated Cost	Medium
Priority*	High
Plan for Implementation	
Responsible Organization	Town Highway with support from County and NYS DEC
Local Planning Mechanism	Hazard Mitigation
Potential Funding Sources	Municipal Budget, Water Quality Improvement Project Grants, FEMA HMA – HMGP and HMA
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

Action Number: T. Salem-1

Mitigation Action Name: Deepen channel of White Creek and develop sediment maintenance plan.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Protect residents living in the area of this project from flooding
Property Protection	1	Protect structures in the area of this project from flooding
Cost-Effectiveness	1	The costs to implement this project correspond with the benefits achieved
Technical	1	This action is technically feasible
Political	0	
Legal	0	
Fiscal	0	Need to seek funding – municipal budget and grants
Environmental	1	
Social	1	
Administrative	1	The Town has the administrative capabilities to complete the action
Multi-Hazard	1	Flood and Severe Storm
Timeline	1	Once funding is obtained, project will be completed within five years
Agency Champion	1	
Other Community Objectives	0	
Total	10	
Priority (H/M/L)	High	

Action Number: T. Salem-2

Mitigation Action Name: Remove berms on south bank downstream of Salem.

Assessing the Risk	
Hazard(s) addressed:	Flood and Severe Storm
Specific problem being mitigated:	The landowner of Woody Hill Farms placed berms along the river to prevent overflow onto the crop fields to reduce erosion. However, this can create tailwater in small and moderate floods before the berms are overtopped, exacerbating flooding on the west end of the Town.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	Do nothing - current problem continues. Buyout properties exposed to flooding - cost.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Remove berms along the south bank extending from the end of Park Place to the railroad crossing. The project would involve coordination with landowner (Woody Hill Farms) to remove berms along farm fields for approximately 1,200 linear feet. Total volume estimated to be 1,000-1,400 cubic yards. Berms create minor tailwater in small to moderate floods and affects the western edge of the Village. This project would protect the area to the 10-year flood level.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	Goal 1: Protect Life and Property Goal 2: Increase Public Awareness Goal 3: Encourage Partnerships Goal 4: Provide for Emergency Services 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.
Applies to existing and or new development, or not applicable	New and Existing
Benefits (losses avoided)	High
Estimated Cost	Medium
Priority*	High
Plan for Implementation	
Responsible Organization	Town Highway with support from County and NYS DEC
Local Planning Mechanism	Hazard Mitigation
Potential Funding Sources	Natural Resources Conservation Service, Municipal Budget, FEMA HMA – HMGP and HMA
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

Action Number: T. Salem-2

Mitigation Action Name: Remove berms on south bank downstream of Salem.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Protect residents living in the area of this project from flooding
Property Protection	1	Protect structures in the area of this project from flooding
Cost-Effectiveness	1	The costs to implement this project correspond with the benefits achieved
Technical	1	This action is technically feasible
Political	0	
Legal	0	
Fiscal	0	Need to seek funding – municipal budget and grants
Environmental	1	
Social	1	
Administrative	1	The Town has the administrative capabilities to complete the action
Multi-Hazard	1	Flood and Severe Storm
Timeline	1	Once funding is obtained, project will be completed within five years
Agency Champion	1	
Other Community Objectives	0	
Total	10	
Priority (H/M/L)	High	

Action Number: T. Salem-3

Mitigation Action Name: Bank cut on north bank in-between Route 22 and Archibald Street.

Assessing the Risk	
Hazard(s) addressed:	Flood, Severe Storm
Specific problem being mitigated:	The current flood benches are located below the predicted two-year flow elevation; the channel of White Creek in the area of Route 22 and Archibald is very narrow, leading to repeat flooding and associated damages in this area of the Town.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	Do nothing - current problem continues Buyout properties exposed to flooding - cost
Action/Project Intended for Implementation	
Description of Selected Action/Project	Remove berm, deepen channel and bank cuts to create flood benches along White Creek. A larger cut is proposed at cross-section 7117 where the channel is currently very narrow and along the berm. While these widths will be above the predicted bankful width for White Creek, it is important to increase the available floodplain given the repeat flood damage through this part of the Town and the current lack of undeveloped floodplain. Bank cuts will require the removal of approximately 90 large trees that are currently along the top of the north bank in between Route 22 and Archibald Street. The design plans will require dense plantings of native trees and fast-growing shrub species along the flood bench and the banks. This would protect the area to the 10-year flood level.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	Goal 1: Protect Life and Property Goal 2: Increase Public Awareness Goal 3: Encourage Partnerships Goal 4: Provide for Emergency Services 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.
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	High
Estimated Cost	Medium
Priority*	High
Plan for Implementation	
Responsible Organization	Town Highway with support from County and NYS DEC
Local Planning Mechanism	Hazard Mitigation
Potential Funding Sources	Natural Resources Conservation Service, Municipal Budget, FEMA HMA – HMGP and FMA
Timeline for Completion	Short Term
Reporting on Progress	

Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

Action Number: T. Salem-3

Mitigation Action Name: Bank cut on north bank in-between Route 22 and Archibald Street.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Protect residents living in the area of this project from flooding
Property Protection	1	Protect structures in the area of this project from flooding
Cost-Effectiveness	1	The costs to implement this project correspond with the benefits achieved
Technical	1	This action is technically feasible
Political	0	
Legal	0	
Fiscal	0	Need to seek funding – municipal budget and grants
Environmental	1	
Social	1	
Administrative	1	The Town has the administrative capabilities to complete the action
Multi-Hazard	1	Flood and Severe Storm
Timeline	1	Once funding is obtained, project will be completed within five years
Agency Champion	1	
Other Community Objectives	0	
Total	10	
Priority (H/M/L)	High	

Action Number: T. Salem-4

Mitigation Action Name: Acquire home on Archibald Street.

Assessing the Risk	
Hazard(s) addressed:	Flood
Specific problem being mitigated:	A home in this part of the Town is prone to flooding and has been damaged repeatedly from flood events.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	Do nothing - current problem continues. Floodproof home – residents still exposed to flooding.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Working with the homeowner, acquire floodprone home on Archibald Street. Once home is acquired, the structure will be demolished and the property will be converted to green space. This project will prevent further losses associated with flooding. This project will protect the area to the 500-year flood level.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	Goal 1: Protect Life and Property Goal 2: Increase Public Awareness Goal 3: Encourage Partnerships Goal 4: Provide for Emergency Services 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.
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	High
Estimated Cost	High
Priority*	High
Plan for Implementation	
Responsible Organization	Town Board and Planning Board
Local Planning Mechanism	Hazard Mitigation, Floodplain Management
Potential Funding Sources	FEMA HMA – FMA and HMGP, Local Share
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

Action Number: T. Salem-4
Mitigation Action Name: Acquire home on Archibald Street.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	The costs to implement this project correspond with the benefits achieved
Technical	1	This action is technically feasible
Political	1	
Legal	0	
Fiscal	0	Need to seek funding
Environmental	1	No known negative environmental impacts
Social	1	No known negative social impacts
Administrative	1	The Town has the administrative capabilities to complete the action
Multi-Hazard	0	Flood
Timeline	0	
Agency Champion	1	
Other Community Objectives	0	
Total	9	
Priority (H/M/L)	High	

Action Number: T. Salem-5

Mitigation Action Name: Acquire homes along White Creek.

Assessing the Risk	
Hazard(s) addressed:	Flood
Specific problem being mitigated:	Homes in this part of the Town is prone to flooding and have been damaged repeatedly from flood events.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	Do nothing - current problem continues. Floodproof homes – residents still exposed to flooding.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Working with homeowners, acquire floodprone homes located along White Creek in the Town. Once homes are acquired, the structures will be demolished and the properties will be converted to green space. This project will prevent further losses associated with flooding. This project will protect the area to the 500-year flood level.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	Goal 1: Protect Life and Property Goal 2: Increase Public Awareness Goal 3: Encourage Partnerships Goal 4: Provide for Emergency Services 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.
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	High
Estimated Cost	High
Priority*	High
Plan for Implementation	
Responsible Organization	Town Board and Planning Board
Local Planning Mechanism	Hazard Mitigation, Floodplain Management
Potential Funding Sources	FEMA HMA – FMA and HMGP, Local Share
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

Action Number: T. Salem-5
Mitigation Action Name: Acquire homes along White Creek.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	The costs to implement this project correspond with the benefits achieved
Technical	1	This action is technically feasible
Political	1	
Legal	0	
Fiscal	0	Need to seek funding
Environmental	1	No known negative environmental impacts
Social	1	No known negative social impacts
Administrative	1	The Town has the administrative capabilities to complete the action
Multi-Hazard	0	Flood
Timeline	0	
Agency Champion	1	
Other Community Objectives	0	
Total	9	
Priority (H/M/L)	High	

Action Number: T. Salem-6

Mitigation Action Name: Remove Archibald Street bridge and the north abutment.

Assessing the Risk	
Hazard(s) addressed:	Flood, Severe Storm
Specific problem being mitigated:	The bridge is currently a significant obstruction to flows at or above the 2-year event. Tailwater from the constricted channel increases water surface elevation upstream to the Route 22 bridge in large events.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	Do nothing - current problem continues. Relocate bridge – costly. Close this section of Town – not feasible – losses to community and businesses.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Remove the Archibald Street bridge and the north abutment along White Creek to increase channel width and capacity. It is predicted that by doing so, water surface elevations for the 10-year flood will drop one to 1.5 feet during moderate floods. This would significantly decrease the number of vulnerable homes along Archibald Street, Nichols Street, and Park Place during moderate storm events. Additionally, removing the downstream berms will further reduce water surface elevations through the farm fields and allow the 10-year storm to pass through the railroad bridge below the low chord. This would protect the area to the 10-year flood level.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	Goal 1: Protect Life and Property Goal 2: Increase Public Awareness Goal 3: Encourage Partnerships Goal 4: Provide for Emergency Services 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.
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	High
Estimated Cost	Medium
Priority*	High
Plan for Implementation	
Responsible Organization	Town Highway with support from County and NYS DEC
Local Planning Mechanism	Hazard Mitigation
Potential Funding Sources	Natural Resources Conservation Service, Municipal Budget, FEMA HMA – HMGP and FMA
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

Action Number: T. Salem-6

Mitigation Action Name: Remove Archibald Street bridge and the north abutment.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Protect residents living in the area of the bridge from flooding
Property Protection	1	Protect structures in the area of the bridge from flooding
Cost-Effectiveness	1	The costs to implement this project correspond with the benefits achieved
Technical	1	This action is technically feasible
Political	0	
Legal	0	
Fiscal	0	Need to seek funding – municipal budget and grants
Environmental	1	
Social	1	
Administrative	1	The Town has the administrative capabilities to complete the action
Multi-Hazard	1	Flood and Severe Storm
Timeline	1	Once funding is obtained, project will be completed within five years
Agency Champion	1	
Other Community Objectives	0	
Total	10	
Priority (H/M/L)	High	

9.24 TOWN OF WHITE CREEK

This section presents the jurisdictional annex for the Town of White Creek.

9.24.1 Hazard Mitigation Plan Point of Contact

The following individuals have been identified as the hazard mitigation plan's primary and alternate points of contact.

Primary Point of Contact	Alternate Point of Contact
Robert Shay, Town Supervisor 28 Mountainview Drive, Cambridge, NY 518-677-8545 townofwhitecreek@gmail.com	Chris Rieben, Town Highway Superintendent 28 Mountainview Drive, Cambridge, NY 518-677-3223

9.24.2 Municipal Profile

The Town of White Creek is in southeastern Washington County, sharing its east town border with the state line of Vermont, and its southern border with the Town of Hoosick, Rensselear County, NY. The Hoosic River also defines part of the south town line. White Creek is made up of mostly farms, fields, small residences, and forest land. Part of the Village of Cambridge is within the town in the northeastern corner. The White Creek National Historic District is a cluster of about 20-30 homes located on Route 68 and Niles Road in the southeastern portion of town.

The town has a total area of 55 square miles of which 0.1 square miles is water. Significant waterways in the town include the Hoosic River and its tributaries Owl Kill, Center White Creek, Little White Creek, Pumpkin Hook Creek, and White Creek.

According to the 2010 Census, the community's population was 3,356.

Growth/Development Trends

The Town of White Creek did not note any recent residential/commercial development since 2010 or any major residential or commercial development, or major infrastructure development planned for the next five years in the municipality.

Table 9.24-1. Growth and Development

Property or Development Name	Type (e.g. Res., Comm.)	# of Units / Structures	Location (address and/or Parcel ID)	Known Hazard Zone(s)	Description/Status of Development
Recent Development from 2010 to present					
None identified by the municipality.					
Known or Anticipated Development in the Next Five (5) Years					
None identified by the municipality.					

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

9.24.3 Natural Hazard Event History Specific to the Municipality

Washington County has a history of natural and non-natural hazard events as detailed in Volume I, Section 5.0 of this plan. 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. For the purpose of this plan update, events that have occurred in the County from 2008 to present were summarized to indicate the range and

impact of hazard events in the community. Information regarding specific damages is included, if available, based on reference material or local sources. This information is presented in the table below. For details of these and additional events, refer to Volume I, Section 5.0 of this plan.

Table 9.24-2. Hazard Event History

Dates of Event	Event Type (FEMA Disaster Declaration if applicable)	Washington County Designated?	Summary of Damages/Losses
January 15-16, 2007	Ice Storm/Blizzard	N/A	While the municipality indicated they were impacted by this event, losses and/or damages were minimal.
Sept. 2008	Hurricane Hanna	N/A	While the municipality indicated they were impacted by this event, losses and/or damages were minimal.
October 27-November 8, 2012	Hurricane/T.S. Sandy EM-3351	Yes	Yes. Flooding at Lincoln Hill (south of Shaker Hollow). The Town ditched the problem area, and lined it with rock after Hurricane Sandy, and haven't had trouble since.

Notes:

EM *Emergency Declaration (FEMA)*

FEMA *Federal Emergency Management Agency*

DR *Major Disaster Declaration (FEMA)*

9.24.4 Hazard Vulnerabilities and Ranking

The hazard profiles in Section 5.0 of this plan have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes the hazard vulnerabilities and their ranking in the Town of White Creek. For additional vulnerability information relevant to this jurisdiction, refer to Section 5.0.

Natural Hazard Risk/Vulnerability Risk Ranking

As discussed in Section 5.3 (Hazard Ranking), each participating town or village may have differing degrees of risk exposure and vulnerability compared to Washington County as a whole. Therefore, each municipality 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 White Creek. Table 9.24-12 provides proposed mitigation initiatives for the high ranked hazards.

Table 9.24-3. Hazard Risk/Vulnerability Risk Ranking

Hazard type	Estimate of Potential Dollar Losses to Structures Vulnerable to the Hazard [a, c]	Probability of Occurrence	Risk Ranking Score (Probability x Impact)	Hazard Ranking [b]
Earthquake	100-Year GBS: $0 500-Year GBS: $5,588,603 2,500-Year GBS: $51,707,739	Occasional	28	Medium
Flood	Damage estimate not available.	Frequent	33	High
Severe Weather	100-Year MRP: $383 500-year MRP: $7,962 Annualized: $45	Frequent	48	High
Severe Winter Weather	1% GBS: $4,669,031 5% GBS: $23,345,153	Frequent	51	High
Wildfire	Estimated Value in the WUI Hazard Areas: $224,967,905	Frequent	48	High

Notes:

a. Building damage ratio estimates based on FEMA 386-2 (August 2001)

b. The valuation of general building stock and loss estimates was based on custom inventory for the municipality.
High = Total hazard priority risk ranking score of 31 and above
Medium = Total hazard priority risk ranking of 20-30+
Low = Total hazard risk ranking below 20

c. Loss estimates for the severe storm and severe winter storm hazards are structural values only and do not include the value of contents.

d Loss estimates for the flood and earthquake hazards represent both structure and contents.

e. The HAZUS-MH earthquake model results are reported by Census Tract.

f. Damage estimate for flood unavailable due to lack of digital floodplain data for Washington County.

National Flood Insurance Program (NFIP) Summary

The following table summarizes the NFIP statistics for the Town of White Creek.

Table 9.24-4. NFIP Summary

Municipality	# Policies [a]	# Claims (Losses) [a]	Total Loss Payments [b]	# Repetitive Loss Prop. [a]	# Severe Rep. Loss Prop. [a]
Cambridge (T)	8	5	$31,870	0	0

Source: FEMA, 2016
Note (1) Policies, claims, repetitive loss and severe repetitive loss statistics provided by FEMA and are current as of April 30, 2016 and are summarized by Community Name. Please note the total number of repetitive loss properties excludes the severe repetitive loss properties. The number of claims represents claims closed by 4/30/2016.
Note (2) Total building and content losses from the claims file provided by FEMA Region 2.
Note (3) The policies inside and outside of the flood zones are unavailable due to lack of digital floodplain for Washington County.
Note (4) FEMA noted that where there is more than one entry for a property, there may be more than one policy in force or more than one GIS possibility.

Critical Facilities

At the time of this HMP Update, digitized flood maps for Washington County are unavailable. In order to provide some level of beneficial analysis, a desktop analysis was performed to identify critical facilities located within the floodplain (refer to Section 5.1 [Methodology and Tools] for details). The following table identifies critical facilities located within the municipality and their exposure, if any, to the possible floodplain. This information is a resource for the municipality to determine if flood mitigation actions are appropriate based on historical events and proximity of the facility to a water body. At the time of this 2018 HMP Update, the municipality did not identify any actions associated with these facilities.

The Town of White Creek understands the limitation of the map data and once the updated maps are available, the municipality will work with Washington County to determine which critical facilities are located within the 1% and 0.2% annual chance flood zones. Once identified, the municipality will work with the property owners and develop mitigation actions for each of the critical facilities, ensuring they will be protected to the 500-year (or worst-case scenario) level.

Table 9.24-5. Potential Flood Losses to Critical Facilities

Name	Type	Potential Flood Exposure
White Creek Highway Dept	Highway	X
Cambridge Industrial/Water Tower/Nextel	Communication Tower	X

Source: Washington County; NYS GIS Clearinghouse

Other Vulnerabilities Identified

The municipality has identified the following vulnerabilities within their community:

- Flood problem areas on Rt 22.
    - One area along White Creek near Rt 22 has been repetitively flooded. The town has no road system in the area, and therefor has nothing to do with repairs, but the residents might be interested in mitigation.
    - Flooding on Rt 22 at Cold Spring Ln. (close to the White Creek, east of Owl Kill)
    - Rockside Drive (along the White Creek) down through Rt 22
- Other chronic problem areas
    - Stage Road at River Road – washouts occur with heavy rains. Needs a bigger culvert to drain toward the river.
    - Stage Road at Dinny Road – The whole hill coming down Stage Road brings a lot of runoff. Culverts here still need improvement.
    - Bonestab Lane – Culvert/tube washes out frequently.
    - Lincoln Hill (south of Shaker Hollow) – The Town ditched the problem area, and lined it with rock after Hurricane Sandy, and haven't had trouble since. However, the Town hasn't seen the type of heavy rain that they did with Irene or Sandy since then, so this could still be a problem area. A bigger tube/culvert is needed to reduce risk of future flooding.
    - Lincoln Hill Road (near Hunt Lane, ½ mile south) – A bigger culvert/tube is needed here. The Town would need to work with private land owners to solve the problem.
    - Meeting House Road – 400 feet washed out. Town is in process of completing a project to install 2 5' culverts, funded by the town budget.
    - State Line Road – ¼ mile section washed out – Washouts are repaired after each event, but could washout again anytime. The area above the problem is all private land, which keeps the Town from doing any mitigation work. This stretch of road runs into Rensellear County, and has railroad crossings. The Town will continue to patch this section back together with each new storm.
    - Shaker Hollow Road (near Lincoln Hill) – Flooding here depends on how much water and debris comes down to plug the culvert tubes. Town expects regular overtopping to continue here.
    - Ashgrove Road (also County Route 67) – Man-made dam on White Creek overflows and threatens 4 houses. Another house is under construction in this area. If that concrete dam lets go, houses would be in trouble.
    - McKie Hollow Road – Flooding here depends on how much water and debris comes down to plug the culvert tubes. Town expects regular overtopping to continue here.
    - Bates Road – ¼ - ½ mile, culvert is too small and needs replacing, but the Town would need to work on private property in order to mitigate flooding here.

- No identified floodplain administrator; while the County performs code enforcement for the Town, they do not assume the position of floodplain administrator.

- There is a lot of state land in the region, including the Town of White Creek, which may be a fire hazard during major droughts. If there is a fire on Mount Tom, the Town of White Creek and Village of Cambridge are in trouble.

- Some of the farmers are losing fields to meandering creek banks or erosion. The town can't tell them what to do with their own property to mitigate future losses.

- DEC is one of the biggest problems with flooding. Farmers and residents can't easily get in to clean out a stream if a tree falls across. So, then the storm comes and the tree or debris flows into the culverts.

- Private property owners need to do a better job of cleaning out the debris in streams on their properties. Talk to insurance companies to see if they will drop the rate on that property if the owners will allow the town access to cleaning out the debris from streams or drainage ditches.

- Municipal boards need to be educated, perhaps by the county, about the facts that they are responsible and liable for housing/sheltering displaced citizens, to keep roads open at all costs (open or replace within 24 hours), etc. Town supervisors are mostly aware of these things, but not board members. All board members need to be NIMS qualified, as do all highway department members.

- Could identify arborists from neighboring communities, even in VT, who could come in during an ice storm.

- National grid serves this area – homeowners and municipal officials call the same 800 number. It would be great to have a direct contact. Even though the 800 number seems to work. Or the Town will call up to the county OEM dispatcher and they'll get a hold of NYSEG or Nation Grid and report problems. But National Grid will NOT come out to take down a tree before the storm.

- The equipment required to excavate drainage ditches and roadways to increase culvert pipe size is not available for local municipal use unless it is contracted. Local highway departments have the expertise to do the work, but not the equipment. Currently, the County rents excavators during the summer. The Town of White Creek could use an excavator and/or a big chipper, and could share the equipment with another town. Maybe Cambridge and White Creek could go in together for a big excavator, or a big chipper. Town of Cambridge, Kingsbury, and Greenwich have smaller excavators. White Creek could use a 10,000-20,000-lb. machine to have for a shared service program across a few towns.

- Cambridge Central School could use some additional resources to be a shelter.

9.24.5 Capability Assessment

This section identifies the following capabilities of the local jurisdiction:

- Planning and regulatory capability
- Administrative and technical capability
- Fiscal capability
- Community classification
- National Flood Insurance Program
- Integration of mitigation planning into existing and future planning mechanisms

Planning and Regulatory Capability

The table below summarizes the regulatory tools that are available to the Town of White Creek.

Table 9.24-6. Planning and Regulatory Tools

Tool / Program (code, ordinance, plan)	Do you have this? (Yes/No) If Yes, date of adoption or update	Authority (local, county, state, federal)	Dept. /Agency Responsible	Code Citation and Comments (Code Chapter, name of plan, explanation of authority, etc.)
Planning Capability				
Master Plan	Yes	Local	Town Board	Town of White Creek 2011 Comprehensive Plan
Capital Improvements Plan	No	-	-	-
Floodplain Management / Basin Plan	No	-	-	-
Stormwater Management Plan	No	-	-	-
Open Space Plan	No	-	-	-
Stream Corridor Management Plan	No	-	-	-
Watershed Management or Protection Plan	No	-	-	-
Local Waterfront Revitalization Plan	No	-	-	-
Economic Development Plan	No	-	-	-
Comprehensive Emergency Management Plan	No	-	-	-
Emergency Response/Operations Plan	No	-	-	-
Post-Disaster Recovery Plan	No	-	-	-
Transportation Plan	No	-	-	-
Strategic Recovery Planning Report	No	-	-	-
Other Plans:	No	-	-	-
Regulatory Capability				
Building Code	Yes	State, Local	County CEO	New York State Uniform Fire Prevention and Building Code and State Energy Conservation Construction Code
Zoning Ordinance	No	-	-	-
Subdivision Ordinance	Yes	Local	Planning Board, County Code Enforcement	Local Law #6 Of 1990
NFIP Flood Damage Prevention Ordinance	Yes	Federal, State, Local	Planning Board, County Code Enforcement	
NFIP: Freeboard	Yes	State, Local	Planning Board, County Code Enforcement	State mandated BFE+2 for single and two-family residential construction, BFE+1 for all other construction types
NFIP: Cumulative Substantial	No	-	-	-

Tool / Program (code, ordinance, plan)	Do you have this? (Yes/No) If Yes, date of adoption or update	Authority (local, county, state, federal)	Dept. /Agency Responsible	Code Citation and Comments (Code Chapter, name of plan, explanation of authority, etc.)
Damages				
Growth Management Ordinances	No	-	-	-
Site Plan Review Requirements	Yes	Local	Planning Board	Town of White Creek Site Plan Review, Local Law No. 1 1997
Stormwater Management Ordinance	No	-	-	-
Municipal Separate Storm Sewer System (MS4)	No	-	-	-
Natural Hazard Ordinance	No	-	-	-
Post-Disaster Recovery Ordinance	No	-	-	-
Real Estate Disclosure Requirement	Yes	State	NYS Department of State, Real Estate Agent	NYS mandate, Property Condition Disclosure Act, NY Code - Article 14 §460-467
Other (Special Purpose Ordinances [i.e., sensitive areas, steep slope])	No	-	-	-

Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the Town of White Creek.

Table 9.24-7. Administrative and Technical Capabilities

Resources	Is this in place? (Yes or No)	Department/ Agency/Position
Administrative Capability		
Planning Board	Yes	Planning Board
Mitigation Planning Committee	No	-
Environmental Board/Commission	No	-
Open Space Board/Committee	No	-
Economic Development Commission/Committee	No	-
Maintenance programs to reduce risk	Yes	Highway department operational activities
Mutual aid agreements	Yes	Town has shared service agreements with Cambridge and other towns for help with snow plowing and other services on an as needed basis. The Town also has MOAs with the County for emergency services, code enforcement, and other.
Technical/Staffing Capability		
Planner(s) or engineer(s) with knowledge of land development and land management practices	Yes	Planning Board
Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	No	-
Planners or engineers with an understanding of natural hazards	No	-
NFIP Floodplain Administrator (FPA)	Yes	Supervisor
Surveyor(s)	No	-

Resources	Is this in place? (Yes or No)	Department/ Agency/Position
Personnel skilled or trained in GIS and/or Hazards United States (HAZUS) – Multi-Hazards (MH) applications	No	-
Scientist familiar with natural hazards	No	-
Emergency Manager	No	-
Grant writer(s)	No	-
Staff with expertise or training in benefit/cost analysis	No	-
Professionals trained in conducting damage assessments	No	-

Fiscal Capability

The table below summarizes financial resources available to the Town of White Creek.

Table 9.24-8. 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	No
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	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	No
Open Space Acquisition funding programs	No
Other	No

Community Classifications

The table below summarizes classifications for community program available to the Town of White Creek.

Table 9.24-9. Community Classifications

Program	Do you have this? (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	8B/10	9/24/15
NYSDEC Climate Smart Community	No	-	-
Storm Ready	No	-	-

Program	Do you have this? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Firewise	No	-	-
Disaster/safety programs in/for schools	No	-	-
Organizations with mitigation focus (advocacy group, non-government)	No	-	-
Public education program/outreach (through website, social media)	No	-	-
Public-Private Partnerships	No	-	-

Note:
N/A *Not applicable*
NP *Not participating*
- *Unavailable*

The classifications listed above relate to the community's ability to provide effective services to lessen its vulnerability to the hazards identified. These classifications can be viewed as a gauge of the community's capabilities in all phases of emergency management (preparedness, response, recovery and mitigation) and are used as an underwriting parameter for determining the costs of various forms of insurance. The CRS class applies to flood insurance while the BCEGS and Public Protection classifications apply to standard property insurance. CRS classifications range on a scale of 1 to 10 with class 1 being the best possible classification, and class 10 representing no classification benefit. Firewise classifications include a higher classification when the subject property is located beyond 1000 feet of a creditable fire hydrant and is within 5 road miles of a recognized Fire Station.

Criteria for classification credits are outlined in the following documents:

- The Community Rating System Coordinators Manual
- The Building Code Effectiveness Grading Schedule website at https://www.isomitigation.com/bcegs/
- The ISO Mitigation online ISO's Public Protection website at https://www.isomitigation.com/ppc/
- The National Weather Service Storm Ready website at https://www.weather.gov/stormready/
- The National Firewise Communities website at https://www.nfpa.org/Public-Education/By-topic/Wildfire/Firewise-USA

Self-Assessment of Capability

The table below provides an approximate measure of the Town of White Creek's capability to work in a hazard-mitigation capacity and/or effectively implement hazard mitigation strategies to reduce hazard vulnerabilities.

Table 9.24-10. Self-Assessment Capability for the Municipality

Area	Degree of Hazard Mitigation Capability		
	Limited (If limited, what are your obstacles?)	Moderate	High
Planning and regulatory capability	X – limited staff and funding		
Administrative and technical capability	X – limited staff and funding		

Area	Degree of Hazard Mitigation Capability		
	Limited (If limited, what are your obstacles?)	Moderate	High
Fiscal capability	X – limited staff and funding		
Community political capability	X – limited staff and funding		
Community resiliency capability	X – limited staff and funding		
Capability to integrate mitigation into municipal processes and activities	X – limited staff and funding		

National Flood Insurance Program

NFIP Floodplain Administrator (FPA)

Robert Shay, Supervisor

Flood Vulnerability Summary

The Town maintains informal lists/inventories/knowledge of properties that have been flood damaged, but does not make substantial damage estimates. Residential structures on Rockside Drive were damaged during past flood events, and owners of homes there may be interested in mitigation opportunities.

No Town residents have approached the FPA with interest in mitigation activities, and the FPA is unaware of any ongoing mitigation projects within the town.

Resources

The Flood Damage Prevention Ordinance appoints the Town Supervisor as the FPA. The primary responsibilities of the Town FPA are completing site visits, inspections, and reviewing permits to determine if a development is within the SFHA. There are currently no education or outreach programs to the community regarding flood hazards/risk, and flood risk reduction through NFIP insurance, mitigation, etc.

The Town reports a lack of funding as the barrier to running an effective floodplain management program.

Compliance History

According to the most recent FEMA Community Status Report Book, the Town is in good standing with the NFIP. However, according to information provided by NYS DEC, a compliance audit has not been conducted for the town.

Regulatory

The Town Flood Damage Prevention ordinance meets, but does not exceed the FEMA and State minimum requirements. The Town Planning Board reviews the location of all subdivisions relative to flood potential.

At the time of this plan update, the community is not interested in joining the Community Rating System (CRS) program to reduce flood insurance premiums for their insured.

Integration of Hazard Mitigation into Existing and Future Planning Mechanisms

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 this planning effort, each community was surveyed to obtain a better understanding of their community's progress in plan integration. A summary is provided below. In

addition, the community identified specific integration activities that will be incorporated into municipal procedures.

Planning

Land Use Planning: The Town of White Creek has a Planning Board which reviews all applications for development and considers natural hazard risk areas in their review. Many development activities require additional levels of environmental review, specifically NYS SEQR and Federal NEPA requirements. In 2006, the Town Board commenced a process to develop a Town Comprehensive Plan, for which it received support in data gathering and overall management of the planning process from a volunteer Steering Committee and planning consulting group. The Planning Board consults the Comprehensive Plan to guide their decisions with respect to development in the Town.

Town of White Creek 2011 Comprehensive Plan: The Town of White Creek Town Board adopted a Comprehensive Plan in 2011 to guide the town's efforts in land use planning, development review, the provision of public facilities and services, environmental protection, economic development and land conservation. The plan discusses natural hazard risk areas, like wetlands and floodplains, and identifies land use and regulatory recommendations for managing risks and directing growth. Some of the recommendations included the following:

- To preserve farmland, open space and promote environmentally sustainable residential development, consider establishing a land use law and policy that incorporates the voluntary use of conservation subdivision design for major subdivisions in the existing subdivision law. If used, a minimum of 50% of the land would be permanently preserved open space.
- Use known data, define, and map critical and sensitive environmental areas potentially including wetlands, floodplains, streams, stream corridors (Comprised of floodplains, adjacent slopes, wetlands, soils with a high-water table, hydric vegetation.)
- Enhance protections of stream banks and stream side vegetation when new structures are built. Both the site plan and subdivision laws can be amended to accomplish this. Stream side areas (called riparian areas) are critical wildlife habitats and contribute greatly to the water quality of the stream. White Creek should maintain a natural tree vegetative filter along stream corridors.
- Development on slopes greater than 20% should be carefully planned to avoid erosion.
- Development on slopes greater than 25% should be minimized.
- Consider use of purchases, PDR, or LDR programs to protect certain areas of environmental vulnerability.
- Explore use of solar panels and other alternative energy generators at the Town Hall.
- Enhance capital improvement planning. Consider developing a Continue the Capital Improvements Program (CIP), in addition to the annual Highway Department operating budget, to better plan for all large and capital projects in the Town.
- Consider authorizing the Planning Board to allow for use of shared driveways that connect two or more homes, or alternative driveway surfaces to reduce water impermeability.

Regulatory and Enforcement

Code Enforcement: Washington County provides code enforcement duties and responsibilities to the Town of White Creek.

Construction Codes, Uniform: The building codes are strictly enforced to make new and renovated buildings as prepared as possible for hazard related incidents. The Town complies with New York State Uniform Fire

Prevention and Building Code (the Uniform Code) and the State Energy Conservation Construction Code (the Energy Code).

Flood Damage Prevention: This ordinance promotes the public health, safety, and general welfare of residents and seeks to minimize public and private losses due to flood conditions. It regulates development to promote flood resistant structures and controls the alteration of floodplains to prevent increased vulnerability.

Sewers: The Town abides by the County-wide Sanitary Code, which protects and regulates its sewage collection and treatment facilities as a matter of public health and environmental safety. It seeks to prohibit the introduction of stormwater, surface, or sub-surface waters into sanitary sewers and to control the quantity and quality of wastes in the sewage system.

Town of White Creek Site Plan Review, Local Law No. 1 1997: The Town adopted a site plan law in 1997. It authorizes the Town to review and approve site plans for certain commercial developments to ensure that structures are designed and developed in a way that results in the safe and orderly development of the Town. Specifically, the law provides a means to preserve water and air quality, minimize traffic congestion, ensure access for emergency vehicles, and provide adequate water supple and sanitary means for sewage disposal.

Town of White Creek Subdivision Regulations, Local Law #1, 1993: The Town's Planning Board is tasked with site plan/subdivision review. The Planning Board pays special attention to ensure that developments mitigate the issues associated natural hazards.

Fiscal

Operating Budget: The Town's operating budget contains provisions for expected repairs like snow removal and infrastructure repair after a storm or natural disaster. In February 2016, the Town had a highway fund of $9,848.90.

Capital Improvement Plan/Program: The Town Board regularly passes resolutions to finance necessary infrastructure repairs and improvements, including the 2016 project to repair the Highway Garage.

9.24.6 Mitigation Strategy and Prioritization

This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and prioritization.

Past Mitigation Initiative Status

The following table indicates progress on the community's mitigation strategy identified in the 2010 Plan. It should be noted that during the 2010 planning process, only general, countywide actions were identified for each municipality. The Town of White Creek reviewed the previous actions and selected actions they chose to carry forward as part of this plan update. Previous actions that are now on-going programs and capabilities are indicated as such in the following table and may also be found under 'Capability Assessment' presented previously in this annex.

Table 9.24-11. Status of Previous Mitigation Actions

2010 Mitigation Action	Responsible Party	Status (In progress, No progress, Complete)	Describe Status	Next Step (Include in 2018 HMP or Discontinue)	Describe Next Step
Purchase equipment to provide for local personnel to conduct the drainage improvement.	Highway Department, County, NYS DHSES	No progress	The equipment required to excavate drainage ditches and roadways to increase culvert pipe size is not available for local municipal use unless it is contracted. Local highway departments have the expertise to do the work, but not the equipment. A suggestion was made to purchase with mitigation funding five (5) excavators for Towns with the greatest need.	Include in 2018 HMP Update	Purchase excavator equipment in coordination with the Towns of Easton, Cambridge, White Creek, and Jackson.
Construct pole barn additions to highway department barns where new excavation equipment will be housed.	Highway Department, County, NYS DHSES	No progress	Only necessary if funding for new excavation equipment is acquired.	Include in 2018 HMP Update	Once purchase of new excavator equipment is secured, construct pole barn additions to highway department barn where new excavation equipment will be housed.
Put in for mitigation funding down on the river (by Rt. 22)	Highway Department	Completed	The Town spent $10,000-15,000 on rock shelves, work completed a few years ago.	Discontinue	The project has been completed; therefore, it will not be included in the 2018 HMP Update
CR 68 twin culverts. The waterway opening is theoretically adequate, but the twin structures easily trap debris, obstructing the culverts and topping the road. Propose replacing culvert pipe with concrete box culvert or small bridge; armor banks and shoulders with crushed stone to mitigate damage to road if overtopped in the future.	County	No progress	County project	Discontinue – County project	These culverts are located right above town garage, and are still an issue. The County has not replaced those culverts. Side by side tubes are always a bad idea. Need to keep a single channel open.

Completed Mitigation Initiatives Not Identified in the Previous Mitigation Strategy

The Town of White Creek has identified the following mitigation projects/activities that have also been completed but were not identified in the previous mitigation strategy in the 2010 Plan:

- Town has shared municipal agreements which were established after Irene came through
- River Road – flooding at Buskirk Bridge; 3 washouts, 1996 FEMA funds, 2004 – repair work completed
- Stage Road (south of Oak Hill Road) – washout, 1996, 2000 Winter, and 2004 – repair work completed
- Turnpike Road (south of Center Road) - completed
- Mc Cart Road – tube too small – completed, bigger tube installed
- Quaker Hill Road – 2000 and 2004, ½ mile of road lost – Project completed with bigger tube
- Rice Lane - culvert, road washout 1996 and 2004 – Project completed. Town replaced a few culverts.

Proposed Hazard Mitigation Initiatives for the Plan Update

The Town of White Creek participated in a mitigation action workshop in September, 2016, 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).

Table 9.24-12 summarizes the comprehensive-range of specific mitigation initiatives the Town of White Creek would like to pursue in the future to reduce the effects of hazards. Some of these initiatives may be previous actions carried forward for this plan update. These 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. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table below to further demonstrate the wide-range of activities and mitigation measures selected.

As discussed in Section 6, 14 evaluation/prioritization criteria are used 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 your actions as 'High', 'Medium', or 'Low.' The table below summarizes the evaluation of each mitigation initiative, listed by Action Number.

Table 9.24-13 provides a summary of the prioritization of all proposed mitigation initiatives for the Plan update.

Table 9.24-12. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
T. White Creek-1	Conduct a hydrological study of the flooding that occurs in the area of Route 22. Once the study has been completed, within six months, the Town will identify projects to address the flooding issues.	N/A	Flood, severe storm	1, 4, 5	Town Engineers with support from Washington County	High	High	Local Budget for Study; FEMA PDM, HMGP and FMA grants to address issues	Short Term	High	LPR NSP	PR NR
T. White Creek-2 (previous action)	Purchase one large excavator and one large chipper to provide for local personnel to conduct the drainage improvement and debris management.	N/A	Flood, severe storm	1, 4, 5	Town Highway Department	High	Medium	USDA Community Facilities Grant, State Homeland Security Program	Short Term	Medium	NSP	PR NR
T. White Creek-3 (previous action)	Once purchase of new equipment is secured, construct pole barn additions to highway department barn where new equipment will be housed. The construction of the pole barn will begin once the equipment is ordered.	New	Flood, severe storm	1, 4	Town Highway Department	High	Med	USDA Community Facilities Grant, State Homeland Security Program	Short Term	Medium	SIP	PR ES
T. White Creek-4	Communications – install new phone lines for Highway Department	Existing	All hazards	4	Town Highway Department	Medium	Low	Local Budget	Short Term	Medium	LPR	ES
T. White Creek-5	Install larger tube or box culverts at the following locations. This upgrade will be designed to protect the roadway to a 100-year flood level. - Stage Road at River Road - Stage Road at Dinny Road	Existing	Flood, severe storm	1, 4, 5	Highway Department	High	Medium	FEMA PDM, FMA and HMGP grants, Local Budget	Short Term	High	SIP NSP	PR NR
T. White Creek-6	Install larger tube or box culverts at Bonestab Lane. This upgrade will be designed to protect the roadway to a	Existing	Flood, severe storm	1, 4, 5	Highway Department	High	Medium	FEMA PDM, FMA and HMGP grants, Local	Short Term	High	SIP NSP	PR NR

Table 9.24-12. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
	100-year flood level.							Budget				
T. White Creek-7	Install larger tube or box culverts at the following locations. This upgrade will be designed to protect the roadway to a 100-year flood level. - Lincoln Hill (south of Shaker Hollow) - Lincoln Hill Road (near Hunt Lane, ½ mile south)	Existing	Flood, severe storm	1, 4, 5	Highway Department	High	Medium	FEMA PDM, FMA and HMGP grants, Local Budget	Short Term	High	SIP NSP	PR NR
T. White Creek-8	Evaluate risk associated with man-made dam on White Creek near Ashgrove Road (also County Route 67). Once evaluated, within six months, identify projects to reduce risk, if any.	Existing	Flood, severe storm, earthquake	1, 4, 5	Town Supervisor, Highway Department	High	Low	Local Budget for Study; FEMA PDM, HMGP and FMA grants to address issues	Short Term	Medium	LPR	PR
T. White Creek-9	Equip Cambridge Central School as an emergency shelter. The following will be conducted in order to equip the school: -Conduct a sheltering assessment of the school to evaluate sheltering needs -Complete a memorandum of agreement with Cambridge Central School for sheltering services -Acquire additional supplies and equipment needed to prepare the school for sheltering purposes	N/A	All Hazards	1, 2, 3, 4	Town Board, Planning Board, Cambridge Central School, with support from the County	High	Medium	Staff Time, Municipal Budget, Emergency Shelter Grants Program (HUD)	Short Term	Medium	LPR	PR ES

Notes:

Not all acronyms and abbreviations defined below are included in the table.

**Does this mitigation initiative reduce the effects of hazards on new and/or existing buildings and/or infrastructure? Not applicable (N/A) is inserted if this does not apply.*

Acronyms and Abbreviations: *Potential FEMA HMA Funding Sources:* *Timeline:*

CAV	*Community Assistance Visit*
CRS	*Community Rating System*
DPW	*Department of Public Works*
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*
PDM	*Pre-Disaster Mitigation Grant Program*
RFC	*Repetitive Flood Claims Grant Program (discontinued in 2015)*
SRL	*Severe Repetitive Loss Grant Program (discontinued in 2015)*
Short	*1 to 5 years*
Long Term	*5 years or greater*
OG	*On-going program*
DOF	*Depending on funding*

Costs:

Where actual project costs have been reasonably estimated:

Low	*< $10,000*
Medium	*$10,000 to $100,000*
High	*> $100,000*

Where actual project costs cannot reasonably be established at this time:

Low	*Possible to fund under existing budget. Project is part of, or can be part of an existing on-going program.*
Medium	*Could budget for under existing work plan, but would require a reapportionment of the budget or a budget amendment, or the cost of the project would have to be spread over multiple years.*
High	*Would require an increase in revenue via an alternative source (i.e., bonds, grants, fee increases) to implement. Existing funding levels are not adequate to cover the costs of the proposed project.*

Benefits:

Where possible, an estimate of project benefits (per FEMA's benefit calculation methodology) has been evaluated against the project costs, and is presented as:

Low=	*< $10,000*
Medium	*$10,000 to $100,000*
High	*> $100,000*

Where numerical project benefits cannot reasonably be established at this time:

Low	*Long-term benefits of the project are difficult to quantify in the short term.*
Medium	*Project will have a long-term impact on the reduction of risk exposure to life and property, or project will provide an immediate reduction in the risk exposure to property.*
High	*Project will have an immediate impact on the reduction of risk exposure to life and property.*

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*

Table 9.24-13. Summary of Prioritization of Actions

Mitigation Action / Project Number	Mitigation Action/Initiative	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
T. White Creek-1	Conduct a hydrological study of the flooding condition in the Town of White Creek.	1	1	1	1	1	0	1	1	0	1	1	0	1	0	10	High
T. White Creek-2	Purchase one large excavator and one large chipper to provide for local personnel to conduct the drainage improvement and debris management.	1	1	1	1	1	1	0	0	0	1	1	0	0	0	8	Medium
T. White Creek-3	Once purchase of new equipment is secured, construct pole barn additions to highway department barn where new equipment will be housed.	1	1	1	1	1	1	0	0	0	1	1	0	0	0	8	Medium
T. White Creek-4	Communications – install new phone lines for Highway Department	1	1	1	1	1	1	0	0	1	1	1	0	0	0	9	Medium
T. White Creek-5	Install larger tube or box culverts at the following locations: - Stage Road at River Road - Stage Road at Dinny Road	1	1	1	1	1	0	1	1	0	1	1	0	1	0	10	High
T. White Creek-6	Install larger tube or box culverts at the following locations: Bonestab Lane	1	1	1	1	1	0	1	1	0	1	1	0	1	0	10	High
T. White Creek-7	Install larger tube or box culverts at the following locations: - Lincoln Hill (south of Shaker Hollow) - Lincoln Hill Road (near Hunt Lane, ½ mile south)	1	1	1	1	1	0	1	1	0	1	1	0	1	0	10	High
T. White Creek-8	Evaluate risk associated with man-made dam on White Creek near Ashgrove Road	1	1	1	1	1	1	0	0	1	1	1	0	0	0	9	Medium

Table 9.24-13. Summary of Prioritization of Actions

Mitigation Action / Project Number	Mitigation Action/Initiative	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
	(also County Route 67).																
T. White Creek-9	Equip Cambridge Central School as an emergency shelter.	1	1	1	1	1	1	0	0	1	1	1	0	0	0	9	Medium

Note: Refer to Section 6, which conveys guidance on prioritizing mitigation actions.

9.24.7 Future Needs to Better Understand Risk/Vulnerability

None at this time.

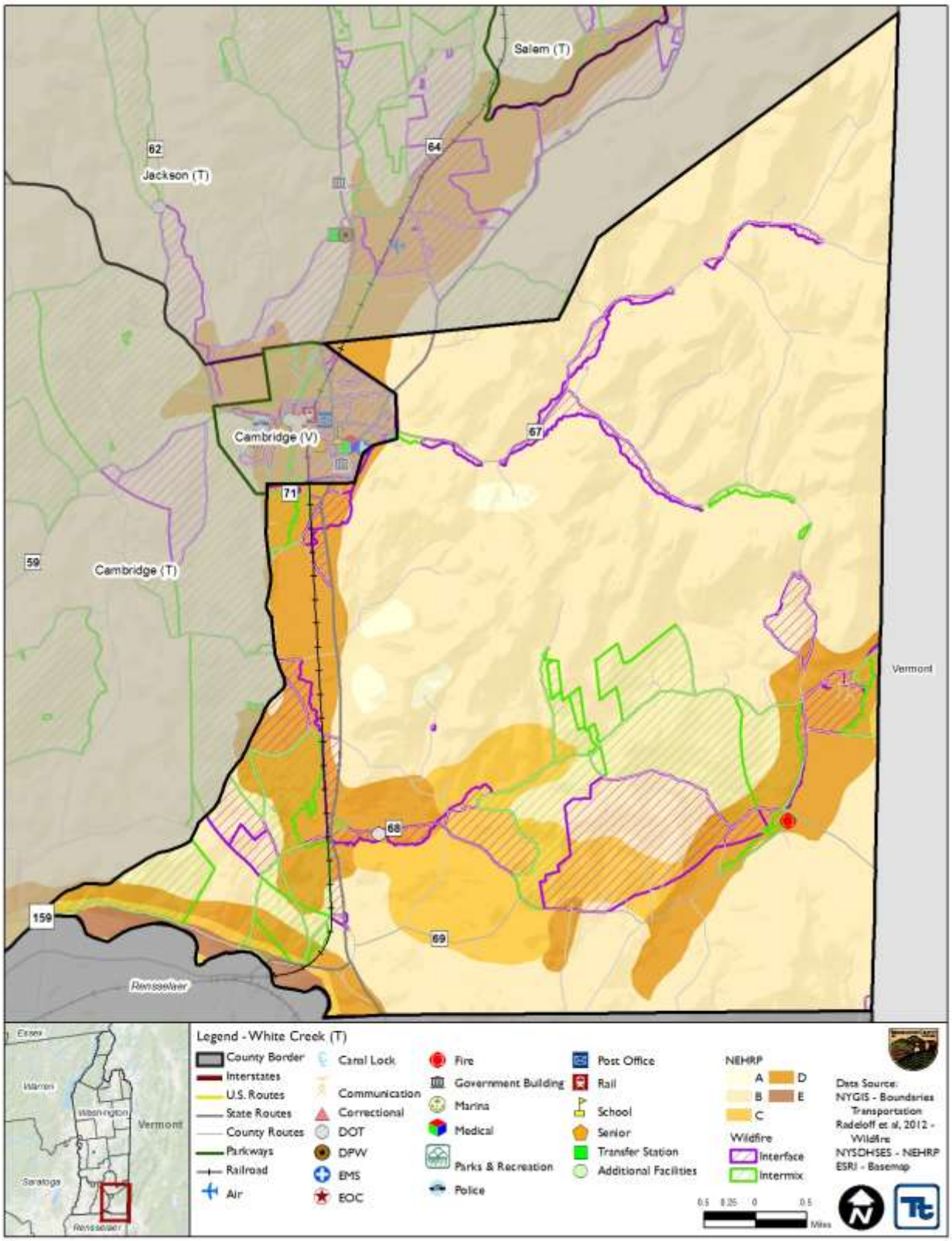
9.24.8 Hazard Area Extent and Location

Hazard area extent and location maps have been generated for the Town of White Creek that illustrate the probable areas impacted within the municipality. These maps are based on the best available data at the time of the preparation of this plan, and are considered to be adequate for planning purposes. Maps have only been generated for those hazards that can be clearly identified using mapping techniques and technologies, and for which the Town of White Creek has significant exposure. These maps are illustrated in the hazard profiles within Section 5.4, Volume I of this Plan.

9.24.9 Additional Comments

None at this time.

Figure 9.24-1. Town of White Creek Hazard Area Extent and Location



Action Number: T. White Creek-1

Mitigation Action Name: Hydrological study of the flooding that occurs in the area of Route 22.

Assessing the Risk	
Hazard(s) addressed:	Flood, severe storm
Specific problem being mitigated:	In the area of White Creek and Route 22, several areas flood repeatedly including Route 22 at Cold Spring Lane and Rockside Drive along White Creek through Route 22. The Town needs a better understanding of why these areas flood and what are options to alleviate or reduce the flooding.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	Do nothing - current problem continues. Conduct hydrological study of entire Town – costly.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Conduct a hydrological study of the flooding that occurs in the area of Route 22. Within six months of completion of the study, the Town will identify projects to address the flooding issues.
Mitigation Action Type	Local Plans and Regulations (LPR) Natural Systems Protection (NSP)
Goals Met	Goal 1: Protect Life and Property Goal 4: Provide for Emergency Services 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.
Applies to existing and or new development, or not applicable	N/A
Benefits (losses avoided)	High
Estimated Cost	High
Priority*	High
Plan for Implementation	
Responsible Organization	Local engineering capabilities are available from the County if funding could support additional staffing.
Local Planning Mechanism	Hazard Mitigation, Floodplain Management
Potential Funding Sources	Local Budget for Study; FEMA PDM, HMGP and FMA grants to address issues
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

Action Number: T. White Creek-1
Mitigation Action Name: Hydrological study of the flooding that occurs in the area of Route 22.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	The costs to implement this project correspond with the benefits achieved
Technical	1	This action is technically feasible
Political	1	
Legal	0	
Fiscal	1	Local Budget for Study; FEMA PDM, HMGP and FMA grants to address issues
Environmental	1	No known negative environmental impacts
Social	0	No known negative social impacts
Administrative	1	The Town has the adminstrative capabilities to complete the action
Multi-Hazard	1	Flood, severe storm
Timeline	0	Once funding is identified, project will take less than five years
Agency Champion	1	
Other Community Objectives	0	
Total	10	
Priority (H/M/L)	**High**	

Action Number: T. White Creek-2

Mitigation Action Name: Purchase one large excavator and one large chipper.

Assessing the Risk	
Hazard(s) addressed:	Flood, severe storm
Specific problem being mitigated:	The Town currently does not have proper equipment to assist with drainage improvements and debris removal throughout the town. When there is a need, the town rents the equipment, which can be costly and is based on the availability of the equipment.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	Do nothing - current problem continues. Share cost and use of excavator and chipper with neighboring municipality – White Creek has too great a need to share with neighboring town.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Purchase one large excavator and one large chipper to provide for Town personnel to conduct the drainage improvement and debris management activities throughout Town.
Mitigation Action Type	Natural Systems Protection (NSP)
Goals Met	Goal 1: Protect Life and Property Goal 4: Provide for Emergency Services 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.
Applies to existing and or new development, or not applicable	N/A
Benefits (losses avoided)	High
Estimated Cost	Medium
Priority*	Medium
Plan for Implementation	
Responsible Organization	Town Highway Department
Local Planning Mechanism	Hazard Mitigation
Potential Funding Sources	USDA Community Facilities Grant, State Homeland Security Program
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

Action Number: T. White Creek-2
Mitigation Action Name: Purchase one large excavator and one large chipper.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	The costs to implement this project correspond with the benefits achieved
Technical	1	This action is technically feasible
Political	1	
Legal	1	
Fiscal	0	Need grant funding
Environmental	0	No known negative environmental impacts
Social	0	No known negative social impacts
Administrative	1	The Town has the administrative capabilities to complete the action
Multi-Hazard	1	Flood, severe storm
Timeline	0	
Agency Champion	0	
Other Community Objectives	0	
Total	8	
Priority (H/M/L)	**Medium**	

Action Number: T. White Creek-3

Mitigation Action Name: Construct pole barn.

Assessing the Risk	
Hazard(s) addressed:	Flood, severe storm
Specific problem being mitigated:	The Town currently does not have proper equipment to assist with drainage improvements throughout the town and debris removal. When there is a need, the town needs to rent the equipment which can be costly and is based on the availability of the equipment. Once the equipment is purchased, the town will need proper storage facility to house the equipment.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	Do nothing - current problem continues. Have new equipment stored in neighboring town facilities – not reasonable if not sharing equipment.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Once purchase of new equipment is secured, construct pole barn additions to highway department barn where new equipment will be housed to maintain integrity of equipment. The construction of the pole barn will begin once the equipment is ordered.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	Goal 1: Protect Life and Property Goal 4: Provide for Emergency Services
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	High
Estimated Cost	Medium
Priority*	Medium
Plan for Implementation	
Responsible Organization	Town Highway Department
Local Planning Mechanism	Hazard Mitigation
Potential Funding Sources	USDA Community Facilities Grant, State Homeland Security Program
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

Action Number: T. White Creek-3
Mitigation Action Name: Construct pole barn.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	The costs to implement this project correspond with the benefits achieved
Technical	1	This action is technically feasible
Political	1	
Legal	1	
Fiscal	0	
Environmental	0	No known negative environmental impacts
Social	0	No known negative social impacts
Administrative	1	The Town has the administrative capabilities to complete the action
Multi-Hazard	1	
Timeline	0	
Agency Champion	0	
Other Community Objectives	0	
Total	8	
Priority (H/M/L)	**Medium**	

Action Number: T. White Creek-4

Mitigation Action Name: Communications.

Assessing the Risk	
Hazard(s) addressed:	All hazards
Specific problem being mitigated:	The Highway Department's phone line system is outdated and needs to be upgraded. It is not reliable during emergency events or disasters. Without properly working system, the department cannot be reached when needed.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	Do nothing - current problem continues. Use only cell phones – Cell lines may be unreliable, costly.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Upgrade communications system through the installation of new phone lines for Highway Department.
Mitigation Action Type	Local Plans and Regulations (LPR)
Goals Met	Goal 4: Provide for Emergency Services
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	Medium
Estimated Cost	Low
Priority*	Medium
Plan for Implementation	
Responsible Organization	Highway Department
Local Planning Mechanism	Hazard Mitigation
Potential Funding Sources	Local Budget
Timeline for Completion	Short
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

Action Number: T. White Creek-4
Mitigation Action Name: Communications.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	The costs to implement this project correspond with the benefits achieved
Technical	1	This action is technically feasible
Political	1	
Legal	1	
Fiscal	0	
Environmental	0	No known negative environmental impacts
Social	1	No known negative social impacts
Administrative	1	The Town has the administrative capabilities to complete the action
Multi-Hazard	1	All hazards
Timeline	0	
Agency Champion	0	
Other Community Objectives	0	
Total	9	
Priority (H/M/L)	**Medium**	

Action Number: T. White Creek-5

Mitigation Action Name: Install larger tube or box culverts at Stage Road.

Assessing the Risk	
Hazard(s) addressed:	Flood, severe storm
Specific problem being mitigated:	Inadequate sized culverts in Town. In the Stage Road area at the intersection with River Road, washouts occur with heavy rains due to undersized culverts. At the intersection with Dinny Road, the entire hill coming down State Road brings a lot of runoff and leads to roadway flooding. This prevents full access to the road and emergency personnel cannot get through during periods of heavy rain.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	Do nothing - current problem continues. Move roadways and buyout properties exposed to flooding – not feasible/cost.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Install larger tube or box culverts at the following locations: 1) Stage Road at River Road. 2) Stage Road at Dinny Road. This upgrade will be designed to protect the roadway to a 100-year flood level.
Mitigation Action Type	Structure and Infrastructure Project (SIP) Natural Systems Protection (NSP)
Goals Met	Goal 1: Protect Life and Property Goal 4: Provide for Emergency Services 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.
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	High
Estimated Cost	Medium
Priority*	High
Plan for Implementation	
Responsible Organization	Highway Department
Local Planning Mechanism	Hazard Mitigation
Potential Funding Sources	FEMA PDM, FMA and HMGP grants, Local Budget
Timeline for Completion	Short
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

Action Number: T. White Creek-5
Mitigation Action Name: Install larger tube or box culverts at Stage Road.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	The costs to implement this project correspond with the benefits achieved
Technical	1	This action is technically feasible
Political	1	
Legal	0	
Fiscal	1	
Environmental	1	No known negative environmental impacts
Social	0	No known negative social impacts
Administrative	1	The Town has the administrative capabilities to complete the action
Multi-Hazard	1	Flood, severe storm
Timeline	0	
Agency Champion	1	
Other Community Objectives	0	
Total	10	
Priority (H/M/L)	**High**	

Action Number: T. White Creek-6

Mitigation Action Name: Install larger tube or box culverts at Bonestab Lane.

Assessing the Risk	
Hazard(s) addressed:	Flood, severe storm
Specific problem being mitigated:	Inadequate sized culverts in Town. At Bonestab Road, the culvert/tube washes out frequently and leads to road closures. This restricts access to this area of the town and can impact emergency personnel from reaching residents in this area.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	Do nothing - current problem continues. Move roadways and buyout properties exposed to flooding – not feasible/cost.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Install larger tube or box culverts at Bonestab Lane. This upgrade will be designed to protect the roadway to a 100-year flood level.
Mitigation Action Type	Structure and Infrastructure Project (SIP) Natural Systems Protection (NSP)
Goals Met	Goal 1: Protect Life and Property Goal 4: Provide for Emergency Services 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.
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	High
Estimated Cost	Medium
Priority*	High
Plan for Implementation	
Responsible Organization	Highway Department
Local Planning Mechanism	Hazard Mitigation
Potential Funding Sources	FEMA PDM, FMA and HMGP grants, Local Budget
Timeline for Completion	Short
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

Action Number: T. White Creek-6
Mitigation Action Name: Install larger tube or box culverts at Bonestab Lane.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Allows emergency personnel full access to this part of town during periods of heavy rain and flooding
Property Protection	1	
Cost-Effectiveness	1	The costs to implement this project correspond with the benefits achieved
Technical	1	This action is technically feasible
Political	1	
Legal	0	
Fiscal	1	
Environmental	1	No known negative environmental impacts
Social	0	No known negative social impacts
Administrative	1	The Town has the administrative capabilities to complete the action
Multi-Hazard	1	Flood, severe storm
Timeline	0	
Agency Champion	1	
Other Community Objectives	0	
Total	10	
Priority (H/M/L)	**High**	

Action Number: T. White Creek-7

Mitigation Action Name: Install larger tube or box culverts at Lincoln Hill Road.

Assessing the Risk	
Hazard(s) addressed:	Flood, severe storm
Specific problem being mitigated:	Inadequate sized culverts in Town – in the Lincoln Hill Road area, south of Shaker Hollow, the Town ditched the problem area and lined it with rock; however, there has not been a significant rain event to test the repairs and it is unknown if the repairs alleviated the problem. Also along Lincoln Hill Road near Hunt Lane, this area floods due to undersized culverts. Flooding of roadways prevents full access to the road and limits the capability of emergency personnel in the event of an emergency.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	Do nothing - current problem continues. Move roadways and buyout properties exposed to flooding – not feasible/cost.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Install larger tube or box culverts at the following locations: 1) Lincoln Hill (south of Shaker Hollow). 2) Lincoln Hill Road (near Hunt Lane, ½ mile south). This upgrade will be designed to protect the roadway to a 100-year flood level.
Mitigation Action Type	Structure and Infrastructure Project (SIP) Natural Systems Protection (NSP)
Goals Met	Goal 1: Protect Life and Property Goal 4: Provide for Emergency Services 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.
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	High
Estimated Cost	Medium
Priority*	High
Plan for Implementation	
Responsible Organization	Highway Department
Local Planning Mechanism	Hazard Mitigation
Potential Funding Sources	FEMA PDM, FMA and HMGP grants, Local Budget
Timeline for Completion	Short
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

Action Number: T. White Creek-7
Mitigation Action Name: Install larger tube or box culverts at Lincoln Hill Road.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Allows emergency personnel full access to this part of town during periods of heavy rain and flooding
Property Protection	1	
Cost-Effectiveness	1	The costs to implement this project correspond with the benefits achieved
Technical	1	This action is technically feasible
Political	1	
Legal	0	
Fiscal	1	
Environmental	1	No known negative environmental impacts
Social	0	No known negative social impacts
Administrative	1	The Town has the administrative capabilities to complete the action
Multi-Hazard	1	Flood, severe storm
Timeline	0	
Agency Champion	1	
Other Community Objectives	0	
Total	10	
Priority (H/M/L)	**High**	

Action Number: T. White Creek-8

Mitigation Action Name: Evaluate risk associated with man-made dam on White Creek.

Assessing the Risk	
Hazard(s) addressed:	Flood, severe storm, earthquake
Specific problem being mitigated:	Man-made dam on White Creek overflows near Ashgrove Road (also County Route 67). and threatens four houses. Another house is under construction in this area. If the concrete dam fails, houses are at risk of being destroyed.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	Do nothing - current problem continues. Buyout 4 residences exposed to dam failure – costly; homeowners may not want to move.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Evaluate risk associated with man-made dam on White Creek. Once evaluated, within six months, identify projects to reduce risk, if any.
Mitigation Action Type	Local Plans and Regulations (LPR)
Goals Met	Goal 1: Protect Life and Property Goal 4: Provide for Emergency Services 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.
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	High
Estimated Cost	Low
Priority*	Medium
Plan for Implementation	
Responsible Organization	Town Supervisor, Town Highway Department
Local Planning Mechanism	Hazard Mitigation
Potential Funding Sources	Local Budget for Study; FEMA PDM, HMGP and FMA grants to address issues
Timeline for Completion	Short
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

Action Number: T. White Creek-8
Mitigation Action Name: Evaluate risk associated with man-made dam on White Creek.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Reduce damages or losses to the homes in the area of the dam
Property Protection	1	
Cost-Effectiveness	1	The costs to implement this project correspond with the benefits achieved
Technical	1	This action is technically feasible
Political	1	
Legal	1	
Fiscal	0	
Environmental	0	No known negative environmental impacts
Social	1	No known negative social impacts
Administrative	1	The Town has the administrative capabilities to complete the action
Multi-Hazard	1	Flood, severe storm, earthquake
Timeline	0	
Agency Champion	0	
Other Community Objectives	0	
Total	9	
Priority (H/M/L)	**Medium**	

Action Number: T. White Creek-8

Mitigation Action Name: Equip Cambridge Central School as an emergency shelter.

Assessing the Risk	
Hazard(s) addressed:	All Hazards
Specific problem being mitigated:	The school is identified as a shelter but not properly equipped. There is a need for an assessment on the school to determine what is needed to outfit the school to be a proper shelter for the town.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	Do nothing - current problem continues. Enter MOA with neighboring communities for shelter – may not be space, not reasonable to ask residents to travel to neighboring towns in emergency situations.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Equip Cambridge Central School as an emergency shelter. The following will be conducted in order to equip the school: 1) Conduct a sheltering assessment of the school to evaluate sheltering needs. 2) Complete a memorandum of agreement with Cambridge Central School for sheltering services. 3) Acquire additional supplies and equipment needed to prepare the school for sheltering purposes.
Mitigation Action Type	Local Plans and Regulations (LPR)
Goals Met	Goal 1: Protect Life and Property Goal 2: Increase Public Awareness Goal 3: Encourage Partnerships Goal 4: Provide for Emergency Services
Applies to existing and or new development, or not applicable	N/A
Benefits (losses avoided)	High
Estimated Cost	Medium
Priority*	Medium
Plan for Implementation	
Responsible Organization	Town Board, Planning Board, Cambridge Central School, with support from the County
Local Planning Mechanism	Hazard Mitigation
Potential Funding Sources	Staff Time, Municipal Budget, Emergency Shelter Grants Program (HUD)
Timeline for Completion	Short
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

Action Number: T. White Creek-7
Mitigation Action Name: Equip Cambridge Central School as an emergency shelter.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Provide a place of refuge in the event of evacuations in the town
Property Protection	1	
Cost-Effectiveness	1	The costs to implement this project correspond with the benefits achieved
Technical	1	This action is technically feasible
Political	1	
Legal	1	
Fiscal	0	
Environmental	0	
Social	1	
Administrative	1	The Town has the administrative capabilities to complete the action
Multi-Hazard	1	All Hazards
Timeline	0	
Agency Champion	0	
Other Community Objectives	0	
Total	9	
Priority (H/M/L)	**Medium**	

9.25 TOWN OF WHITEHALL

This section presents the jurisdictional annex for the Town of Whitehall.

9.25.1 Hazard Mitigation Plan Point of Contact

The following individuals have been identified as the hazard mitigation plan's primary and alternate points of contact.

Primary Point of Contact	Alternate Point of Contact
George Armstrong – Town Supervisor 57 Skenesborough Dr, Whitehall, NY	Louis Pratt – Highway Supervisor 57 Skenesborough Dr, Whitehall, NY Phone: 518-499-1535

9.25.2 Municipal Profile

The Town of Whitehall is located in the northern region of Washington County. The Town is bordered to the north by the Village of Whitehall and the State of Vermont, to the east by the Town of Hampton, to the south by the Towns of Fort Ann and Granville, and to the west by the Town of Fort Ann. The following hamlets are found in the Town: East Whitehall and Grays Corner. Brown Pond, Mettawee River, and Wood Creek are major bodies of water found throughout the Town. Whitehall is described as being the birthplace of the United States Navy during the Revolutionary War.

The Town has a total area of 58.8 square miles, of which, 57.6 square miles is land and 1.1 square miles is water. According to the 2010 Census, the community's population was 4,035 (inclusive of the Village of Whitehall). The Town is governed by the Town Board consisting of the board members and the town supervisor.

Growth/Development Trends

The following table summarizes recent residential/commercial development since 2010 to present and any known or anticipated major residential/commercial development and major infrastructure development that has been identified in the next five years within the municipality.

Table 9.25-1. Growth and Development

Property or Development Name	Type (e.g. Res., Comm.)	# of Units / Structures	Location (address and/or Parcel ID)	Known Hazard Zone(s)	Description/Status of Development
Recent Development from 2010 to present					
Millett Farm, Cty. Rte. 21	Solar Farm	1	Cty. Rte. 21 = 61.-1-16.1	None	Near Completion
Millett Farm, Cty. Rte. 21	Solar Farm	1	Cty. Rte. 21 = 61.-1-16.2	None	Near Completion
Millett Farm, Cty. Rte. 21	Solar Farm	1	Cty. Rte. 21 = 62.-2-3.6	None	Near Completion
Millett Farm, Cty. Rte. 21	Solar Farm	1	Cty. Rte. 21 = 62.-2-3.7	None	Near Completion
Joe Terry	Solar Farm	1	Greenmount Cemetery Ln. = 60.-3-27	None	Started
RSF Holdings	Solar Farm	1	218 Buckley Rd = 51.-1-28.4	Flooding	Started
Gregory Gross	Golf Course	1	61 Gray Ln. = 69.-2-1.1	Flooding	In progress
Known or Anticipated Development in the Next Five (5) Years					
None identified by the Town.					

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

9.25.3 Natural Hazard Event History Specific to the Municipality

Washington County has a history of natural and non-natural hazard events as detailed in Volume I, Section 5.0 of this plan. 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. For the purpose of this plan update, events that have occurred in the County from 2008 to present were summarized to indicate the range and impact of hazard events in the community. Information regarding specific damages is included, if available, based on reference material or local sources. This information is presented in the table below. For details of these and additional events, refer to Volume I, Section 5.0 of this plan.

Table 9.25-2. Hazard Event History

Dates of Event	Event Type (FEMA Disaster Declaration if applicable)	Washington County Designated?	Summary of Damages/Losses
August 26-September 5, 2011	Hurricane/T.S. Irene DR-4020	Yes	The Town identified that their losses included 8 hours of overtime for debris removal

Notes:

EM *Emergency Declaration (FEMA)*
FEMA *Federal Emergency Management Agency*
DR *Major Disaster Declaration (FEMA)*

9.25.4 Hazard Vulnerabilities and Ranking

The hazard profiles in Section 5.0 of this plan have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes the hazard vulnerabilities and their ranking in the Town of Whitehall. For additional vulnerability information relevant to this jurisdiction, refer to Section 5.0.

Natural Hazard Risk/Vulnerability Risk Ranking

As discussed in Section 5.3 (Hazard Ranking), each participating town or village may have differing degrees of risk exposure and vulnerability compared to Washington County as a whole. Therefore, each municipality 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 Whitehall. Table 9.25-12 provides proposed mitigation initiatives for the high ranked hazards.

Table 9.25-3. Hazard Risk/Vulnerability Risk Ranking

Hazard type	Estimate of Potential Dollar Losses to Structures Vulnerable to the Hazard [a, c]	Probability of Occurrence	Risk Ranking Score (Probability x Impact)	Hazard Ranking [b]
Earthquake	100-Year GBS: $0 500-Year GBS: $6,814,745 2,500-Year GBS: $76,340,720	Occasional	28	Medium
Flood	Damage estimate not available.	Frequent	21	Medium
Severe Weather	100-Year MRP: $384 500-year MRP: $7,963 Annualized: $45	Frequent	48	High
Severe Winter Weather	1% GBS: $2,696,741 5% GBS: $13,483,707	Frequent	51	High
Wildfire	Estimated Value in the WUI Hazard Areas: $231,665,537	Frequent	48	High

Notes:

a. Building damage ratio estimates based on FEMA 386-2 (August 2001)

b. The valuation of general building stock and loss estimates was based on custom inventory for the municipality.
High = Total hazard priority risk ranking score of 31 and above
Medium = Total hazard priority risk ranking of 20-30+
Low = Total hazard risk ranking below 20

c. Loss estimates for the severe storm and severe winter storm hazards are structural values only and do not include the value of contents.

d Loss estimates for the flood and earthquake hazards represent both structure and contents.

e. The HAZUS-MH earthquake model results are reported by Census Tract.

National Flood Insurance Program (NFIP) Summary

The following table summarizes the NFIP statistics for the Town of Whitehall.

Table 9.25-4. NFIP Summary

Municipality	# Policies (1)	# Claims (Losses) (1)	Total Loss Payments (2)	# Rep. Loss Prop. (1)	# Severe Rep. Loss Prop. (1)
Whitehall (T)	11	8	$60,953	1	0

Source: FEMA, 2016

Note (1) Policies, claims, repetitive loss and severe repetitive loss statistics provided by FEMA and are current as of April 30, 2016 and are summarized by Community Name. Please note the total number of repetitive loss properties excludes the severe repetitive loss properties. The number of claims represents claims closed by 4/30/2016.

Note (2) Total building and content losses from the claims file provided by FEMA Region 2.

Note (3) The policies inside and outside of the flood zones is based on the latitude and longitude provided by FEMA Region 2 in the policy file.

Note (4) FEMA noted that where there is more than one entry for a property, there may be more than one policy in force or more than one GIS possibility.

Critical Facilities

At the time of this HMP Update, digitized flood maps for Washington County are unavailable. In order to provide some level of beneficial analysis, a desktop analysis was performed to identify critical facilities located within the floodplain (refer to Section 5.1 [Methodology and Tools] for details). The following table identifies critical facilities located within the municipality and their exposure, if any, to the possible floodplain. This information is a resource for the municipality to determine if flood mitigation actions are appropriate based on historical events and proximity of the facility to a water body. At the time of this 2018 HMP Update, the municipality did not identify any actions associated with these facilities.

The Town of Whitehall understands the limitation of the map data and once the updated maps are available, the municipality will work with Washington County to determine which critical facilities are located within the 1% and 0.2% annual chance flood zones. Once identified, the municipality will work with the property owners and develop mitigation actions for each of the critical facilities, ensuring they will be protected to the 500-year (or worst-case scenario) level.

Table 9.25-5. Potential Flood Losses to Critical Facilities

Name	Type	Potential Flood Exposure
CPC 74	Rail	X
Whitehall Yard	Rail	X
Whitehall Highway Dept	Highway	X

Source: Washington County; NYS GIS Clearinghouse

Other Vulnerabilities Identified

The municipality has identified the following vulnerabilities within their community:

- Grey Lane – Heavy rainfall results in the complete cut off of two residences, a golf course and club house with the exception for Helicopter for emergency services
- Mettawee River Bridge on Upper Turnpike Road – Floods during the spring as a result of springtime melt runoff. Significant flooding on both approaches to the bridge cuts off through traffic resulting in longer response times to emergency services

9.25.5 Capability Assessment

This section identifies the following capabilities of the local jurisdiction:

- Planning and regulatory capability
- Administrative and technical capability
- Fiscal capability
- Community classification
- National Flood Insurance Program
- Integration of Mitigation Planning into Existing and Future Planning Mechanisms

Planning and Regulatory Capability

The table below summarizes the regulatory tools that are available to the Town of Whitehall.

Table 9.25-6. Planning and Regulatory Tools

Tool / Program (code, ordinance, plan)	Do you have this? (Yes/No) If Yes, date of adoption or update	Authority (local, county, state, federal)	Dept. /Agency Responsible	Code Citation and Comments (Code Chapter, name of plan, explanation of authority, etc.)
Planning Capability				
Master Plan	Yes - 1969	Local	Planning	A Comprehensive Plan – Summary Town of Whitehall, NY 1969
Capital Improvements Plan	Yes	Local	Town Board	Annual budget
Floodplain Management / Basin Plan	No	-	-	-
Stormwater Management Plan	No	-	-	-
Open Space Plan	No	-	-	-
Stream Corridor Management Plan	No	-	-	-
Watershed Management or Protection Plan	No	-	-	-
Economic Development Plan	No	-	-	-
Comprehensive Emergency Management Plan	No	-	-	-
Emergency Response Plan	No	-	-	-
Post-Disaster Recovery Plan	No	-	-	-
Transportation Plan	No	-	-	-
Strategic Recovery Planning Report	No	-	-	-
Other Plans:	No	-	-	-
Regulatory Capability				

Tool / Program (code, ordinance, plan)	Do you have this? (Yes/No) If Yes, date of adoption or update	Authority (local, county, state, federal)	Dept. /Agency Responsible	Code Citation and Comments (Code Chapter, name of plan, explanation of authority, etc.)
Building Code	Yes	State & County	County CEO	Building Code of New York State (NYS), Local Law #1
Zoning Ordinance	Yes	Local	Town Board & Planning Board	Local Law #6 Of 1990
Subdivision Ordinance	Yes	Local	Town Board & Planning Board	Local Law #6 of 1990
NFIP Flood Damage Prevention Ordinance	Yes	Federal, State, Local	Supervisor	Not provided at the time of this plan update; currently in the process of updating
NFIP: Cumulative Substantial Damages	No	-	-	-
NFIP: Freeboard	Yes	State, Local	Town Board & Planning Board	State mandated BFE+2 for single and two-family residential construction, BFE+1 for all other construction types
Growth Management Ordinances	No	-	-	-
Site Plan Review Requirements	Yes	Local	Town Planning Board	Local Law #7 of 1990
Stormwater Management Ordinance	No	-	-	-
Municipal Separate Storm Sewer System (MS4)	No	-	-	-
Natural Hazard Ordinance	No	-	-	-
Post-Disaster Recovery Ordinance	No	-	-	-
Real Estate Disclosure Requirement	Yes	State	NYS Department of State, Real Estate Agent	NYS mandate, Property Condition Disclosure Act, NY Code - Article 14 §460-467
Other [Special Purpose Ordinances (i.e., sensitive areas, steep slope)]	No	-	-	-

Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the Town of Whitehall.

Table 9.25-7. Administrative and Technical Capabilities

Resources	Is this in place? (Yes or No)	Department/ Agency/Position
Administrative Capability		
Planning Board	Yes	Town of Whitehall Planning Board
Mitigation Planning Committee	No	-
Environmental Board/Commission	No	-
Open Space Board/Committee	No	-

Resources	Is this in place? (Yes or No)	Department/ Agency/Position
Economic Development Commission/Committee	No	-
Maintenance Programs to Reduce Risk	Yes	Highway Department
Mutual Aid Agreements	Yes	Washington County
Technical/Staffing Capability		
Planner(s) or Engineer(s) with knowledge of land development and land management practices	Yes	Contract as needed through RFP
Engineer(s) or Professional(s) trained in construction practices related to buildings and/or infrastructure	Yes	Contract as needed through RFP
Planners or engineers with an understanding of natural hazards	No	Contract as needed through RFP
NFIP Floodplain Administrator	Yes	Supervisor
Surveyor(s)	No	-
Personnel skilled or trained in GIS and/or HAZUS-MH applications	No	-
Scientist familiar with natural hazards	No	-
Emergency Manager	Yes	Supervisor/Deputy Supervisor
Grant Writer(s)	Yes	Contract as needed through RFP
Staff with expertise or training in benefit/cost analysis	Yes	Contract as needed through RFP
Professionals trained in conducting damage assessments	Yes	Contract as needed through RFP

Fiscal Capability

The table below summarizes financial resources available to the Town of Whitehall.

Table 9.25-8. 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	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	No
Other	No

Community Classifications

The table below summarizes classifications for community program available to the Town of Whitehall.

Table 9.25-9. Community Classifications

Program	Do you have this? (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	4/4Y	9/25/15
Storm Ready	No		
NYSDEC Climate Smart Community	No		
Firewise	No		
Disaster/Safety Programs in/for Schools	No		
Organizations with Mitigation Focus (advocacy group, non-government)	No		
Public Education Program/Outreach (through website, social media)	No		
Public-Private Partnerships	No		

N/A = Not applicable. NP = Not participating. - = Unavailable. TBD = To be determined.

The classifications listed above relate to the community's ability to provide effective services to lessen its vulnerability to the hazards identified. These classifications can be viewed as a gauge of the community's capabilities in all phases of emergency management (preparedness, response, recovery and mitigation) and are used as an underwriting parameter for determining the costs of various forms of insurance. The CRS class applies to flood insurance while the BCEGS and Public Protection classifications apply to standard property insurance. CRS classifications range on a scale of 1 to 10 with class 1 being the best possible classification, and class 10 representing no classification benefit. Firewise classifications include a higher classification when the subject property is located beyond 1000 feet of a creditable fire hydrant and is within 5 road miles of a recognized Fire Station.

Criteria for classification credits are outlined in the following documents:

- The Community Rating System Coordinators Manual
- The Building Code Effectiveness Grading Schedule website at: https://www.isomitigation.com/bcegs/
- The ISO Mitigation online ISO's Public Protection website at https://www.isomitigation.com/ppc/
- The National Weather Service Storm Ready website at https://www.weather.gov/stormready/
- The National Firewise Communities website at http://firewise.org/

Self-Assessment of Capability

The table below provides an approximate measure of the Town of Whitehall's capability to work in a hazard-mitigation capacity and/or effectively implement hazard mitigation strategies to reduce hazard vulnerabilities.

Table 9.25-10. Self-Assessment Capability for the Municipality

Area	Degree of Hazard Mitigation Capability		
	Limited (If limited, what are your obstacles?)	Moderate	High
Planning and Regulatory Capability	X – limited staff and funding		

Area	Degree of Hazard Mitigation Capability		
	Limited (If limited, what are your obstacles?)	Moderate	High
Administrative and Technical Capability	X – limited staff and funding		
Fiscal Capability	X – limited staff and funding		
Community Political Capability	X – limited staff and funding		
Community Resiliency Capability	X – limited staff and funding		
Capability to Integrate Mitigation into Municipal Processes and Activities.	X – limited staff and funding		

National Flood Insurance Program

NFIP Floodplain Administrator (FPA)

Whilte the flood damage prevention ordinance indicates that the town supervisor is the floodplain administer, Mr. Vernon Scribner, Compliance Officer, provided information regarding floodplain administration in the town.

Flood Vulnerability Summary

The municipality currently does not maintain a list of properties that have been flood damaged or a list of property owners who are interested in various mitigation actions. The FPA has identified no structures in the municipality as being damaged as a result of extreme storm events, including Hurricane Floyd and Hurricane Irene, the municipality does not complete Substantial Damage estimates.

Resources

The FPA is the sole person assuming the responsibilities of floodplain administration; these responsibilities include permit review and inspections. Washington County Department of Code Enforcement enforces NYS Building and Fire codes for all construction, including those in the floodplain. The Town does not provide any education or outreach to the community regarding flood hazards/risk and flood risk reduction through NFIP insurance and mitigation. Identified barriers to running an effective floodplain management program are staffing and budget restraints. The FPA identified that he would consider attending continuing education and/or certification training on floodplain management if it were offered in the County for all local floodplain administrators.

Compliance History

The community is in good-standing in the NFIP. The most recent compliance audit was conducted on July 17, 2015.

Regulatory

The municipality's floodplain management regulations and ordinances meet the FEMA and State minimum requirements. The Planning Board also takes floodplain management and efforts to reduce flood risk when reviewing variances. The community is not enrolled in the CRS program, but would attend a CRS seminar if offered locally.

Integration of Hazard Mitigation into Existing and Future Planning Mechanisms

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 this planning effort, each community was surveyed to obtain a better understanding of their community's progress in plan integration. A summary is provided below. In addition, the community identified specific integration activities that will be incorporated into municipal procedures.

Planning

Land Use Planning: The Town of Whitehall has a Planning Board which reviews all applications for development and considers natural hazard risk areas in their review. Many development activities require additional levels of environmental review, specifically NYS SEQR and Federal NEPA requirements. Washington County provides the town with existing land use maps.

Lake Champlain Watershed Water Quality Management Planning: Roadside Erosion Assessment and Inventory: The Lake Champlain Watershed Water Quality Management Planning project was one of 11 projects in New York State that was funded through the Federal Government's American Recovery and Reinvestment Act Initiative. The goal of the project was to identify critically eroding roadside banks that have contributed significant sediment loads to the high-quality streams throughout the Champlain Watershed (Clinton, Essex, Franklin, Warren and Washington Counties). The plan identified 319 roadside erosion sites in need to remediation. In Washington County, 31 sites were identified (12 high priority, 11 moderate priority, and 8 low priority). Eight sites were located in the Town of Whitehall.

Regulatory and Enforcement

Code Enforcement: Washington County provides code enforcement duties and responsibilities to the Town of Whitehall.

Construction Codes, Uniform Chapter 210: The building codes are strictly enforced to make new and renovated buildings as prepared as possible for hazard related incidents. The Town complies with New York State Uniform Fire Prevention and Building Code (the Uniform Code) and the State Energy Conservation Construction Code (the Energy Code).

Sewers: The Town abides by the County-wide Sanitary Code, which protects and regulates its sewage collection and treatment facilities as a matter of public health and environmental safety. It seeks to prohibit the introduction of stormwater, surface, or sub-surface waters into sanitary sewers and to control the quantity and quality of wastes in the sewage system.

Fiscal

Operating Budget: The Town's operating budget contains provisions for expected repairs like snow removal and infrastructure repair after a storm or natural disaster.

Education and Outreach

Town website includes links and contact information for Town Emergency Contacts, including the Sheriff's Office, State Police, Whitehall Fire Department, Skenesborough EMS, and Whitehall Highway Department.

9.25.6 Mitigation Strategy and Prioritization

This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and prioritization.

Past Mitigation Initiative Status

The following table indicates progress on the community's mitigation strategy identified in the 2010 Plan. It should be noted that during the 2010 planning process, only general, countywide actions were identified for each municipality. The Town of Whitehall reviewed the previous actions and selected actions they chose to carry forward as part of this plan update. Previous actions that are now on-going programs and capabilities are indicated as such in the following table and may also be found under 'Capability Assessment' presented previously in this annex.

Table 9.25-11. Status of Previous Mitigation Actions

2010 Mitigation Action	Responsible Party	Status (In progress, No progress, Complete)	Describe Status	Next Step (Include in 2018 HMP or Discontinue)	Describe Next Step
Improve drainage at sites where roads have washed out due to natural hazards in the past	County and NYS DHSES	Complete	This project is 100% complete	Discontinue	The project is complete; therefore, it will not be included in this 2018 HMP Update
Purchase equipment to provide for local personnel to conduct the drainage improvement	County and NYS DHSES	Complete	This project is 100% complete	Discontinue	The project is complete; therefore, it will not be included in this 2018 HMP Update
Engineering assessment to determine feasibility of each site improvement	County and NYS DHSES	No Progress	Site improvements have been completed; therefore, this action is not relevant to the Town	Discontinue	Site improvements have been completed; therefore, this action is not relevant to the Town. It will not be included in the 2018 HMP Update.
Improve dams to prevent flooding causing roads to wash out.	County and NYS DHSES	No Progress	No Dams in Town	Discontinue	There are no dams located in the Town; therefore, this action does not pertain to the Town and will not be included in the 2018 HMP Update
Improve identified sites where slope stability is subject to land subsidence and where excavation or planting could mitigate future damage.	County and NYS DHSES	Complete	This project is 100% complete	Discontinue	The project is complete; therefore, it will not be included in this 2018 HMP Update

Completed Mitigation Initiatives Not Identified in the Previous Mitigation Strategy

The Town of Whitehall has identified the following mitigation projects/activities that have also been completed but were not identified in the previous mitigation strategy in the 2010 Plan:

- None identified

Proposed Hazard Mitigation Initiatives for the Plan Update

The Town of Whitehall participated in a mitigation action workshop in September 2016 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).

Table 9.25-12 summarizes the comprehensive-range of specific mitigation initiatives the Town of Whitehall would like to pursue in the future to reduce the effects of hazards. Some of these initiatives may be previous actions carried forward for this plan update. These 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. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table below to further demonstrate the wide-range of activities and mitigation measures selected.

As discussed in Section 6, 14 evaluation/prioritization criteria are used 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 your actions as 'High', 'Medium', or 'Low.' The table below summarizes the evaluation of each mitigation initiative, listed by Action Number.

Table 9.25-13 provides a summary of the prioritization of all proposed mitigation initiatives for the Plan update.

Table 9.25-12. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and / or Existing Structures*	Hazard(s) Mitigated	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
T. Whitehall-1	County Route 10 – install five stone check dams and hydroseed with conservation mix	Existing	Flood, Severe Storm	1	Town DPW with support from Washington County and Lake Champlain-Lake George Regional Planning Board	Medium	Low	County Soil & Water Conservation district, municipal budget, Water Quality Improvement Project Grants	Short Term	High	SIP	PP, NR
T. Whitehall-2	Welch-Tanner-Truthville Intersection – regrade slope, install stone check dam and hydroseed with conservation mix and soil amendments	Existing	Flood, Severe Storm	1	Town DPW with support from Lake Champlain-Lake George Regional Planning Board	Medium	Low	County Soil & Water Conservation district, municipal budget, Water Quality Improvement Project Grants	Short Term	High	SIP	PP, NR
T. Whitehall-3	Baker Road – re-grade slope, install erosion and sediment control blankets and hydroseed with conservation mix and soil amendments	Existing	Flood, Severe Storm	1	Town DPW with support from Lake Champlain-Lake George Regional Planning Board	Medium	Low	County Soil & Water Conservation district, municipal budget, Water Quality Improvement Project Grants	Short Term	High	SIP	PP, NR
T. Whitehall-4	Tanner Hill Road - regrade slope and hydroseed with conservation mix and soil amendments	Existing	Flood, Severe Storm	1	Town DPW with support from Lake Champlain-Lake George Regional Planning Board	Medium	Low	County Soil & Water Conservation district, municipal budget, Water Quality Improvement Project Grants	Short Term	Medium	SIP	PP, NR
T. Whitehall-5	Winters Road – re-grade slope, install two check dams and hydroseed with conservation mix	Existing	Flood, Severe Storm	1	Town DPW with support from Lake Champlain-Lake George Regional Planning Board	Medium	Low	County Soil & Water Conservation district, municipal	Short Term	Medium	SIP	PP, NR

Table 9.25-12. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and / or Existing Structures*	Hazard(s) Mitigated	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
								budget, Water Quality Improvement Project Grants				
T. Whitehall-6	County Route 12 – install woody vegetation	Existing	Flood, Severe Storm	1	Town DPW with support from Washington County and Lake Champlain-Lake George Regional Planning Board	Medium	Low	County Soil & Water Conservation district, municipal budget, Water Quality Improvement Project Grants	Short Term	Medium	SIP	PP, NR
T. Whitehall-7	Upper Turnpike Road – re-grade slope and hydroseed with conservation mix and soil amendments	Existing	Flood, Severe Storm	1	Town DPW with support from Lake Champlain-Lake George Regional Planning Board	Medium	Low	County Soil & Water Conservation district, municipal budget, Water Quality Improvement Project Grants	Short Term	Medium	SIP	PP, NR
T. Whitehall-8	Beckett Road - re-grade slope and hydroseed with conservation mix and soil amendments	Existing	Flood, Severe Storm	1	Town DPW with support from Lake Champlain-Lake George Regional Planning Board	Medium	Low	County Soil & Water Conservation district, municipal budget, Water Quality Improvement Project Grants	Short Term	Low	SIP	PP, NR
T. Whitehall-9	Review the Town's current Flood Damage Prevention Ordinance, and update as necessary to consider and address: • Compliance with the latest model Flood Damage Prevention Ordinances. To request the Model Flood Damage Prevention Law appropriate for your community, please contact the DEC Floodplain Management Section at 518-402-8185 or at floodplain.floodplain@dec.ny.gov. • Proper identification of the local NFIP Floodplain Administrator and develop a list of responsibilities of administering the duties of local floodplain administration. • Reference current regulatory NFIP floodplain mapping, which is currently in an active update process (2016-2018).											
	See above	New and Existing	Flood, Severe Storm	1	Town Board with assistance from NYSDEC, and County	High	Low	Town Budget	Short Term	High	LPR, EAP	PR, PI

Notes:

Not all acronyms and abbreviations defined below are included in the table.

**Does this mitigation initiative reduce the effects of hazards on new and/or existing buildings and/or infrastructure? Not applicable (N/A) is inserted if this does not apply.*

Acronyms and Abbreviations:

CAV	Community Assistance Visit
CRS	Community Rating System
DPW	Department of Public Works
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
PDM	Pre-Disaster Mitigation Grant Program
RFC	Repetitive Flood Claims Grant Program (discontinued in 2015)
SRL	Severe Repetitive Loss Grant Program (discontinued in 2015)

Timeline:

Short	1 to 5 years
Long Term	5 years or greater
OG	On-going program
DOF	Depending on funding

Costs:

Where actual project costs have been reasonably estimated:

Low	< $10,000
Medium	$10,000 to $100,000
High	> $100,000

Where actual project costs cannot reasonably be established at this time:

Low	Possible to fund under existing budget. Project is part of, or can be part of an existing on-going program.
Medium	Could budget for under existing work plan, but would require a reapportionment of the budget or a budget amendment, or the cost of the project would have to be spread over multiple years.
High	Would require an increase in revenue via an alternative source (i.e., bonds, grants, fee increases) to implement. Existing funding levels are not adequate to cover the costs of the proposed project.

Benefits:

Where possible, an estimate of project benefits (per FEMA's benefit calculation methodology) has been evaluated against the project costs, and is presented as:

Low=	< $10,000
Medium	$10,000 to $100,000
High	> $100,000

Where numerical project benefits cannot reasonably be established at this time:

Low	Long-term benefits of the project are difficult to quantify in the short term.
Medium	Project will have a long-term impact on the reduction of risk exposure to life and property, or project will provide an immediate reduction in the risk exposure to property.
High	Project will have an immediate impact on the reduction of risk exposure to life and property.

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*

Table 9.25-13. Summary of Prioritization of Actions

Mitigation Action / Project Number	Mitigation Action/Initiative	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
T. Whitehall-1	County Route 10 – install five stone check dams and hydroseed with conservation mix	1	1	1	1	0	0	0	1	1	1	1	1	1	0	10	High
T. Whitehall-2	Welch-Tanner-Truthville Intersection – regrade slope, install stone check dam and hydroseed with conservation mix and soil amendments	1	1	1	1	0	0	0	1	1	1	1	1	1	0	10	High
T. Whitehall-3	Baker Road – re-grade slope, install E&SC blankets and hydroseed with conservation mix and soil amendments	1	1	1	1	0	0	0	1	1	1	1	1	1	0	10	High
T. Whitehall-4	Tanner Hill Road - regrade slope and hydroseed with conservation mix and soil amendments	1	1	1	1	0	0	0	1	0	1	1	1	0	0	8	Medium
T. Whitehall-5	Winters Road – re-grade slop, install two check dams and hydroseed with conservation mix	1	1	1	1	0	0	0	1	0	1	1	1	0	0	8	Medium
T. Whitehall-6	County Route 12 – install woody vegetation	1	1	1	1	0	0	0	1	0	1	1	1	0	0	8	Medium
T. Whitehall-7	Upper Turnpike – re-grade slope and hydroseed with conservation mix and soil amendments	1	1	1	1	0	0	0	1	0	1	1	1	0	0	8	Medium
T. Whitehall-8	Beckett Road - re-grade slope and hydroseed with conservation mix and soil amendments	1	1	1	1	0	0	0	0	0	1	1	1	0	0	7	Low
T. Whitehall-9	Review the Village's current Flood Damage Prevention Ordinance, and update as necessary	1	1	1	1	1	1	1	1	0	1	1	0	0	0	10	High

Note: Refer to Section 6 which contains the guidance on conducting the prioritization of mitigation actions.

9.25.7 Future Needs to Better Understand Risk/Vulnerability

None at this time.

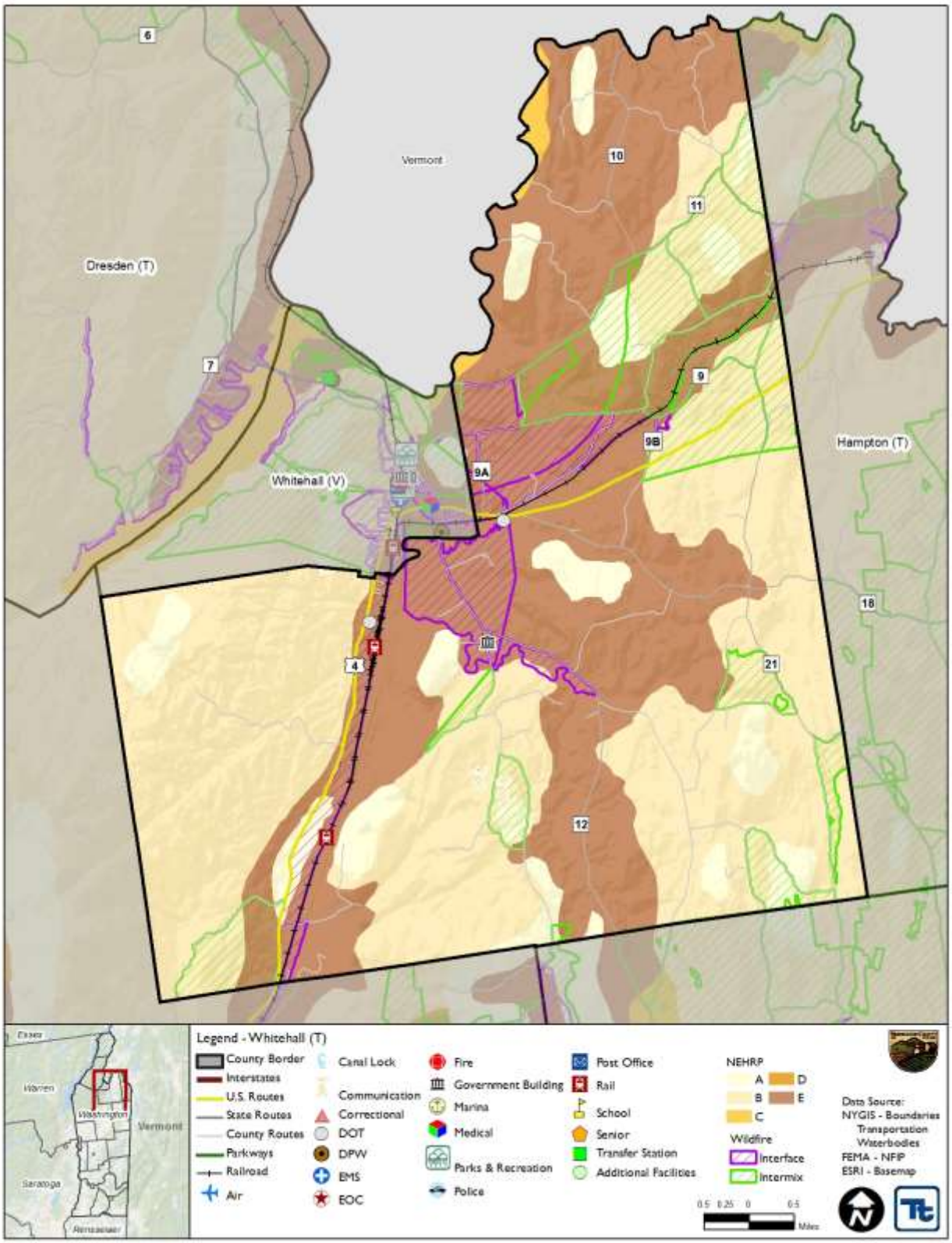
9.25.8 Hazard Area Extent and Location

Hazard area extent and location maps have been generated for the Town of Whitehall that illustrate the probable areas impacted within the municipality. These maps are based on the best available data at the time of the preparation of this plan, and are considered to be adequate for planning purposes. Maps have only been generated for those hazards that can be clearly identified using mapping techniques and technologies, and for which the Town of Whitehall has significant exposure. These maps are illustrated in the hazard profiles within Section 5.4, Volume I of this Plan.

9.25.9 Additional Comments

None at this time.

Figure 9.25-1. Town of Whitehall Hazard Area Extent and Location



Action Number: T. Whitehall-1

Mitigation Action Name: County Route 10

Assessing the Risk	
Hazard(s) addressed:	Flood, Severe Storm
Specific problem being mitigated:	Eroding slope sides along the roadway can lead to flooding, closed roadways, impacting accessibility, and contributing to significant sediment loads to the stream. Roadway is more susceptible to inundation during periods of heavy rain.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	Do nothing - current problem continues Relocate County Route 10 – not feasible
Action/Project Intended for Implementation	
Description of Selected Action/Project	Install five stone check dams and hydroseed with conservation mix at County Route 10 to reduce flooding and erosion. This will help prevent erosion and improve stream channel functionality.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	Goal 1: Protect Life and Property
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	Medium
Estimated Cost	Low
Priority*	High
Plan for Implementation	
Responsible Organization	Town DPW Department with support from Washington County and Lake Champlain-Lake George Regional Planning Board
Local Planning Mechanism	Hazard Mitigation
Potential Funding Sources	County Soil & Water Conservation district, municipal budget, Water Quality Improvement Project Grants
Timeline for Completion	Short Term – less than five years to complete
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

Action Number: T. Whitehall-1
Mitigation Action Name: County Route 10

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	The costs to implement this project correspond with the benefits achieved
Technical	1	This action is technically feasible
Political	0	
Legal	0	
Fiscal	0	County Soil & Water Conservation district, municipal budget, Water Quality Improvement Project Grants
Environmental	1	
Social	1	
Administrative	1	The Town has the administrative capabilities to complete the action
Multi-Hazard	1	Flood, Severe Storm
Timeline	1	Short Term
Agency Champion	1	
Other Community Objectives	0	
Total	10	
Priority (H/M/L)	**High**	

Action Number: T. Whitehall-2

Mitigation Action Name: Welch-Tanner-Truthville Intersection

Assessing the Risk	
Hazard(s) addressed:	Flood, Severe Storm
Specific problem being mitigated:	The Welch-Tanner-Truthville Intersection is found within an area of highly erodible sand and gravel soils. This roadside bank at this intersection is eroding and contributing to sediment loads to nearby waterbodies. The bank is in need of regrading in order to reduce flooding and erosion impacts.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	Do nothing - current problem continues Relocate Welch-Tanner-Truthville – not feasible
Action/Project Intended for Implementation	
Description of Selected Action/Project	Regrade slope at Welch-Tanner-Truthville Intersection, install stone check dam and hydroseed with conservation mix and soil amendments to reduce flooding, erosion, and the amount of sediment loads.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	Goal 1: Protect Life and Property
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	Medium
Estimated Cost	Low
Priority*	High
Plan for Implementation	
Responsible Organization	Town DPW with support from Lake Champlain-Lake George Regional Planning Board
Local Planning Mechanism	Hazard Mitigation
Potential Funding Sources	County Soil & Water Conservation district, municipal budget, Water Quality Improvement Project Grants
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

Action Number: T. Whitehall-2
Mitigation Action Name: Welch-Tanner-Truthville Intersection

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	The costs to implement this project correspond with the benefits achieved
Technical	1	This action is technically feasible
Political	0	
Legal	0	
Fiscal	0	County Soil & Water Conservation district, municipal budget, Water Quality Improvement Project Grants
Environmental	1	
Social	1	
Administrative	1	The Town has the administrative capabilities to complete the action
Multi-Hazard	1	Flood, Severe Storm
Timeline	1	Short Term
Agency Champion	1	
Other Community Objectives	0	
Total	10	
Priority (H/M/L)	**High**	

Action Number: T. Whitehall-3

Mitigation Action Name: Baker Road

Assessing the Risk	
Hazard(s) addressed:	Flood, Severe Storm
Specific problem being mitigated:	Baker Road is found within an area of highly erodible sand and gravel soils. This roadside bank is eroding and contributing to sediment loads to nearby waterbodies. The bank is in need of regrading in order to reduce flooding and erosion impacts.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	Do nothing - current problem continues Install retaining wall - costly
Action/Project Intended for Implementation	
Description of Selected Action/Project	Re-grade slope, install erosion and sediment control blankets and hydroseed with conservation mix and soil amendments. This will help prevent erosion and improve stream channel functionality.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	Goal 1: Protect Life and Property
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	Medium
Estimated Cost	Low
Priority*	High
Plan for Implementation	
Responsible Organization	Town DPW with support from Lake Champlain-Lake George Regional Planning Board
Local Planning Mechanism	Hazard Mitigation
Potential Funding Sources	County Soil & Water Conservation district, municipal budget, Water Quality Improvement Project Grants
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

Action Number: T. Whitehall-3
Mitigation Action Name: Baker Road

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	The costs to implement this project correspond with the benefits achieved
Technical	1	This action is technically feasible
Political	0	
Legal	0	
Fiscal	0	County Soil & Water Conservation district, municipal budget, Water Quality Improvement Project Grants
Environmental	1	
Social	1	
Administrative	1	The Town has the administrative capabilities to complete the action
Multi-Hazard	1	Flood, Severe Storm
Timeline	1	Short Term
Agency Champion	1	
Other Community Objectives	0	
Total	10	
Priority (H/M/L)	**High**	

Action Number: T. Whitehall-4

Mitigation Action Name: Tanner Hill Road

Assessing the Risk	
Hazard(s) addressed:	Flood, Severe Storm
Specific problem being mitigated:	Tanner Hill Road is found within an area of highly erodible sand and gravel soils. This roadside bank is eroding and contributing to sediment loads to nearby waterbodies. The bank is in need of regrading in order to reduce flooding and erosion impacts.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	Do nothing - current problem continues Install retaining wall - costly
Action/Project Intended for Implementation	
Description of Selected Action/Project	Regrade slope and hydroseed with conservation mix and soil amendments at Tanner Hill Road. This will help prevent erosion and improve stream channel functionality.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	Goal 1: Protect Life and Property
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	Medium
Estimated Cost	Low
Priority*	Medium
Plan for Implementation	
Responsible Organization	Town DPW with support from Lake Champlain-Lake George Regional Planning Board
Local Planning Mechanism	Hazard Mitigation
Potential Funding Sources	County Soil & Water Conservation district, municipal budget, Water Quality Improvement Project Grants
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

Action Number: T. Whitehall-4
Mitigation Action Name: Tanner Hill Road

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	The costs to implement this project correspond with the benefits achieved
Technical	1	This action is technically feasible
Political	0	
Legal	0	
Fiscal	0	County Soil & Water Conservation district, municipal budget, Water Quality Improvement Project Grants
Environmental	1	
Social	0	
Administrative	1	The Town has the administrative capabilities to complete the action
Multi-Hazard	1	Flood, Severe Storm
Timeline	1	Short Term
Agency Champion	0	
Other Community Objectives	0	
Total	8	
Priority (H/M/L)	**Medium**	

Action Number: T. Whitehall-5

Mitigation Action Name: Winters Road

Assessing the Risk	
Hazard(s) addressed:	Flood, Severe Storm
Specific problem being mitigated:	Eroding slope sides along the roadway can lead to flooding, closed roadways, impacting accessibility, and contributing to significant sediment loads to the stream. Additionally, Winters Road is found within an area of highly erodible sand and gravel soils.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	Do nothing - current problem continues Install retaining wall - costly
Action/Project Intended for Implementation	
Description of Selected Action/Project	Re-grade slope, install two check dams and hydroseed with conservation mix at Winters Road. This will help prevent erosion and improve stream channel functionality.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	Goal 1: Protect Life and Property
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	Medium
Estimated Cost	Low
Priority*	Medium
Plan for Implementation	
Responsible Organization	Town DPW with support from Lake Champlain-Lake George Regional Planning Board
Local Planning Mechanism	Hazard Mitigation
Potential Funding Sources	County Soil & Water Conservation district, municipal budget, Water Quality Improvement Project Grants
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

Action Number: T. Whitehall-5
Mitigation Action Name: Winters Road

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	The costs to implement this project correspond with the benefits achieved
Technical	1	This action is technically feasible
Political	0	
Legal	0	
Fiscal	0	County Soil & Water Conservation district, municipal budget, Water Quality Improvement Project Grants
Environmental	1	Reduces sediment load in water body; improves water quality
Social	0	
Administrative	1	
Multi-Hazard	1	Flood, Severe Storm
Timeline	1	Short Term
Agency Champion	0	
Other Community Objectives	0	
Total	8	
Priority (H/M/L)	**Medium**	

Action Number: T. Whitehall-6

Mitigation Action Name: County Route 12

Assessing the Risk	
Hazard(s) addressed:	Flood, Severe Storm
Specific problem being mitigated:	Eroding slope sides along the roadway can lead to flooding, closed roadways, impacting accessibility, and contributing to significant sediment loads to the stream. Additionally, County Route 12 is found within an area of highly erodible sand and gravel soils.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	Do nothing - current problem continues Hydroseed with conservation mix – not preferred
Action/Project Intended for Implementation	
Description of Selected Action/Project	Install woody vegetation along County Route 12 in the Town. The woody plants establish deep, supporting root system that hold soil in place and aid in reducing erosion. This will help prevent erosion and improve stream quality channel functionality.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	Goal 1: Protect Life and Property
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	Medium
Estimated Cost	Low
Priority*	Medium
Plan for Implementation	
Responsible Organization	Town DPW with support from Washington County and Lake Champlain-Lake George Regional Planning Board
Local Planning Mechanism	Hazard Mitigation
Potential Funding Sources	County Soil & Water Conservation district, municipal budget, Water Quality Improvement Project Grants
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

Action Number: T. Whitehall-6
Mitigation Action Name: County Route 12

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	The costs to implement this project correspond with the benefits achieved
Technical	1	This action is technically feasible
Political	0	
Legal	0	
Fiscal	0	County Soil & Water Conservation district, municipal budget, Water Quality Improvement Project Grants
Environmental	1	Reduces sediment load in water body; improves water quality
Social	0	
Administrative	1	
Multi-Hazard	1	Flood, Severe Storm
Timeline	1	Short Term
Agency Champion	0	
Other Community Objectives	0	
Total	8	
Priority (H/M/L)	**Medium**	

Action Number: T. Whitehall-7

Mitigation Action Name: Upper Turnpike Road

Assessing the Risk	
Hazard(s) addressed:	Flood, Severe Storm
Specific problem being mitigated:	Eroding slope sides along the roadway can lead to flooding, closed roadways, impacting accessibility, and contributing to significant sediment loads to the stream. Additionally, Upper Turnpike Road is found within an area of highly erodible sand and gravel soils.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	Do nothing - current problem continues Install retaining wall - cost
Action/Project Intended for Implementation	
Description of Selected Action/Project	Re-grade slope and hydroseed with conservation mix (grass and vegetative seed, fertilizer and water) and soil amendments at Upper Turnpike. The plants develop a deep root system that holds sediment and grows to produce a thicker vegetative cover over the area. This helps in reducing erosion and sediment runoff.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	Goal 1: Protect Life and Property
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	Medium
Estimated Cost	Low
Priority*	Medium
Plan for Implementation	
Responsible Organization	Town DPW with support from Lake Champlain-Lake George Regional Planning Board
Local Planning Mechanism	Hazard Mitigation
Potential Funding Sources	County Soil & Water Conservation district, municipal budget, Water Quality Improvement Project Grants
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

Action Number: T. Whitehall-7
Mitigation Action Name: Upper Turnpike Road

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	The costs to implement this project correspond with the benefits achieved
Technical	1	This action is technically feasible
Political	0	
Legal	0	
Fiscal	0	County Soil & Water Conservation district, municipal budget, Water Quality Improvement Project Grants
Environmental	1	Reduces sediment load in water body; improves water quality
Social	0	
Administrative	1	
Multi-Hazard	1	Flood, Severe Storm
Timeline	1	Short Term
Agency Champion	0	
Other Community Objectives	0	
Total	8	
Priority (H/M/L)	**Medium**	

Action Number: T. Whitehall-8

Mitigation Action Name: Beckett Road

Assessing the Risk	
Hazard(s) addressed:	Flood, Severe Storm
Specific problem being mitigated:	Eroding slope sides along the roadway can lead to flooding, closed roadways, impacting accessibility, and contributing to significant sediment loads to the stream. Additionally, Beckett Road is found within an area of highly erodible sand and gravel soils.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	Do nothing - current problem continues Install retaining wall - cost
Action/Project Intended for Implementation	
Description of Selected Action/Project	Re-grade slope and hydroseed with conservation mix (grass and vegetative seed, fertilizer and water) and soil amendments at Beckett Road. The plants develop a deep root system that holds sediment and grows to produce a thicker vegetative cover over the area. This helps in reducing erosion and sediment runoff.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	Goal 1: Protect Life and Property
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	Medium
Estimated Cost	Low
Priority*	Low
Plan for Implementation	
Responsible Organization	Town DPW with support from Lake Champlain-Lake George Regional Planning Board
Local Planning Mechanism	Hazard Mitigation
Potential Funding Sources	County Soil & Water Conservation district, municipal budget, Water Quality Improvement Project Grants
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

Action Number: T. Whitehall-8
Mitigation Action Name: Beckett Road

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	The costs to implement this project correspond with the benefits achieved
Technical	1	This action is technically feasible
Political	0	
Legal	0	
Fiscal	0	County Soil & Water Conservation district, municipal budget, Water Quality Improvement Project Grants
Environmental	0	Reduces sediment load in water body; improves water quality
Social	0	
Administrative	1	
Multi-Hazard	1	Flood, Severe Storm
Timeline	1	Short Term
Agency Champion	0	
Other Community Objectives	0	
Total	7	
Priority (H/M/L)	**Low**	

Action Number: T. Whitehall-9

Mitigation Action Name: Review the Town's current Flood Damage Prevention Ordinance, and update as necessary

Assessing the Risk	
Hazard(s) addressed:	Flood, severe storm
Specific problem being mitigated:	The Town's flood damage prevention ordinance is in need of an update and a local NFIP floodplain administrator needs to be identified. There is also a need to develop a list of responsibilities of administering duties of local floodplain administration in the Town. Lastly, the effective floodplain maps are in need of updating and the Town is waiting for the new maps which are currently in an active update process as of the date of this plan update.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Adopt Flood Damage Prevention Ordinance with higher standards – not interested in exceeding standards at this time
Action/Project Intended for Implementation	
Description of Selected Action/Project	Review the Town's current Flood Damage Prevention Ordinance, and update as necessary to consider and address: • Compliance with the latest model Flood Damage Prevention Ordinances. To request the Model Flood Damage Prevention Law appropriate for your community, please contact the DEC Floodplain Management Section at 518-402-8185 or at floodplain.floodplain@dec.ny.gov. • Proper identification of the local NFIP Floodplain Administrator and develop a list of responsibilities of administering the duties of local floodplain administration. • Reference current regulatory NFIP floodplain mapping, which is currently in an active update process (2016-2017).
Mitigation Action Type	Education and Awareness Programs (EAP) and Local Plans and Regulations (LPR)
Goals Met	Goal 1: Protect Life and Property
Applies to existing and or new development, or not applicable	New and Existing
Benefits (losses avoided)	High
Estimated Cost	Low
Priority*	High
Plan for Implementation	
Responsible Organization	Town Board with assistance from NYSDEC, and County
Local Planning Mechanism	Hazard Mitigation, Floodplain Administration
Potential Funding Sources	Town Budget
Timeline for Completion	Short
Reporting on Progress	
Date of Status Report/ Report of Progress	No progress; new project

Action Number: T. Whitehall-9

Mitigation Action Name: Review the Town's current Flood Damage Prevention Ordinance, and update as necessary

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	This action is technically feasible
Political	1	
Legal	1	
Fiscal	1	Municipal budget / staff time
Environmental	1	
Social	0	
Administrative	1	The Town has the administrative capabilities to implement this action
Multi-Hazard	1	Flood, Severe Storm
Timeline	0	
Agency Champion	0	
Other Community Objectives	0	
Total	10	
Priority (H/M/L)	**High**	

9.26 VILLAGE OF WHITEHALL

This section presents the jurisdictional annex for the Village of Whitehall.

9.26.1 Hazard Mitigation Plan Point of Contact

The following individuals have been identified as the hazard mitigation plan's primary and alternate points of contact.

Primary Point of Contact	Alternate Point of Contact
Kenneth Bartholomew - Mayor 57 Skenesborough Drive - Suite 2, Whitehall, NY Phone: 518-499-0871 Email: kbartho1@nycap.rr.com	Steven Brock – DPW Foreman 57 Skenesborough Drive - Suite 2, Whitehall, NY Phone: 518-499-2681 Email: brock4804@hotmail.com

9.26.2 Municipal Profile

The Village of Whitehall is located in the northern region of Washington County. The Village is bordered to the north by the State of Vermont, to the south and east by the Town of Whitehall, and to the west by South Bay and the Town of Dresden. South Bay is major bodies of water found throughout the Village. Whitehall is described as being the birthplace of the United States Navy during the Revolutionary War.

The Village has a total area of 4.8 square miles, of which, 4.7 square miles is land and less than 1 square mile is water. According to the 2010 Census, the community's population was 2,616. The Village is governed by the Village Board consisting of four Trustees and the Mayor.

Growth/Development Trends

The following table summarizes recent residential/commercial development since 2010 to present and any known or anticipated major residential/commercial development and major infrastructure development that has been identified in the next five years within the municipality.

Table 9.26-1. Growth and Development

Property or Development Name	Type (e.g. Res., Comm.)	# of Units / Structures	Location (address and/or Parcel ID)	Known Hazard Zone(s)	Description/Status of Development
Recent Development from 2010 to present					
None identified by the Village.					
Known or Anticipated Development in the Next Five (5) Years					
Lane Farm LLC	Convert from Ag to Residential	6 to 12 Approximately 6 parcels will contain solar arrays and the other 6 will be sold as waterfront residential construction	Tax #50.-1-2	FIRM Zone C	In preliminary stages. Developer is reviewing zoning and other factors

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

9.26.3 Natural Hazard Event History Specific to the Municipality

Washington County has a history of natural and non-natural hazard events as detailed in Volume I, Section 5.0 of this plan. 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. For the purpose of this plan update, events that have occurred in the County from 2008 to present were summarized to indicate the range and

impact of hazard events in the community. Information regarding specific damages is included, if available, based on reference material or local sources. This information is presented in the table below. For details of these and additional events, refer to Volume I, Section 5.0 of this plan.

Table 9.26-2. Hazard Event History

Dates of Event	Event Type (Disaster Declaration if applicable)	Washington County Designated?	Summary of Damages/Losses
December 11-31, 2008	Severe Winter Storm DR-1827	Yes	The DPW cost for clean-up and debris removal - $5,451.89
August 26-September 5, 2011	Hurricane/T.S. Irene DR-4020	Yes	The cost of police overtime - $1,441.92; the DPW cost for clean-up and debris removal - $969.45

Notes:

EM *Emergency Declaration (FEMA)*
FEMA *Federal Emergency Management Agency*
DR *Major Disaster Declaration (FEMA)*
IA *Individual Assistance*
N/A *Not applicable*
PA *Public Assistance*

9.26.4 Hazard Vulnerabilities and Ranking

The hazard profiles in Section 5.0 of this plan have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes the hazard vulnerabilities and their ranking in the Village of Whitehall. For additional vulnerability information relevant to this jurisdiction, refer to Section 5.0. Refer to the map in 9.26.8 of this annex which illustrates the hazard areas.

Natural Hazard Risk/Vulnerability Risk Ranking

As discussed in Section 5.3 (Hazard Ranking), each participating town or village may have differing degrees of risk exposure and vulnerability compared to Washington County as a whole. Therefore, each municipality 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 Whitehall. Table 9.26-12 provides proposed mitigation initiatives for the high ranked hazards.

Table 9.26-3. Hazard Risk/Vulnerability Risk Ranking

Hazard type	Estimate of Potential Dollar Losses to Structures Vulnerable to the Hazard [a, c]	Probability of Occurrence	Risk Ranking Score (Probability x Impact)	Hazard Ranking [b]
Earthquake	100-Year GBS: $0 500-Year GBS: $6,814,745 2,500-Year GBS: $76,340,720	Occasional	28	Medium
Flood	Damage estimate not available.	Frequent	27	Medium
Severe Weather	100-Year MRP: $368,225 500-year MRP: $3,780,791 Annualized: $25,409	Frequent	48	High
Severe Winter Weather	1% GBS: $8,916,983 5% GBS: $44,584,917	Frequent	51	High
Wildfire	Estimated Value in the WUI Hazard Areas: $1,384,935,969	Frequent	48	High

Notes:

a. Building damage ratio estimates based on FEMA 386-2 (August 2001)

b. The valuation of general building stock and loss estimates was based on custom inventory for the municipality.
High = Total hazard priority risk ranking score of 31 and above
Medium = Total hazard priority risk ranking of 20-30+
Low = Total hazard risk ranking below 20

c. Loss estimates for the severe storm and severe winter storm hazards are structural values only and do not include the value of contents.

d Loss estimates for the flood and earthquake hazards represent both structure and contents.

e. The HAZUS-MH earthquake model results are reported by Census Tract.

f. Damage estimate for flood unavailable due to lack of digital floodplain data for Washington County.

National Flood Insurance Program (NFIP) Summary

The following table summarizes the NFIP statistics for the Village of Whitehall.

Table 9.26-4. NFIP Summary

Municipality	# Policies (1)	# Claims (Losses) (1)	Total Loss Payments (2)	# Rep. Loss Prop. (1)	# Severe Rep. Loss Prop. (1)
Whitehall (V)	5	20	$301,223	0	0

Source: FEMA, 2016
Note (1) Policies, claims, repetitive loss and severe repetitive loss statistics provided by FEMA and are current as of April 30, 2016 and are summarized by Community Name. Please note the total number of repetitive loss properties excludes the severe repetitive loss properties. The number of claims represents claims closed by 4/30/2016.
Note (2) Total building and content losses from the claims file provided by FEMA Region 2.
Note (3) The policies inside and outside of the flood zones are unavailable due to lack of digital floodplain for Washington County.
Note (4) FEMA noted that where there is more than one entry for a property, there may be more than one policy in force or more than one GIS possibility.

Critical Facilities

At the time of this HMP Update, digitized flood maps for Washington County are unavailable. In order to provide some level of beneficial analysis, a desktop analysis was performed to identify critical facilities located within the floodplain (refer to Section 5.1 [Methodology and Tools] for details). The following table identifies critical facilities located within the municipality and their exposure, if any, to the possible floodplain. This information is a resource for the municipality to determine if flood mitigation actions are appropriate based on historical events and proximity of the facility to a water body. At the time of this 2018 HMP Update, the municipality did not identify any actions associated with these facilities.

The Village of Whitehall understands the limitation of the map data and once the updated maps are available, the municipality will work with Washington County to determine which critical facilities are located within the 1% and 0.2% annual chance flood zones. Once identified, the municipality will work with the property owners and develop mitigation actions for each of the critical facilities, ensuring they will be protected to the 500-year (or worst-case scenario) level.

Potential Flood Losses to Critical Facilities

Name	Type	Potential Flood Exposure
CPC 77	Rail	X
Whitehall Village Police	Police	X
Whitehall DPW	DPW	X
Whitehall Family Health	Medical	X
Whitehall ES	School	X

Name	Type	Potential Flood Exposure
Whitehall JSHS	School	X
Skenesborough Emergency Squad	EMS	X
Skenesborough Volunteer Fire Department	Fire	X
Skenesborough Museum	Park & Rec	X
US Postal Service - Whitehall	Post Office	X
Whitehall Volunteer Fire Company	Fire	X
Whitehall	Rail	X
Village of Whitehall	Municipal Hall	X
Whitehall Court	Court	X
Town of Whitehall	Municipal Hall	X
Champlain Canal Lock 12	Canal Lock	X
Whitehall Marina & RV Park	Park & Rec	X

Source: Washington County; NYS GIS Clearinghouse

Other Vulnerabilities Identified

The municipality has identified the following vulnerabilities within their community:

- None identified

9.26.5 Capability Assessment

This section identifies the following capabilities of the local jurisdiction:

- Planning and regulatory capability
- Administrative and technical capability
- Fiscal capability
- Community classification
- National Flood Insurance Program
- Integration of Mitigation Planning into Existing and Future Planning Mechanisms

Planning and Regulatory Capability

The table below summarizes the regulatory tools that are available to the Village of Whitehall.

Table 9.26-5. Planning and Regulatory Tools

Tool / Program (code, ordinance, plan)	Do you have this? (Yes/No) If Yes, date of adoption or update	Authority (local, county, state, federal)	Dept. /Agency Responsible	Code Citation and Comments (Code Chapter, name of plan, explanation of authority, etc.)
Planning Capability				
Master Plan	No	-	-	-
Capital Improvements Plan	No	-	-	-
Floodplain Management / Basin Plan	Yes	Village	Compliance	Local Law 1 of 1987 currently in the updating process
Stormwater Management Plan	Yes	Village	EDP Engineering	Phase 1B to begin in the fall of 2016
Open Space Plan	No	-	-	-

Tool / Program (code, ordinance, plan)	Do you have this? (Yes/No) If Yes, date of adoption or update	Authority (local, county, state, federal)	Dept. /Agency Responsible	Code Citation and Comments (Code Chapter, name of plan, explanation of authority, etc.)
Stream Corridor Management Plan	No	-	-	-
Watershed Management or Protection Plan	No	-	-	-
Economic Development Plan	Yes	Village	Village Board	Local Law 1 of 2005
Comprehensive Emergency Management Plan	Yes - 2016	Village	Village	Village of Whitehall Disaster Preparedness Plan
Emergency Response Plan	No	-	-	-
Post-Disaster Recovery Plan	Yes	Village	Village Board	Disaster Preparedness Plan Updated-5/25/2016
Transportation Plan	No	-	-	-
Strategic Recovery Planning Report	No	-	-	-
Other Plans:	Yes	Local	Village Board	Local Waterfront Revitalization Program (2005)
Regulatory Capability				
Building Code	Yes	State & County	County CEO	Building Code of New York State (NYS), Local Law #1
Zoning Ordinance	Yes	Village	Compliance Officer	Local Law #3 of 1996
Subdivision Ordinance	No	-	-	-
NFIP Flood Damage Prevention Ordinance	Yes	Federal, State, Local	Village	Local Law #1 of 1987
NFIP: Cumulative Substantial Damages	No	-	-	-
NFIP: Freeboard	Yes	State, Local	-	State mandated BFE+2 for single and two-family residential construction, BFE+1 for all other construction types
Growth Management Ordinances	No	-	-	-
Site Plan Review Requirements	Yes	Village	Planning Board	Local Law Number 3 of 1996
Stormwater Management Ordinance	No	-	-	-
Municipal Separate Storm Sewer System (MS4)	Yes	Local	Water/Sewer	Local Law 2 of 2008 - Use of the Wastewater Collection and Treatment System Local Law 1 of 2012 - Water System
Natural Hazard Ordinance	No	-	-	-
Post-Disaster Recovery Ordinance	No	-	-	-
Real Estate Disclosure Requirement	Yes	State	NYS Department of State, Real Estate Agent	NYS mandate, Property Condition Disclosure Act, NY Code - Article 14 §460-467
Other [Special Purpose Ordinances (i.e., sensitive areas, steep slope)]	No	-	-	-

Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the Village of Whitehall.

Table 9.26-6. Administrative and Technical Capabilities

Resources	Is this in place? (Yes or No)	Department/ Agency/Position
Administrative Capability		
Planning Board	Yes	Village Board
Mitigation Planning Committee	No	
Environmental Board/Commission	No	
Open Space Board/Committee	No	
Economic Development Commission/Committee	No	
Maintenance Programs to Reduce Risk	No	
Mutual Aid Agreements	Yes	County
Technical/Staffing Capability		
Planner(s) or Engineer(s) with knowledge of land development and land management practices	Yes	As needed contractor support = RFP
Engineer(s) or Professional(s) trained in construction practices related to buildings and/or infrastructure	Yes	As needed contractor support (Environmental Design Partnership, LLC)
Planners or engineers with an understanding of natural hazards	Yes	As needed contractor support (Environmental Design Partnership, LLC)
NFIP Floodplain Administrator	Yes	Village Compliance/Enforcement dept.
Surveyor(s)	Yes	As needed contractor support = RFP
Personnel skilled or trained in GIS and/or HAZUS-MH applications	Yes	As needed contractor support = RFP
Scientist familiar with natural hazards	No	
Emergency Manager	Yes	Mayor/Deputy Mayor
Grant Writer(s)	Yes	As needed contractor support = RFP
Staff with expertise or training in benefit/cost analysis	Yes	As needed contractor support = RFP
Professionals trained in conducting damage assessments	Yes	As needed contractor support = RFP

Fiscal Capability

The table below summarizes financial resources available to the Village of Whitehall.

Table 9.26-7. Fiscal Capabilities

Financial Resources	Accessible or Eligible to Use (Yes/No)
Community development Block Grants (CDBG, CDBG-DR)	Yes - Village
Capital Improvements Project Funding	Yes - Village
Authority to Levy Taxes for specific purposes	Yes - Village
User fees for water, sewer, gas or electric service	Yes - Village
Impact Fees for homebuyers or developers of new development/homes	No - Village
Stormwater Utility Fee	Yes - Village
Incur debt through general obligation bonds	Yes - Village
Incur debt through special tax bonds	No
Incur debt through private activity bonds	No

Financial Resources	Accessible or Eligible to Use (Yes/No)
Withhold public expenditures in hazard-prone areas	Yes - Village
Other Federal or State Funding Programs	Yes - Village
Open Space Acquisition Funding Programs	No
Other	No

Community Classifications

The table below summarizes classifications for community program available to the Village of Whitehall.

Table 9.26-8. Community Classifications

Program	Do you have this? (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	5	-
NYSDEC Climate Smart Community	No	-	-
Storm Ready	No	-	-
Firewise	No	-	-
Disaster/Safety Programs in/for Schools	No	-	-
Organizations with Mitigation Focus (advocacy group, non-government)	No	-	-
Public Education Program/Outreach (through website, social media)	No	-	-
Public-Private Partnerships	No	-	-

N/A = Not applicable. NP = Not participating. - = Unavailable. TBD = To be determined.

The classifications listed above relate to the community's ability to provide effective services to lessen its vulnerability to the hazards identified. These classifications can be viewed as a gauge of the community's capabilities in all phases of emergency management (preparedness, response, recovery and mitigation) and are used as an underwriting parameter for determining the costs of various forms of insurance. The CRS class applies to flood insurance while the BCEGS and Public Protection classifications apply to standard property insurance. CRS classifications range on a scale of 1 to 10 with class 1 being the best possible classification, and class 10 representing no classification benefit. Firewise classifications include a higher classification when the subject property is located beyond 1000 feet of a creditable fire hydrant and is within 5 road miles of a recognized Fire Station.

Criteria for classification credits are outlined in the following documents:

- The Community Rating System Coordinators Manual
- The Building Code Effectiveness Grading Schedule website at https://www.isomitigation.com/bcegs/
- The ISO Mitigation online ISO's Public Protection website at https://www.isomitigation.com/ppc/
- The National Weather Service Storm Ready website at https://www.weather.gov/stormready/
- The National Firewise Communities website at https://www.nfpa.org/Public-Education/By-topic/Wildfire/Firewise-USA

Self-Assessment of Capability

The table below provides an approximate measure of the Village of Whitehall's capability to work in a hazard-mitigation capacity and/or effectively implement hazard mitigation strategies to reduce hazard vulnerabilities.

Table 9.26-9. Self-Assessment Capability for the Municipality

Area	Degree of Hazard Mitigation Capability		
	Limited (If limited, what are your obstacles?)	Moderate	High
Planning and Regulatory Capability		X	X
Administrative and Technical Capability		X	
Fiscal Capability	X - This Village has the highest Tax Rate in the county and is at its debt limit		
Community Political Capability		X	
Community Resiliency Capability		X	
Capability to Integrate Mitigation into Municipal Processes and Activities.		X	

National Flood Insurance Program

NFIP Floodplain Administrator (FPA)

Peter Telisky, Compliance/Zoning Enforcement

Flood Vulnerability Summary

The Village does not maintain any records related to properties that have been damaged by flooding, or which would be interested in mitigation, nor does the Village make Substantial Damage estimates for specific storm and flooding events.

Resources

The FPA is the sole person responsible for floodplain administration in the Village. These responsibilities include permit review and record-keeping. NYS Building and Fire codes for all construction, including floodplain regulations, are enforced by the Washington County Department of Code Enforcement. Barriers to running an effective floodplain management program in the community include limits to staffing and funding. The FPA has received minimal training to fulfill this role, and is interested in attending continuing education and/or certification training on floodplain management

Compliance History

The Village is in good standing with the NFIP. The most recent compliance audit was completed at the end of April/beginning of May 2016.

Regulatory

The Village's Flood Damage Prevention Ordinance complies with the New York State mandate of 2' of freeboard, which exceeds the NFIP's minimum requirements. Additional reviews are conducted by the Washington County Department of Code Enforcement for all construction. Planning and zoning reviews also incorporate efforts to reduce flood risk.

Community Rating System

The Village of Whitehall does not participate in the Community Rating System (CRS) program.

Integration of Hazard Mitigation into Existing and Future Planning Mechanisms

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 this planning effort, each community was surveyed to obtain a better understanding of their community's progress in plan integration. A summary is provided below. In addition, the community identified specific integration activities that will be incorporated into municipal procedures.

Planning

Land Use Planning: The Village of Whitehall has a Planning Board and Zoning Board of Appeals which review all applications for development and consider natural hazard risk areas in their review. Many development activities require additional levels of environmental review, specifically NYS SEQR and Federal NEPA requirements.

Village of Whitehall Local Waterfront Revitalization Program: The Village of Whitehall Local Waterfront Revitalization Program is a comprehensive plan for the appropriate development and preservation of the Village's waterfront areas. The plan seeks to increase and improve public access to water resources, stimulate economic development in downtown Whitehall, and protect and enhance natural resources. As approved by the Secretary of State, the plan provides for local controls to guide future waterfront development and the legal ability to ensure that all actions proposed for the waterfront are consistent with the LWRP. Recommendations from the plan include:

- The Village should provide for the permanent protection of the wetlands around Cooke's Island, improve stormwater runoff and control stream and canal bank erosion, provide for the protection from floods, and protect the community's water supply by developing a Water Resources Management Plan.
- The Village (with the Town of Whitehall) proposes to purchase or lease Cooke's Island from the US Army Corps of Engineers and develop it into a public day-use primitive recreation area.

Stormwater Management: The Village has a stormwater collection system. In certain sections of the Village, the stormwater collection system combines with the sewer collection system and receives the benefit of treatment before its release into the Champlain Canal. During periods of significant rainfall, the aeration system is turned off, and solids settle out into the tank and only partial treatment is achieved. Most stormwater, however, is released, untreated, into the Barge Canal. The planned improvements to the sewer collection system will substantially reduce the amount of stormwater that infiltrates the sewer lines. The project will not, however, address stormwater treatment and this should be an issue the Village addresses in the near future.

Regulatory and Enforcement

Code Enforcement: Washington County provides code enforcement duties and responsibilities to the Village of Whitehall.

Construction Codes: The Village complies with New York State Uniform Fire Prevention and Building Code (the Uniform Code) and the State Energy Conservation Construction Code (the Energy Code), as well as its own Local Law 2 of 1998 (Unsafe Buildings Law). The building codes are strictly enforced to make new and renovated buildings as prepared as possible for hazard related incidents.

Flood Damage Prevention Law: This law requires permits for construction within flood hazard areas identified by the Federal Emergency Management Agency. Projects within the flood hazard area are reviewed to ensure that hazards from flooding are minimized through appropriate standards concerning construction techniques and materials, siting, and protection and maintenance of drainage areas. The law also requires subdivision proposals to be consistent with the need to minimize flood damage. The Village Code Enforcement Officer administers this law. Appeals may be made to the Village Planning Board.

Local Law # 2 2008 providing for Use of the Wastewater Collection and Treatment System: The Village protects and regulates its sewage collection and treatment facilities as a matter of public health and environmental safety. It seeks to prohibit the introduction of stormwater, surface, or sub-surface waters into sanitary sewers and to control the quantity and quality of wastes in the sewage system.

Waterfront Consistency Law: Prevents the loss of fish and wildlife, diminution of open space areas, erosion of the shoreline, losses due to flooding, erosion, and sedimentation, or permanent adverse changes to ecological systems.

Zoning Regulations, Local Law Number 3 of 1996: The Village's zoning code codifies the goals and objectives established by the Village of Whitehall's comprehensive plan. The code includes districts and standards pertaining to the health and safety of the population, the preservation of environmental assets, and the mitigation of natural hazards. The code has eight classes of districts, including "view shed" and "wet land".

The Village Reviewing Board is tasked with site plan review process for special or non-conforming use permits, with support from the County Planning Board. Design standards consider storm drainage, water mains, transportation infrastructure, sanitary sewers, and other infrastructure that can exacerbate or conversely, mitigate hazard impacts.

Fiscal

Grants: The Village has received many grants over the past few years from various state and federal agencies, including CDBG, NYSDEC Water Quality Improvement Project Program, and the USDA.

Education and Outreach

The Village and Town of Whitehall share a website, which includes links and contact information for Emergency Contacts, including the Town Police, Whitehall Fire Department, Skenesborough EMS, Village DPW, and Village Water/Sewer Department.

9.26.6 Mitigation Strategy and Prioritization

This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and prioritization.

Past Mitigation Initiative Status

The following table indicates progress on the community's mitigation strategy identified in the 2010 Plan. It should be noted that during the 2010 planning process, only general, countywide actions were identified for each municipality. The Village of Whitehall reviewed the previous actions and selected actions they chose to carry forward as part of this plan update. Previous actions that are now on-going programs and capabilities are indicated as such in the following table and may also be found under 'Capability Assessment' presented previously in this annex.

Table 9.26-10. Status of Previous Mitigation Actions

2010 Mitigation Action	Responsible Party	Status (In progress, No progress, Complete)	Describe Status	Next Step (Include in 2018 HMP or Discontinue)	Describe Next Step
Improve drainage at sites where roads have washed out due to natural hazards in the past	County and NYS DHSES	No Progress	The Village is not aware of any sites requiring any work	Discontinue	The Village is not aware of any sites requiring work; therefore, this action will not be included in the HMP Update.
Purchase equipment to provide for local personnel to conduct the drainage improvement	County and NYS DHSES	No Progress	The Village has or can rent any equipment needed for such improvements should they be required.	Complete	As of the date of this plan update, this action is not a concern for the Village as they have other means of obtaining equipment. Therefore, this action will not be included in the 2018 HMP Update.
Engineering assessment to determine feasibility of each site improvement	County and NYS DHSES	No Progress	The Village is not aware of any sites requiring any work	Discontinue	The Village is not aware of any sites requiring work; therefore, this action will not be included in the HMP Update.
Improve dams to prevent flooding causing roads to wash out.	County and NYS DHSES	No Progress	The only dam within the Village limits is on NYS Champlain Canal Lock #12 and the Village does not have jurisdiction over that dam.	Discontinue	The Village does not have jurisdiction over the dam located in the Village; therefore, this action will not be included in the 2018 HMP Update
Improve identified sites where slope stability is subject to land subsidence and where excavation or planting could mitigate future damage.	County and NYS DHSES	No Progress	This action is not relevant to the Village	Discontinue	This action is not relevant to the Village; therefore, it will not be included in the 2018 HMP Update.

Completed Mitigation Initiatives Not Identified in the Previous Mitigation Strategy

The Village of Whitehall has identified the following mitigation projects/activities that have also been completed but were not identified in the previous mitigation strategy in the 2010 Plan:

- None identified

Proposed Hazard Mitigation Initiatives for the Plan Update

The Village of White Hall participated in a mitigation action workshop in September 2016 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).

Table 9.26-11 summarizes the comprehensive-range of specific mitigation initiatives the Village of Whitehall would like to pursue in the future to reduce the effects of hazards. Some of these initiatives may be previous actions carried forward for this plan update. These 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. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table below to further demonstrate the wide-range of activities and mitigation measures selected.

As discussed in Section 6, 14 evaluation/prioritization criteria are used 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 your actions as 'High', 'Medium', or 'Low.' The table below summarizes the evaluation of each mitigation initiative, listed by Action Number.

Table 9.26-12 provides a summary of the prioritization of all proposed mitigation initiatives for the Plan update.

Table 9.26-11. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
V. Whitehall-1	Develop and implement a multi-hazard public awareness program for Village residents and business owners.	N/A	All	All	Village DPW, Village Board	High	Low	Municipal Budget	Short Term	Medium	EAP	PI
V. Whitehall-2	Improve stormwater runoff and control stream and canal bank erosion by planting vegetation along slopes and installing drainage swales or retention basins.	New and Existing	Flood, Severe Storm	All	Village DPW, Village Sewer/Water	High	Medium	Local Waterfront Revitalization Program Grants, Water Quality Improvement Project (WQIP) Program, FEMA HMA (HMGP, FMA), Municipal Budget	Short Term	Medium	SIP	PP
V. Whitehall-3	Review the Village's current Flood Damage Prevention Ordinance, and update as necessary to consider and address: • Compliance with the latest model Flood Damage Prevention Ordinances. To request the Model Flood Damage Prevention Law appropriate for your community, please contact the DEC Floodplain Management Section at 518-402-8185 or at floodplain.floodplain@dec.ny.gov. • Proper identification of the local NFIP Floodplain Administrator and educate them on their responsibilities of administering the duties of local floodplain administration. • Reference current regulatory NFIP floodplain mapping, which is currently in an active update process (2016-2018).											
	See above	New and Existing	Flood, Severe Storm	1	Village Board and Code Enforcement with assistance from NYSDEC, and County	High	Low	Village Budget	Short Term	High	LPR, EAP	PR, PI

Notes:

Not all acronyms and abbreviations defined below are included in the table.

**Does this mitigation initiative reduce the effects of hazards on new and/or existing buildings and/or infrastructure? Not applicable (N/A) is inserted if this does not apply.*

Acronyms and Abbreviations:

CAV	*Community Assistance Visit*
CRS	*Community Rating System*
DPW	*Department of Public Works*
FEMA	*Federal Emergency Management Agency*
FPA	*Floodplain Administrator*
HMA	*Hazard Mitigation Assistance*

Potential FEMA HMA Funding Sources:

FMA	*Flood Mitigation Assistance Grant Program*
HMGP	*Hazard Mitigation Grant Program*
PDM	*Pre-Disaster Mitigation Grant Program*
RFC	*Repetitive Flood Claims Grant Program (discontinued in 2015)*
SRL	*Severe Repetitive Loss Grant Program (discontinued*

Timeline:

Short	*1 to 5 years*
Long Term	*5 years or greater*
OG	*On-going program*
DOF	*Depending on funding*

N/A *Not applicable*
NFIP *National Flood Insurance Program*
OEM *Office of Emergency Management*

in 2015)

Costs:

Where actual project costs have been reasonably estimated:

Low *< $10,000*
Medium *$10,000 to $100,000*
High *> $100,000*

Where actual project costs cannot reasonably be established at this time:

Low *Possible to fund under existing budget. Project is part of, or can be part of an existing on-going program.*
Medium *Could budget for under existing work plan, but would require a reapportionment of the budget or a budget amendment, or the cost of the project would have to be spread over multiple years.*
High *Would require an increase in revenue via an alternative source (i.e., bonds, grants, fee increases) to implement. Existing funding levels are not adequate to cover the costs of the proposed project.*

Benefits:

Where possible, an estimate of project benefits (per FEMA's benefit calculation methodology) has been evaluated against the project costs, and is presented as:

Low= *< $10,000*
Medium *$10,000 to $100,000*
High *> $100,000*

Where numerical project benefits cannot reasonably be established at this time:

Low *Long-term benefits of the project are difficult to quantify in the short term.*
Medium *Project will have a long-term impact on the reduction of risk exposure to life and property, or project will provide an immediate reduction in the risk exposure to property.*
High *Project will have an immediate impact on the reduction of risk exposure to life and property.*

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*

Table 9.26-12. Summary of Prioritization of Actions

Mitigation Action/Project Number	Mitigation Action/Initiative	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
V. Whitehall-1	Develop and implement a multi-hazard public awareness program for Village residents and business owners.	1	1	1	1	0	0	1	0	0	1	1	1	0	0	8	Medium
V. Whitehall-2	Improve stormwater runoff and control stream and canal bank erosion by planting vegetation along slopes and install riprap where needed.	1	1	1	1	0	0	0	1	0	1	1	1	0	0	8	Medium
V. Whitehall-3	Review the Village's current Flood Damage Prevention Ordinance, and update as necessary	1	1	1	1	1	1	1	1	0	1	1	0	0	0	10	High

Note: Refer to Section 6 which contains the guidance on conducting the prioritization of mitigation actions.

9.26.7 Future Needs to Better Understand Risk/Vulnerability

None at this time.

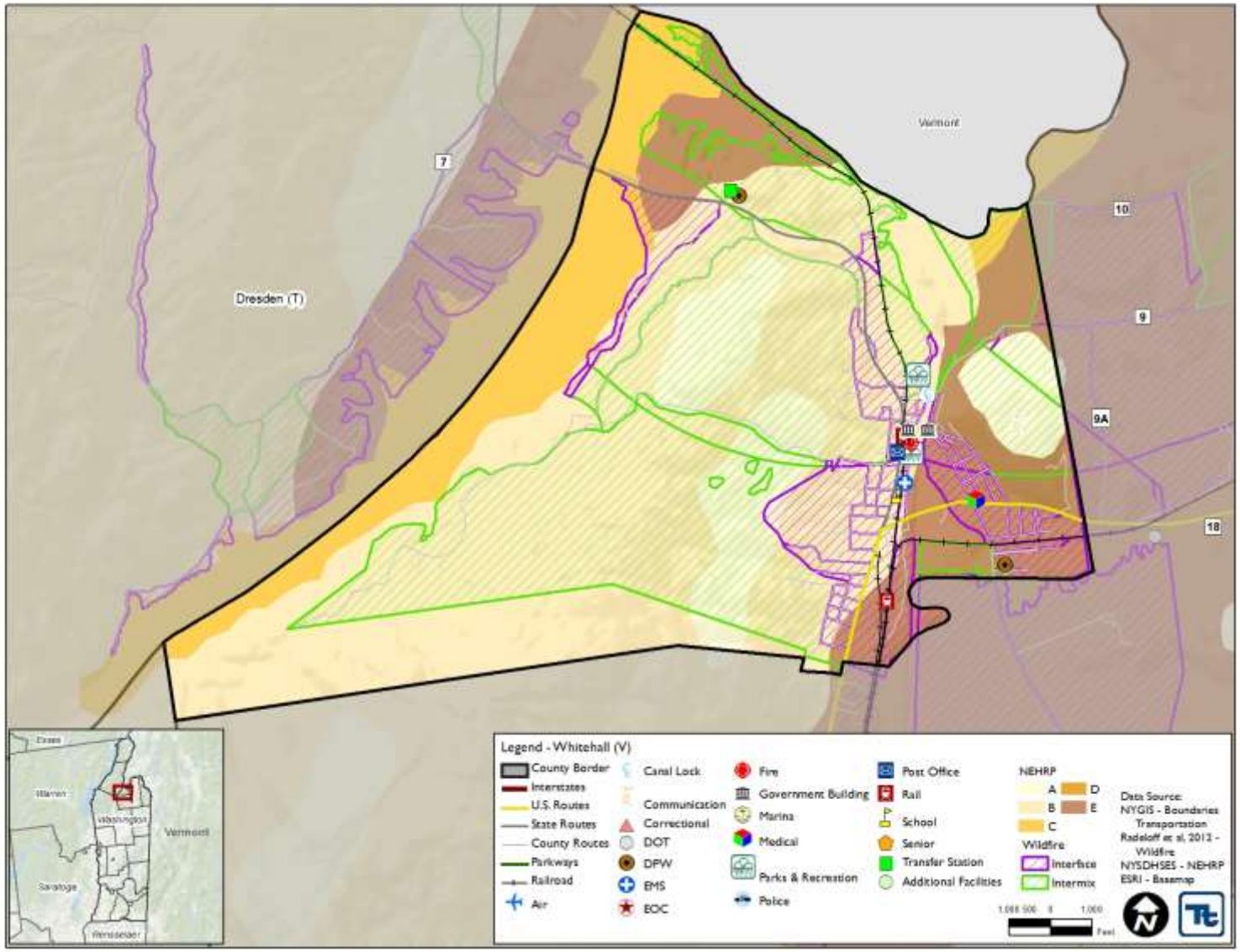
9.26.8 Hazard Area Extent and Location

Hazard area extent and location maps have been generated for the Village of Whitehall that illustrate the probable areas impacted within the municipality. These maps are based on the best available data at the time of the preparation of this plan, and are considered to be adequate for planning purposes. Maps have only been generated for those hazards that can be clearly identified using mapping techniques and technologies, and for which the Village of Whitehall has significant exposure. These maps are illustrated in the hazard profiles within Section 5.4, Volume I of this Plan.

9.26.9 Additional Comments

None at this time.

Figure 9.26-1. Village of Whitehall Hazard Area Extent and Location



Action Number: V. Whitehall-1

Mitigation Action Name: Develop and implement a multi-hazard public awareness program for Village residents and business owners.

Assessing the Risk	
Hazard(s) addressed:	All
Specific problem being mitigated:	There is currently no multi-hazard public awareness program for the Village. This results in a lack of knowledge of hazards and their impacts to residents and business owners.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	Do nothing - current problem continues Address questions/concerns as needed – does not educate everyone and does not provide consistent information
Action/Project Intended for Implementation	
Description of Selected Action/Project	Develop and implement a multi-hazard public awareness program for Village residents and business owners. This will include: • Encourage individual and family preparedness through public education projects such as safety fairs or municipal-wide events • Prepare and provide hazard vulnerability checklists for homeowners to conduct their own inspections • Distribute informational fliers about flood, earthquake, severe storms, severe winter storms, and wildfire and how one can prepare and protect themselves during these types of events
Mitigation Action Type	Education and Awareness Programs (EAP)
Goals Met	Goal 1: Protect Life and Property Goal 2: Increase Public Awareness Goal 3: Encourage Partnerships Goal 4: Provide for Emergency Services 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.
Applies to existing and or new development, or not applicable	N/A
Benefits (losses avoided)	High
Estimated Cost	Low
Priority*	Medium
Plan for Implementation	
Responsible Organization	Village DPW, Village Board
Local Planning Mechanism	Hazard Mitigation, Emergency Preparedness
Potential Funding Sources	Municipal budget
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

Action Number: V. Whitehall-1

Mitigation Action Name: Develop and implement a multi-hazard public awareness program for Village residents and business owners.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	This action is technically feasible
Political	0	
Legal	0	
Fiscal	1	Municipal Budget
Environmental	0	No known negative environmental impacts
Social	0	No known negative social impacts
Administrative	1	The Village has the administrative capabilities to complete the action
Multi-Hazard	1	All
Timeline	1	Can be completed within five years
Agency Champion	0	
Other Community Objectives	0	
Total	8	
Priority (H/M/L)	**Medium**	

Action Number: V. Whitehall-2

Mitigation Action Name: Stormwater improvements

Assessing the Risk	
Hazard(s) addressed:	Flood, Severe Storm
Specific problem being mitigated:	During periods of heavy rainfall, the Village's stormwater collection system's aeration system is turned off and solids settle out into the tank and are only partially treated. However, most stormwater is not treated and released into the Barge Canal.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	Do nothing - current problem continues Identify sites and ask for volunteer groups to conduct plantings – may not be interested or at high enough standards to mitigate damage
Action/Project Intended for Implementation	
Description of Selected Action/Project	Improve stormwater runoff and control stream and canal bank erosion by planting vegetation along slopes and installing drainage swales or retention basins. This project will include providing stormwater infrastructure improvements that separate stormwater runoff from sanitary wastewater throughout the Village by filtering stormwater prior to its direct discharge into surface water and correct the stormwater runoff and bank erosion along the south side of Route 4 at Wood Creek and other areas of the Village.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	Goal 1: Protect Life and Property
Applies to existing and or new development, or not applicable	New and Existing
Benefits (losses avoided)	High
Estimated Cost	Medium
Priority*	Medium
Plan for Implementation	
Responsible Organization	Village DPW and Sewer/Water, Engineering
Local Planning Mechanism	Hazard Mitigation, Stormwater Management, Waterfront Revitalization
Potential Funding Sources	Local Waterfront Revitalization Program Grants, Water Quality Improvement Project (WQIP) Program, FEMA HMA (HMGP, FMA), Municipal Budget
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

Action Number: V. Whitehall-2
Mitigation Action Name: Stormwater Improvements

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	0	
Legal	0	
Fiscal	0	Need to seek grant funding
Environmental	1	Reduce the amount of point-source and non-point source runoff into bodies of water in the Village
Social	0	
Administrative	1	The Village has the administrative capabilities to complete the action
Multi-Hazard	1	Flood, Severe Storm
Timeline	1	Once funding is obtained, the project will be completed within five years
Agency Champion	0	
Other Community Objectives	0	
Total	8	
Priority (H/M/L)	**Medium**	

Action Number: V. Whitehall - 3

Mitigation Action Name: Review the Village's current Flood Damage Prevention Ordinance, and update as necessary

Assessing the Risk	
Hazard(s) addressed:	Flood, severe storm
Specific problem being mitigated:	The Village's flood damage prevention ordinance is in need of an update once the updated maps are available from FEMA
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Update Flood Damage Prevention Ordinance to higher standards – Exceeding requirements not a priority at this time
Action/Project Intended for Implementation	
Description of Selected Action/Project	Review the Village's current Flood Damage Prevention Ordinance, and update as necessary to consider and address: • Compliance with the latest model Flood Damage Prevention Ordinances. To request the Model Flood Damage Prevention Law appropriate for your community, please contact the DEC Floodplain Management Section at 518-402-8185 or at floodplain.floodplain@dec.ny.gov. • Proper identification of the local NFIP Floodplain Administrator and educate them on their responsibilities of administering the duties of local floodplain administration. • Reference current regulatory NFIP floodplain mapping, which is currently in an active update process (2016-2018).
Mitigation Action Type	Local Plans and Regulations (LPR) Education and Awareness Programs (EAP)
Goals Met	Goal 1: Protect Life and Property
Applies to existing and or new development, or not applicable	New and Existing
Benefits (losses avoided)	High
Estimated Cost	Low
Priority*	High
Plan for Implementation	
Responsible Organization	Village Board and Code Enforcement with assistance from NYSDEC, and County
Local Planning Mechanism	Hazard Mitigation, Floodplain Administration
Potential Funding Sources	Village Budget
Timeline for Completion	Short
Reporting on Progress	
Date of Status Report/ Report of Progress	No progress; new project

Action Number: V. Whitehall - 3

Mitigation Action Name: Review the Village's current Flood Damage Prevention Ordinance, and update as necessary

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	This action is technically feasible
Political	1	
Legal	1	
Fiscal	1	Municipal budget / staff time
Environmental	1	
Social	0	
Administrative	1	The Village has the administrative capabilities to implement this action
Multi-Hazard	1	Flood, Severe Storm
Timeline	0	
Agency Champion	0	
Other Community Objectives	0	
Total	10	
Priority (H/M/L)	**High**	