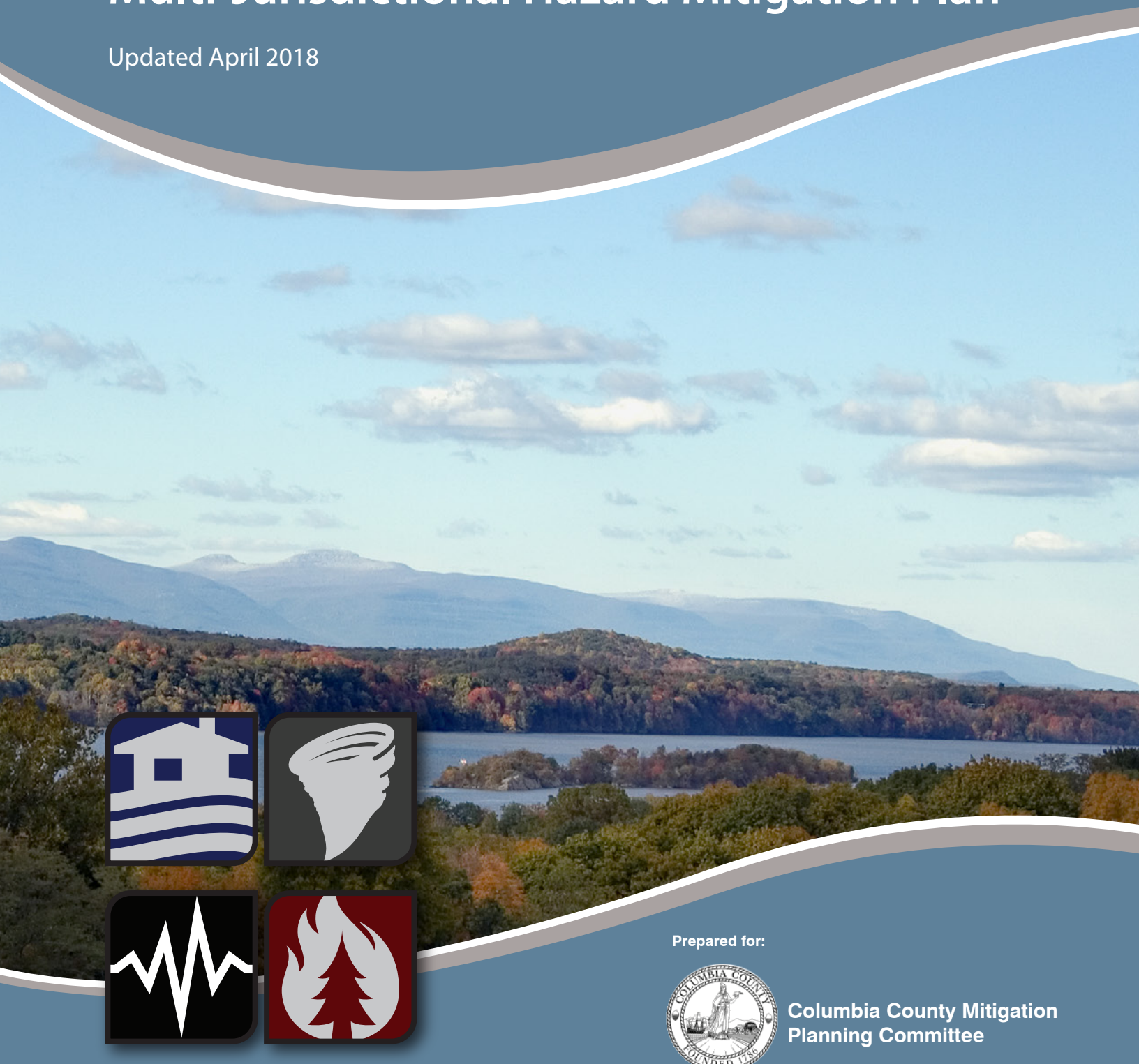
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Columbia County
Multi-Jurisdictional Hazard Mitigation Plan

Updated April 2018



Prepared for:

Columbia County Mitigation Planning Committee

Prepared by:

ecology and environment, inc.
Global Environmental Specialists



MULTI-JURISDICTIONAL

HAZARD MITIGATION PLAN

Columbia County, New York

Updated April 2018

Prepared for:

Columbia County
Office of Emergency Management
85 Industrial Tract
Hudson, New York, 12534

Prepared by:

ecology and environment, inc.
Global Environmental Specialists

EXECUTIVE SUMMARY

The purpose of hazard mitigation is to reduce or eliminate long-term risk to people and property from hazards. Columbia County and participating jurisdictions developed this multi-hazard mitigation plan in 2013 to reduce future losses to the County and its communities resulting from all hazards. The plan was prepared pursuant to the requirements of the Disaster Mitigation Act of 2000 and to achieve eligibility for the Federal Emergency Management Agency (FEMA) Flood Mitigation Assistance, Pre-Disaster Mitigation, Repetitive Flood Loss Program, Severely Flood Loss Program and Hazard Mitigation Grant Programs. This plan has been updated from its October 29, 2013 version to this version as of July 7, 2016.

The Columbia County Multi-Hazard Mitigation Plan is a multi-jurisdictional plan that covers the following local governments that participated in the planning process.

- Columbia County
- City of Hudson
- Town of Ancram
- Town of Austerlitz
- Town of Canaan
- Town of Chatham
- Town of Claverack
- Town of Clermont
- Town of Copake
- Town of Gallatin
- Town of Germantown
- Town of Ghent
- Town of Greenport
- Town of Hillsdale
- Town of Kinderhook
- Town of New Lebanon
- Town of Livingston
- Town of Stockport
- Town of Stuyvesant
- Town of Taghkanic
- Village of Chatham
- Village of Kinderhook
- Village of Valatie

The following jurisdictions participated in the planning process but were unable to identify sufficient mitigation actions for their communities and will not be eligible for potential hazard mitigation funding:

- Village of Philmont

The County's planning process followed a methodology prescribed by FEMA, which began with the formation of a Hazard Mitigation Planning Team (HMPT) comprised of key stakeholders from Columbia County and participating jurisdictions. State agency representatives from the New York State Office of Emergency Management also attended the planning meetings. Please see Appendix D for a complete list of invited agencies/organizations. The HMPT conducted a risk assessment that identified and profiled hazards that pose a risk to Columbia County, assessed the County's vulnerability to these hazards, and examined the capabilities in place to mitigate them. The County is vulnerable to several hazards that are identified, profiled, and analyzed in this plan. Floods, severe storms, hurricanes, and severe winter storm are among the hazards that can have a significant impact on the County.

Based upon the risk assessment, the HMPT identified goals for reducing risk from hazards. The goals of this multi-hazard mitigation plan are to:

1. **Protect Life and Property**
   - Minimize the vulnerability of the people, property, environment, and economy of Columbia County to the impacts of all hazards.
   - Protect critical facilities and infrastructure from all hazards.

2. **Increase Public Awareness**
   - Improve public understanding of hazards and risk by providing public awareness, preparedness, and mitigation information through various channels of communication.

3. **Encourage Partnerships**
   - Create a disaster resistant community by involving individuals in the private and public sector to participate in hazard mitigation planning and training activities geared toward reducing the impact of disasters in Columbia County.

4. **Provide for Emergency Services**
   - Strengthen bi-directional communication among agencies and between agencies and the public.

To meet the identified goals, the plan recommends the mitigation actions detailed in Chapter 5. The HMPT developed an implementation plan for each action, which identifies priority level, background information, ideas for implementation, responsible agency, timeline, cost estimate, potential funding sources, and more. These additional details are also provided in Chapter 5.

The multi-hazard mitigation plan has been formally adopted by the governing bodies of each participating jurisdiction and will be updated within a five-year timeframe.

ACKNOWLEDGEMENTS

This Multi-Jurisdictional Hazard Mitigation Plan, its revision, and improvement, is an ongoing effort of the Columbia County Local Emergency Planning Committee. The County's hazardous mitigation planning program involves this plan and other related information and procedures.

Preparation of this document, and its continued improvement, requires participation and support from many individuals, jurisdictions, agencies, organizations, and businesses. Municipalities, emergency response agencies, County departments, other agencies, employees, and volunteers deserve recognition for their efforts to continue to improve and develop the Plan. The help of all participants was greatly appreciated.

Copies of this plan are available from the Columbia County Office of Emergency Services, 85 Industrial Tract, Hudson, New York 12534.

The revision of this Multi-Jurisdictional Hazard Mitigation Plan was prepared under contract by Ecology and Environment, Inc.

PLAN ADOPTION RECORD

Note to Reviewers: When this plan has been reviewed and approved pending adoption by FEMA Region II the adoption resolutions will be signed by the participating jurisdictions. A model resolution is provided. The following jurisdictions participated in the development of this plan and have adopted the multi-jurisdictional plan.

Plan Adoption Record

Jurisdiction	Plan Adopted?	Date of Adoption	Date of Expiration
Columbia County			
City of Hudson			
Town of Ancram			
Town of Austerlitz			
Town of Canaan			
Town of Chatham			
Town of Claverack			
Town of Clermont			
Town of Copake			
Town of Gallatin			
Town of Germantown			
Town of Ghent			
Town of Greenport			
Town of Hillsdale			
Town of Kinderhook			
Town of New Lebanon			
Town of Livingston			
Town of Stockport			
Town of Stuyvesant			
Town of Taghkanic			
Village of Chatham			
Village of Kinderhook			
Village of Valatie			

MODEL RESOLUTION

Resolution # _____ Adopting the Columbia County Multi-Hazard Mitigation Plan

Whereas, the (Name of Government/District/Organization seeking FEMA approval of hazard mitigation plan) recognizes the threat that natural hazards pose to people and property within our community; and

Whereas, undertaking hazard mitigation actions will reduce the potential for harm to people and property from future hazard occurrences; and

Whereas, the U.S. Congress passed the Disaster Mitigation Act of 2000 ("Disaster Mitigation Act") emphasizing the need for pre-disaster mitigation of potential hazards;

Whereas, the Disaster Mitigation Act made available hazard mitigation grants to state and local governments; and

Whereas, an adopted Multi-Hazard Mitigation Plan is required as a condition of future funding for mitigation projects under mitigation FEMA pre- and post-disaster mitigation grant programs; and

Whereas, the (Name of Government/District/Organization) fully participated in the FEMA-prescribed mitigation planning process to prepare this Multi-Hazard Mitigation Plan; and

Whereas, the New York Emergency Management Office and the Federal Emergency Management Agency Region II officials have reviewed the "Columbia County Multi-Hazard Mitigation Plan" and approved it contingent upon this official adoption of the participating governing body; and

Whereas, the (Name of Government/District/Organization) desires to comply with the requirements of the Disaster Mitigation Act and to augment its emergency planning efforts by formally adopting the Columbia County Multi-Hazard Mitigation Plan; and

Whereas, adoption by the governing body for the (Name of Government/District/Organization) demonstrates the jurisdictions' commitment to fulfilling the mitigation goals and objectives outlined in the Multi-Hazard Mitigation Plan.

Whereas, adoption of this legitimizes the plan and authorizes responsible agency to carry out their responsibilities under the plan;

Now, therefore, be it resolved, that the (Name of Government/District/Organization) adopts the "Columbia County Multi-Hazard Mitigation Plan" as an official plan; and

Be it further resolved, the (Name of Government/District/Organization) will submit this Adoption Resolution to the New York State Emergency Management Office and Federal Emergency Management Agency Region II officials to enable the plan's final approval.

Passed: _____

_____

Certifying Official

TABLE OF CONTENTS

Chapter **Page**

Executive Summary i
Acknowledgements iv
Plan Adoption Record v
Model Resolution vi
Table of Contents vii
List of Tables and Figures x
Acronyms xii

1 Introduction and Planning Process 1-1
1.1 Authority 1-1
1.1.1 Federal Mitigation Planning Requirements 1-1
1.1.2 NYS DHSES Mitigation Planning Requirements 1-2
1.1.3 New York State Hazard Mitigation Plan 1-2
1.2 Purpose and Objectives 1-3
1.3 Planning Process 1-4
1.3.1 Multi-Jurisdictional Participation 1-4
1.3.2 Hazard Mitigation Planning Team 1-5
1.3.3 Data Collection 1-6
1.3.4 HMPT Meetings 1-6
1.3.5 Public Involvement 1-7
1.3.6 Coordination with Other Planning Efforts 1-8

2 CoLumbia County Profile 2-1
2.1 Location and Geography 2-1
2.2 Climate 2-3
2.3 Population Trends and Demographics 2-4
2.4 Governance 2-4
2.5 Economy 2-5
2.6 Land Use Trends 2-6
2.7 Critical Infrastructure 2-6

3 Hazard Identification and Profiles 3-1
3.1 Hazard Identification 3-2
3.1.1 Methodology 3-2
3.1.2 History of Declared Disasters 3-5
3.2 Hazard Profiles 3-6
3.2.1 Flood 3-6

3.2.2 Severe Storms (includes Coastal Storms/Hurricanes/Hailstorms) 3-10
3.2.3 Severe Winter Storms (includes Ice Storms) 3-12
3.2.4 Tornado 3-14

4 Vulnerability Assessment 4-1
4.1 Identifying Critical Infrastructure 4-1
4.2 Asset Inventory 4-1
4.3 Flood Vulnerability Analysis 4-3
4.4 Severe Storms (Coastal Storms/Hurricanes/Hailstorms) Vulnerability Analysis 4-7
4.5 Severe Winter Storms/Ice Storms Vulnerability Analysis 4-7
4.6 Tornado Vulnerability Analysis 4-7
4.7 Climate Change Vulnerability Analysis 4-8

5 Mitigation Strategy 5-1
5.1 Goals and Objectives 5-1
5.2 Identification and Analysis of Mitigation Actions 5-4
5.3 Implementation of Mitigation Actions 5-5
5.4 Priority and Mitigating Measure Identification 5-19
5.5 National Flood Insurance Program Participation 5-20
5.5.1 New York State NFIP Program 5-20
5.5.2 NFIP Participation 5-20
5.5.3 Application of Best Management Practices 5-20
5.5.4 Community Rating System (CRS) 5-21
5.5.5 Community-Specific Actions 5-21
5.6 Status of 2008 Mitigation Actions 5-22

6 Plan Implementation and maintenance 6-1
6.1 Plan Monitoring and Evaluation 6-1
6.1.1 Participating Jurisdictions 6-1
6.1.2 Plan Maintenance Schedule 6-1
6.1.3 Plan Maintenance Process 6-2
6.1.4 Monitoring and Updating 6-3
6.1.5 Continued Public Involvement 6-3
6.2 Integration of Mitigation into Existing Planning Mechanisms 6-3
6.2.1 Existing Plans 6-4
6.2.2 Community-Specific Integration Actions 6-4

7 References 7-1

Appendices

Appendix A FEMA Local Mitigation Plan Review Tool
Appendix B Community Profiles
Appendix C Mitigation Action Worksheets
Appendix D Planning Process Materials
Appendix E Hazard Identification Results
Appendix F NFIP and Historic Hazard Events Data
Appendix G Asset Inventory
Appendix H Historical Resources
Appendix I Status of 2008 Actions
Appendix J Shelter Plan

LIST OF TABLES AND FIGURES

Table **Page**

Table 1-1 Advisory Committee Members 1-4
Table 1-2 Columbia County Hazard Mitigation Plan Participating Jurisdictions 1-5
Table 1-3 Schedule of HMPT Meetings 1-7
Table 2-1 Top Ten Industries for Employment in Columbia County 2-5
Table 3-1 HIRA-NY Results for Columbia County 3-3
Table 3-2 Hazard Ranking by Columbia County HMPT 3-4
Table 3-3 Declared Federal Disasters in Columbia County 1973-2012 3-5
Table 4-1 Repetitive Loss Properties Information for Columbia County 4-5
Table 5-1 Mitigation Strategies (Actions) 5-6
Table 5-2 Cost Benefit Review Methodology - Benefits 5-19
Table 5-3 Cost Benefit Review Methodology - Costs 5-19

Figure **Page**

Figure 1-1 Disaster Loss Cycle 1-3
Figure 1-2 Planning Discussions 1-6
Figure 2-1 Columbia County within New York State 2-1
Figure 2-2 The 23 Municipalities within Columbia County 2-2
Figure 2-3 Watersheds and Tributaries in Columbia County 2-3
Figure 3-1 HAZUS 100-year Flood depth, Columbia County 3-9
Figure 3-2 1,000-Year Hurricane Wind Gust Speed in Columbia County 3-11
Figure 3-3 Historic Annual Severe Storm Probability 3-12
Figure 3-4 Normal Annual Snowfall 1979-2009 3-14
Figure 3-5 Tornado damage to a home in Columbia County July 21, 2003 3-15
Figure 3-6 Tornado Risk Areas 3-16
Figure 3-7 History of Tornados from 1950-2005 3-17
Figure 3-8 Historic Annual Tornado Probability In New York State 3-18
Figure 3-9 Tornado days per year in United States 3-18
Figure 4-1 Columbia County Residential Property Exposure in 100-Year Floodplains 4-4
Figure 4-2 Columbia County: Building Inventory within the 100-Year Floodplain 4-6

ACRONYMS

CCDW	Columbia County Department of Public Work
CCEMO	Columbia County Emergency Management Office
CCSO	Columbia County Sheriff's Office
County	Columbia County
DFIRM	Digital Flood Insurance Rate Maps
DMA 2000	Disaster Mitigation Act of 2000
E&E	Ecology and Environment, Inc.
EF	Enhanced Fujita Scale
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Maps
FIS	FEMA Flood Insurance Studies
HAZUS-MH	Hazards U.S. Multi-hazard, Ver. 1.3
HIRA-NY	Hazard Identification and Risk Assessment
HMGP	Hazard Mitigation Grant Program
HMPT	Hazard Mitigation Planning Team
Mitigation Plan	Columbia County Hazard Mitigation Plan
NCDC	National Climatic Data Center
NFIP	National Flood Insurance Program
NSSL	National Severe Storms Laboratory
NOAA	National Oceanic and Atmospheric Administration
NYS DHSES	NY State Division of Homeland Security and Emergency Services
Stafford Act	Robert T. Stafford Act of 1988
USCB	U.S. Census Bureau

1 INTRODUCTION AND PLANNING PROCESS

Chapter 1 describes the authorities and principles that provide the basis for Columbia County's (County) mitigation program and the planning process the County conducted to ensure that the mitigation strategy was informed by input from key County departments, jurisdictional and community partners, and the public.

The Columbia County Multi-Jurisdictional Hazard Mitigation Plan (Mitigation Plan) is the guiding document for the County's hazard mitigation program. The Mitigation Plan identifies the hazards that could put the County at risk and details a comprehensive strategy for minimizing potential losses and maximizing opportunity to increase the community's resiliency. Mitigation planning provides local jurisdictions the opportunity to think through future disaster scenarios and plan for mitigating the resulting shocks and stresses. The success of any multi-hazard mitigation planning effort depends on using local resources to identify risks, analyze vulnerability, and coordinate mitigation goals and objectives through an engaged, multi-jurisdictional planning process.

1.1 Authority

Supported by a grant provided by the Federal Emergency Management Agency (FEMA) and administered by the New York State Division of Homeland Security and Emergency Services (NYSDHSES) this plan was prepared in compliance with the Disaster Mitigation Act of 2000 (DMA 2000). DMA 2000 was signed into law on October 30, 2001, to amend the Robert T. Stafford Act of 1988 (Stafford Act). Section 322 of the DMA 2000 requires that states and communities have a FEMA-approved mitigation plan in place in order to receive Hazard Mitigation Grant Program (HMGP) funding. The Interim Final Rule, prepared by FEMA in order to implement DMA 2000, establishes planning and funding criteria for states and local governments.

1.1.1 Federal Mitigation Planning Requirements

The planning process requirements mandated by FEMA (outlined in 44 Code of Federal Regulations [CFR] §201.6) include the following activities:

- Document the planning process.
- Provide stakeholders with an opportunity to participate.
- Conduct and document public involvement.
- Incorporate existing plans and reports.
- Discuss continued public participation and plan maintenance.
- Provide a method for monitoring, evaluating, and updating the hazard mitigation plan.

Once complete, the hazard mitigation plan must be submitted to FEMA for approval. FEMA's approval of a hazard mitigation plan is a prerequisite for federal Hazard Mitigation Assistance Grant Program eligibility (outlined in 42 CFR §5165(a)). *See Appendix A for a completed FEMA Local Mitigation Plan Review Tool.*

1.1.2 NYS DHSES Mitigation Planning Requirements

The planning process requirements outlined by NYSDHSES Office of Emergency Management (OEM) include the following activities:

- Community engagement of key stakeholders and the public.
- Involvement of all pertinent local and county personnel.
- Identification of mitigation strategies for all critical facilities in a hazard area.
- Identification of shelter, temporary housing, and potential relocation sites.
- Identification of evacuation routes and procedures.
- Identification of all desired mitigation projects with identified completion timeframes, funding sources, and project owners.
- Incorporation of climate change into the plan document.
- At least 50% of participating jurisdictions, and the County must adopt the FEMA-approved plan.

1.1.3 New York State Hazard Mitigation Plan

The mitigation goals and strategies of this Mitigation Plan are consistent with the mitigation goals of the New York State Hazard Mitigation Plan. A copy of the New York State Hazard Mitigation Plan can be found online at http://www.dhses.ny.gov/oem/mitigation/plan.cfm

1.2 Purpose and Objectives

Hazard mitigation is any sustained action taken to reduce or eliminate the long-term risk to human life and property posed by hazards (44 CFR §201.2). Hazard mitigation activities may be implemented before, during, or after an event. Mitigation plans form the foundation for a community's long-term strategy to reduce disaster losses and break the cycle of disaster damage, reconstruction, and repeated damage. It encourages communities to be more prepared to readily adapt to change during or/and after an event. Key objectives of mitigation planning are as follows:

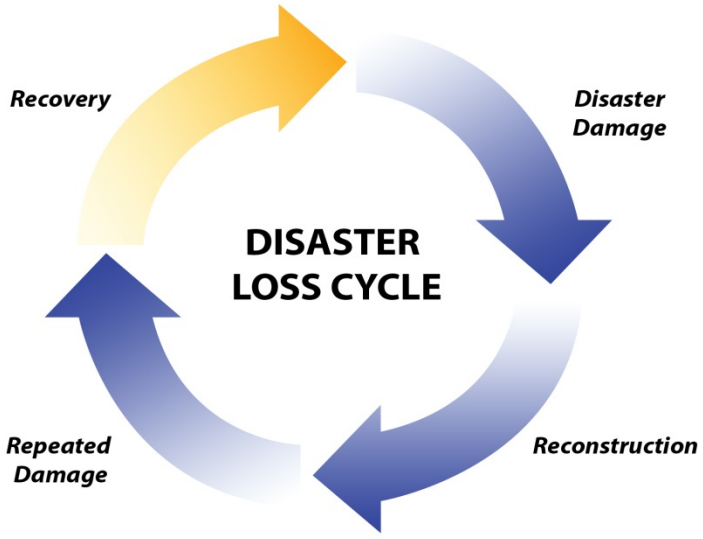


Figure 1-1 Disaster Loss Cycle

- Guide mitigation activities in a coordinated and cost-effective manner.
- Integrate mitigation strategies into existing community plans/programs.
- Consider future growth and development trends in the economy.
- Make a community more disaster-resilient.

The County and its 23 municipalities prepared this Mitigation Plan to guide hazard mitigation planning to better protect the County's people, environment, and economy from the impacts of hazard events. This plan demonstrates the communities' collective commitment to reduce vulnerability to hazards and increase community resiliency after a disaster by using the plan as a tool to help decision-makers direct mitigation activities and resources. This Mitigation Plan was also developed to make the County and the participating jurisdictions eligible for federal disaster assistance programs, specifically, FEMA's Hazard Mitigation Grant Program, Pre-Disaster Mitigation Program, Flood Mitigation Assistance Program, Respective Flood Claims Program, and Severely Repetitive Flood Loss Program.

The purpose of this Mitigation Plan is to provide an action plan for County and local jurisdictions to assist in reducing or eliminating the risk to human life and property posed by known hazards. The Mitigation Plan also documents the hazard mitigation process undertaken by the County and all participating municipalities. As per federal mandates, this Mitigation Plan is an update of the previous Columbia County Hazard Mitigation Plan approved in May 2008.

1.3 Planning Process

In December 2012, the Columbia County Emergency Management Office (CCEMO) contracted with Ecology & Environment (E&E) to assist the County in updating their existing multi-jurisdictional, multi-hazard mitigation plan. CCEMO took the lead in developing this plan with E&E's assistance and formed an Advisory Committee. The role of the Advisory Committee was to:

- Oversee the Mitigation Plan development process.
- Assist the Hazard Mitigation Planning Team (HMPT) to meet the DMA requirements as established by federal regulations and follow FEMA's planning guidance process.
- Facilitate HMPT meetings and the public input process.
- Produce the draft and final Mitigation Plan documents.

The County Advisory Committee included the following members:

Table 1-1 Advisory Committee Members

Henry Swartz	Deputy Director of Emergency Management, Columbia County, NY	CCEMO
Lt. Thomas Lanphear	Columbia County Sheriff's Office	CCSO
Bill Black	Director of Emergency Management Columbia County, NY	CCEMO
Dennis Lawlor	Emergency Management Planner	E & E
Daniel Herrera	Emergency Management Planner	E & E
Mark Fountain	Emergency Management Planner	E & E
Amy Mahl	Emergency Management Planner	E & E
Nermin Ahmad	Policy Planner	E & E
Nadine Macura	Regional Coordinator	NYSDHSES

1.3.1 Multi-Jurisdictional Participation

The planning process is as important as the Mitigation Plan itself. It creates a framework for risk-based decision making to reduce damages to lives, property, and the economy from future disasters. By implementing this Mitigation Plan, the County and the 23 participating municipalities seek to reduce the loss of life, injury, property damage, economic impact, direct

cost and community impact resulting from disaster. Table 1-2 lists the 24 jurisdictions that participated in the hazard mitigation planning process. All 23 jurisdictions with Columbia County elected to participate in the planning process. A *community profile for each of the 23 jurisdictions is provided in Appendix B.*

Table 1-2 Columbia County Hazard Mitigation Plan Participating Jurisdictions		
Columbia County	City of Hudson	Town of Ancram
Town of Austerlitz	Town of Canaan	Town of Chatham
Town of Claverack	Town of Clermont	Town of Copake
Town of Gallatin	Town of Germantown	Town of Ghent
Town of Greenport	Town of Hillsdale	Town of Kinderhook
Town of Livingston	Town of New Lebanon	Town of Stockport
Town of Stuyvesant	Town of Taghkanic	Village of Chatham
Village of Kinderhook	Village of Philmont	Village of Valatie

See Chapter 2, Figure 2-1 and 2-2, for maps of the planning area. Maps of individual municipalities are provided in their respective community profiles in Appendix B.

1.3.2 Hazard Mitigation Planning Team

The County HMPT was formed in March 2013 following meetings on March 13, 2013 with the Columbia County town supervisors and March 14, 2013 with the Columbia County Advisory Committee. An overview of the process for the Mitigation Plan update was detailed. All 24 jurisdictions were requested to select one representative each to be part of the HMPT at these meetings. *See Appendix D for a list of HMPT members.*

The HMPT's role was to:

- Identify and provide jurisdiction-specific data and information including, but not limited to the location, nature, and value of critical infrastructure; copies of existing emergency management plans, policies, and procedures; copies of land use and/or zoning maps; FEMA Flood Insurance Rate Maps (FIRMs); descriptions of recent and historical incidents; descriptions of current and past mitigation measures and activities; and completed FEMA Hazard Mitigation Planning Worksheets.
- Provide feedback and collaborate with other participating jurisdictions to make decisions throughout the planning process including hazard and risk analysis, establishment of goals and objectives, and prioritization of mitigation measures.
- Assist in facilitating the public input process.
- Review and finalize the draft and final plan documents.
- Coordinate with NYSOEM and FEMA Region II plan reviewers.

Additionally, the HMPT is responsible for the implementation and ongoing maintenance of the Mitigation Plan when finalized. The HMPT is also responsible for annual review of the Mitigation Plan, ensuring ongoing opportunities for public comment, and participating in the next comprehensive five-year update.

1.3.3 Data Collection

To ensure that the Mitigation Plan incorporated the most relevant and accurate local data, the HMPT used a combination of nationally available and local data sources during the data collection process. For earthquake, flood, and hurricane hazard data, the HMPT used FEMA's HAZUS-MH software to provide loss and risk estimates within the County. This commonly used software uses nationally applicable standardized methodologies for estimating the potential losses from these hazards. For other hazards assessed in this plan, the HMPT reached out directly to local communities to identify their critical at-risk areas and potential loss values. Representatives of local jurisdictions within the County received a FEMA worksheet (STAPLEE Criteria Worksheet) that allowed them to identify these areas in an organized and easily understandable way. These worksheets also lead to the development of the community profiles in Appendix B. *See Appendix C for STAPLEE Criteria worksheets.*

1.3.4 HMPT Meetings

An initial kickoff meeting was held on March 27, 2013, to initiate the Mitigation Plan update process. The members of the HMPT were invited to this kickoff meeting to discuss planning activities and the purpose of the plan and to better understand the Mitigation Plan update process. The meeting included an introduction to the planning and public participation processes, defined roles and expectations for HMPT members, identified data collection requirements and identified/profiled hazards for inclusion in the Mitigation Plan that could potentially impact the community. Follow-up meetings were conducted on May 20, 2013 and August 28, 2013 to complete the process. A summary of all meetings held during the development of this Mitigation Plan is presented in Table 1-3. *The sign-in sheets, agendas, other supporting documentation and meeting minutes for each of the meetings are included in Appendix D.*



Figure 1-2 Planning Discussions

Table 1-3 Schedule of HMPT Meetings

Meeting	Topic	Date
HMPT #1	Presentation to the town supervisors: Introduction overview of the process, public participation strategy and hazard identification process.	March 13, 2013
HMPT #2	Kick-off meeting for Advisory Team discussing planning schedule, roles and responsibilities, and planning requirements.	March 14, 2013
HMPT #3	Meeting with Hazard Mitigation Planning Team introducing the planning advisory team, discussing roles and responsibilities, data requirements and data collection forms, state and federal planning requirements, public participation, and the hazard identification process.	March 27, 2013
HMPT #4	Data Collection and Review of profiled hazards.	May 20, 2013
HMPT #5	Review of profiled hazards. Identification of goals and objectives.	August 28, 2013

Note that Table 1-3 identifies only the formal meetings held during plan development and does not reflect the larger universe of planning activities conducted by individuals and groups throughout the planning process. In addition to these meetings HMPT members frequently communicated with each via emails, weekly conference calls, and the county web site.

1.3.5 Public Involvement

A critical component of the update effort is a robust stakeholder engagement process that provides “an opportunity for the public to comment on the plan during the drafting stage and prior to plan approval” (44 CFR §201.6).

Public input was solicited from mid-September to mid-October, 2013. The County posted a Hazard Mitigation Survey on its website to gauge the concerns of county residents. A legal notice announcing the comment period and pertinent information about the survey were mailed to each of the participating jurisdictions and published in the Hudson Register Star newspaper. The draft Mitigation Plan was published on the County website along with instructions on how to send in comments. No comments were sent to CCEMO.

The draft Mitigation Plan was also presented to local municipalities; emergency managers in neighboring Dutchess, Greene, and Rensselaer Counties in New York, as well as the adjacent Berkshire County in Massachusetts; Columbia County agencies; Columbia Greene College; and Columbia Memorial Hospital. Comments received from local municipalities and agencies were

incorporated as appropriate. No comments were received from neighboring jurisdictions, Columbia Greene College, or Columbia Memorial Hospital.

1.3.6 Coordination with Other Planning Efforts

For hazard mitigation planning to be successful it must take into account other plans and programs that may have an effect on hazard identification and implementation of mitigation measures. The following plans and programs were considered during the update of this Mitigation Plan:

- FEMA's Disaster Declaration Archives.
- NOAA National Environmental Satellite, Data, and Information Service, National Climactic Data Center's Storm Event Database.
- Disaster Mitigation Act of 2000.
- Stafford Act.
- New York State Hazard Mitigation Plan.
- Columbia County Agricultural & Farmland Protection Plan.
- Columbia County Comprehensive Emergency Management Plan.
- Municipal Comprehensive Plans for all Columbia county municipalities.

This updated Mitigation Plan will be an integral part of Columbia County's Comprehensive Emergency Management Plan. Any future master or land use planning will need to refer to and use this Mitigation Plan in order to ensure aligned goals.

2 COLUMBIA COUNTY PROFILE

Chapter 2 provides a summary of the community profile for Columbia County. Additional information on each jurisdiction is provided in Appendix B, "Community Profiles."

A county's mitigation strategy is designed to reflect the unique characteristics of the community. While strategies to reduce vulnerability may be similar across jurisdictions, their implementation may be directly impacted by the geography, demographics, and culture of the communities in question.

Formed after the American Revolutionary War in 1786, Columbia County is known for its tranquil rural beauty, recreational opportunities, thriving art scene, and 50 public heritage sites that represent the county's distinctive history and rich culture. The County's key industries include agribusiness, "creative economy," technology, and tourism. Agribusiness is an important part of the county's heritage and a major source of employment, using almost half of the land mass in the county. "Creative economy" includes arts and culture, which can be further divided into agriculture and the arts, manufacturing and education, high technology, and entertainment. Technology is a major component of the county's economy, with a highly educated workforce employed by multiple technology companies; and tourism provides 6.6 percent of the county's labor income and 7.8 percent of all employment (CEDC 2014).

2.1 Location and Geography

Located in New York State's Hudson Valley, the County covers 635 square miles, approximately 406,400 acres (Columbia Hudson Partnership 2012). There are 23 municipalities within the County: the towns of Ancram, Austerlitz, Canaan, Chatham, Claverack, Clermont, Copake, Gallatin, Germantown, Ghent, Greenport, Hillsdale, Kinderhook, Livingston, New Lebanon, Stockport, Stuyvesant, and Taghkanic; the villages of Chatham, Kinderhook, Philmont, and Valatie; and the city of Hudson (Columbia County 2013).

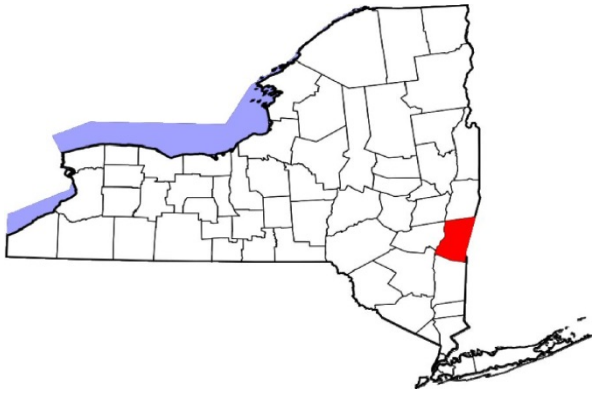


Figure 2-1 Columbia County within New York State

The County is bordered by Berkshire County, Massachusetts, and Litchfield County, Connecticut, on the east, New York's Dutchess County to the south, Rensselaer County to the north, and Greene County to the west across the Hudson River. The Hudson River provides approximately 30 miles of waterfront along the County's western border. The County's

geography primarily consists of broad plains and hills with a series of bluffs along the Hudson River and the Taconic and Berkshire mountain ranges along the eastern border. Figure 2-1 shows the County's location within New York State and Figure 2-2 shows the location of the 23 municipalities within the County.

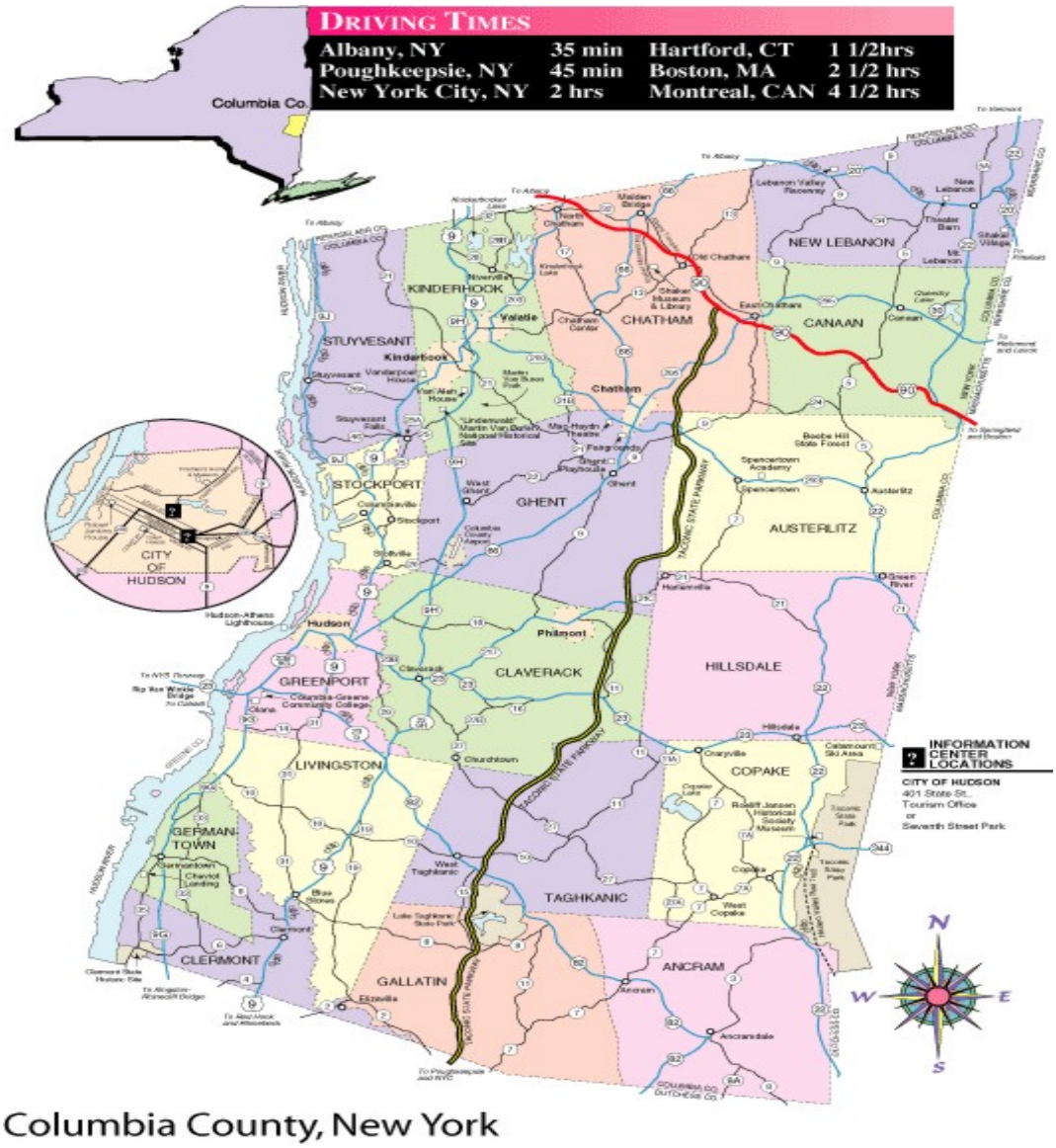


Figure 2-2 The 23 Municipalities within Columbia County
Source: http://www.columbiacountyny.com/map.html

The Hudson River and its tributaries, such as the Roeliff-Jansen Kill, Claverack Creek, and Kinderhook Creek serve important roles in the ecological health of the County as well as in the recreational, agricultural, and commercial livelihood of the region. Most of the County watershed

is in the Lower Hudson River Drainage Basin, in the Middle Hudson Hydrological Unit, while a small portion drains into the Housatonic drainage basin. Both basins are part of the greater Atlantic Slope drainage basin that covers the entire eastern seaboard and flows into the Atlantic Ocean (Pielke et al. 2002). Figure 2-3 is a map of the Hudson River, major tributaries, and drainages in Columbia County.

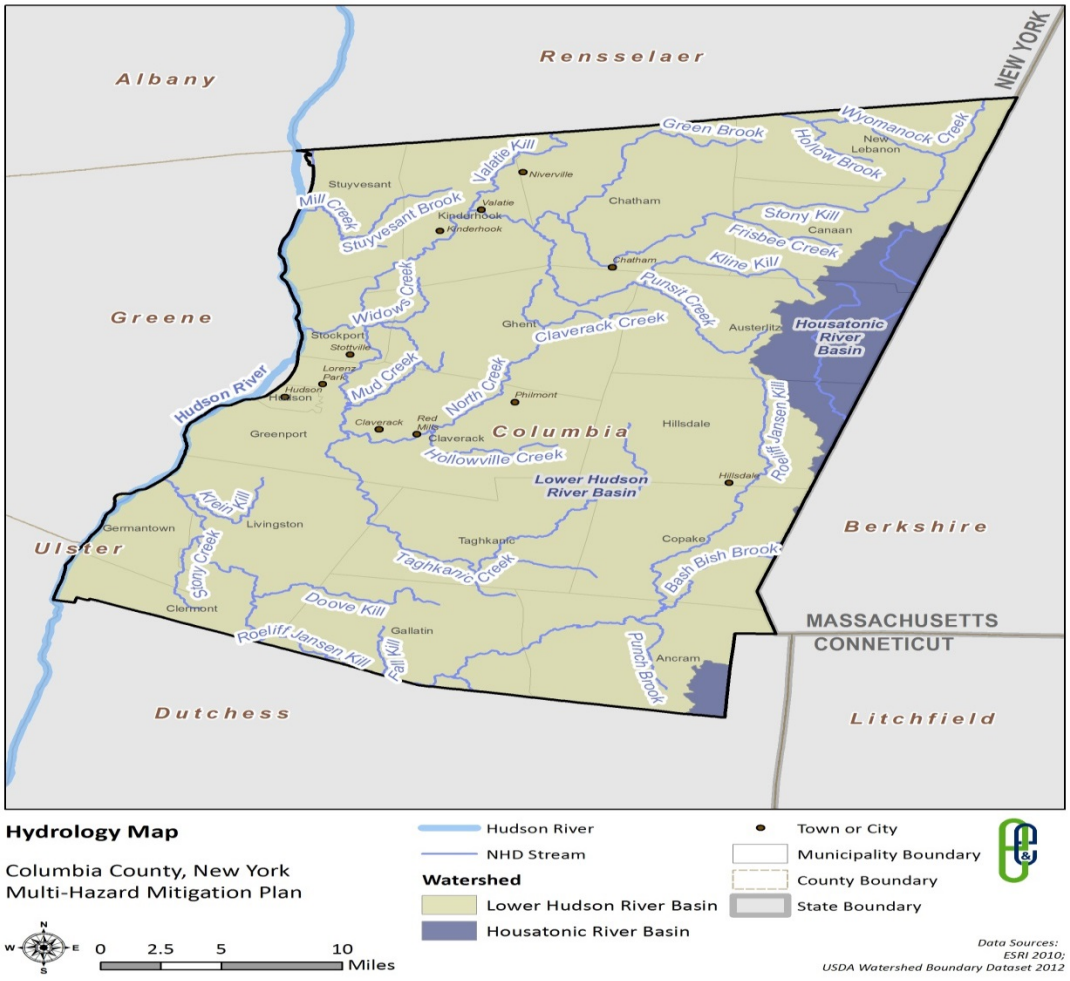


Figure 2-3 Watersheds and Tributaries in Columbia County

2.2 Climate

The County's climate is generally characterized by a humid continental climate and seasonal temperatures that tend to have extreme variations. The County receives cold air masses from the north, warm air masses from the south and southwest, and moisture-laden air masses from the Northern Atlantic Ocean. Storm systems generally move eastward across the state or travel northward along the Atlantic coast. Prevailing winds generally move from west to east, with a

southwest component during the summer and a northwest component during the colder months (NYS Climate Office Cornell n.d.) According to NOAA's National Climatic Data Center, temperatures in the Hudson Valley from 2012 to 2013 generally ranged from average lows of approximately 27°F in January to average highs of approximately 73°F in July. The distribution of monthly precipitation reached highs of 4.3 inches in June and 3.9 inches in October and a minimum of 2.2 inches in February. Monthly rainfall averages 4 inches in the summer in the Hudson Valley (NOAA 2013, NYS Climate Office Cornell n.d.).

2.3 Population Trends and Demographics

According to the most recent (2010) U.S. Census Bureau (USCB) Census, the County's population was 63,096 residents. This is an increase of only 2 persons since the 2000 Census (USCB 2000). The town of Kinderhook has the largest population, with approximately 8,498 people, followed by the city of Hudson with 6,713 people (USCB 2010). *Appendix B summarizes the population trends and demographics within each municipal profile.*

The county's racial composition is primarily Caucasian (87.8%), 4.5% African American, Hispanic (4.1%), and 1.6% Asian. Two percent of the population is a combination of other races, including American Indian, Alaska Native, and Pacific Islander (USCB2012).

The median age within the County is 45.3 years, 7 years older than the New York State average. Women in the county are on average 46 years old while men are 44 years old. The largest age group within the County is 45 to 54 years old, making up 16.8% of the County's population (US CB 2010). The 2010 U.S .Census also indicated that the County has a total of 25,906 households with an average of 2.35 people per household.

According to the 2007 to 2011 American Housing Survey data, the County is estimated to contain 32,662 housing units, approximately 21% of which are vacant. The median home value within the County was estimated to be $224,100, and the median household income was $56,185 within this five-year period (USCB 2007-2011). Housing and income information for each municipality can be found in Appendix B. Most of the County's residents hold a high school degree (87.5 %), and 28.4% have attained a Bachelor's degree or higher (USCB 2007-2011).

2.4 Governance

On January 1, 2013, new district boundaries for the County went into effect (Columbia County Board of Elections 2012). The County is now part of New York State's 19th Congressional District and 41st State Senate District. Three Assembly districts (District 102, 106, and 107) represent the County. One supervisor represents each town and village and five supervisors represent the city of Hudson on the Columbia County Board of Supervisors (Columbia County 2013). A breakdown list of governance for each municipality within the County, and the districts that represent the municipality are included in Appendix B.

2.5 Economy

According to the Bureau of Land Services' 2013 Local Area Unemployment Services Report, the County employed 28,182 people in 2012 and had a 7.1% unemployment rate. The County's highest grossing and highest employing industries included education and health services, government and trade, and transportation and utilities (U.S. Department of Labor 2013). A list of the county's top ten industries and the number of people employed in those industries is provided in Table 2-1.

In addition to its service and manufacturing economy, the County is a center of agribusiness for the Hudson River Valley and for a large portion of the Northeastern United States. The County has 10 agricultural districts, totaling approximately 117,000 acres, or 29% of the County's total land area (Columbia County Agriculture Farmland and Protection Board 2010; Columbia County Planning 2005). The humid continental climate and arable, fertile soils of the County promote the production of diverse commodities, including fruit, berries, specialty vegetables, dairy products, and cattle. The County leads the state in sales of sheep, goats, and their products (USDA 2010). According to the Columbia Economic Development Corporation website, more than 550 farms are within the County and the average market value of commodities sold is $65,770,000 annually (Columbia Hudson Partnership 2012).

Table 2-1 Top Ten Industries for Employment in Columbia County

Industry	Number of Employees	Percentage within County
Education and Health Services	5,000	21.7%
Government	4,800	20.9%
Trade, Transportation, Utilities	4,100	17.8%
Goods Producing	2,300	10.0%
Leisure and Hospitality	1,800	7.8%
Manufacturing	1,300	5.7%
Professional and Business Services	1,200	5.2%
Natural Resources, Mining and Construction	1,000	4.3%
Other Services	800	3.5%
Financial Activities	700	3.0%

Source: New York State Department of Labor 2013

2.6 Land Use Trends

According to the most recent U.S. Agricultural Analysis (1982 to 2007), land use trends in the County are consistent with state land use trends that demonstrate rural and agricultural land being consistently converted to developed land (Agricultural Census 2007; American Farmland Trust 2007). Between 2002 and 2007, New York State lost more than 47,700 acres of agricultural land, of which 15,000 acres were considered prime fertile land, and almost 145,000 acres of rural land to new development.

2.7 Critical Infrastructure

Critical infrastructure is a term used to describe infrastructure that is essential to the functioning of society and economy. Common assets that are defined as critical include electrical infrastructure, telecommunication facilities, public service facilities (health, police, fire, etc.), and water supply and treatment infrastructure. Natural disasters can inflict costly damages on critical infrastructure and pose a threat to public health or safety. To determine critical infrastructure that could be affected by natural disasters, each municipality in the County was asked to identify the types and total percentage of infrastructure located within known hazard zones (i.e, mapped floodplains). Critical infrastructure identified within each municipality's jurisdiction is included in their respective profiles in the annex to this plan. *See Chapter 4, "Vulnerability Assessment "for more information on the critical infrastructure.*

3 HAZARD IDENTIFICATION AND PROFILES

Chapter 3 identifies and profiles relevant hazards in Columbia County and provides a framework to develop and prioritize mitigation actions that reduce risk from future hazard events. This assessment for Columbia County and its jurisdictions followed the methodology described in the FEMA publication 386-2, *Understanding Your Risks: Identifying Hazards and Estimating Losses* (2002), which includes a four-step process:

Step 1: Identify hazards
Step 2: Profile hazard events
Step 3: Inventory assets
Step 4: Estimate losses

This chapter covers the first two steps of this process: hazard identification and hazard profiles:

- **Section 3.1, Hazard Identification,** identifies the hazards that threaten the planning area and describes why some hazards have been omitted from further consideration.
- **Section 3.2, Hazard Profiles**, discusses threats to the planning area and describes previous occurrences of hazard events and the probability of future occurrence.

3.1 Hazard Identification

3.1.1 Methodology

This section identifies and ranks hazards that might affect Columbia County. Based on historical records, existing plans, reports, experts, and internet resources, the HMPT identified the possible hazards to which each municipality is susceptible in Columbia County. While at least one muncipality voted to include each of the 20 potential hazards (Appendix E), only eight hazards (**bolded** below) were agreed upon by the communities as significant and have been profiled in this plan.

- Coastal Erosion
- **Coastal Storm**
- Dam Failure
- Drought
- Earthquake
- Epidemic
- Extreme Heat
- Extreme Temps
- **Flood**
- **Hail Storm**
- **Hurricane**
- **Ice Storm**
- Infestation
- Land Subsidence
- Landslide
- **Severe Storm**
- **Winter Storm**
- **Tornado**
- Wildfire
- Windstorm

Hazard Identification and Risk Assessment (HIRA)-NY is the cornerstone of any hazard analysis process. It considers the location and geographic extent of areas affected by hazards; the magnitude and severity of hazard impacts; previous occurrences; and probability of future occurrences. The HMPT and CCEMO analyzed all hazards potentially affecting Columbia County using HIRA-NY's five criteria:

- **Scope**. Areas potentially impacted and the chance of one hazard triggering another hazard, thus causing a cascading effect.
- **Onset**. The time between recognition of an approaching hazard and when the hazard begins to affect the community.
- **Impact**. The extent of the hazard impact on the community.
- **Duration**. The length of time the hazard remains active, the length of time emergency operations continue after the hazard event and the length of time that recovery will take.
- **Frequency**. How often a hazard has resulted in an emergency or disaster.

Hazards scoring from 321 to 400 in HIRA-NY are ranked as *High*, hazards from 241 to 320 are ranked as *Moderately High*, hazards from 161 to 240 are ranked as *Moderately Low*, and those from 44 to 160 are ranked as *Low*. The results are provided below in Table 3-1.

Note that not all of the hazards identified by the HMPT (Appendix E) were available in the HIRA-NY program.

Table 3-1 HIRA-NY Results for Columbia County

Hazard	Score	Rating
Severe Storm	280	Moderately High
Hurricane	254	Moderately High
Tornado	246	Moderately High
Flood	232	Moderately Low
Earthquake	188	Moderately Low
Winter Storm (Severe)	179	Moderately Low
Dam Failure	143	Low
Ice Storm	126	Low
Ice Jams	124	Low
Drought	117	Low
Wildfire	112	Low
Landslide	110	Low
Infestation	108	Low
Extreme Temps	96	Low
Coastal Storm	N/A	N/A
Hailstorm	N/A	N/A
Expansive Soils	N/A	N/A
Windstorm	N/A	N/A

The HMPT members did not fully agree with the final results of the HIRA-NY analysis (Table 3-1) and conducted another exercise to identify all hazards of concern by severity and probability occurrence in the county, ranking them as *High*, *Medium*, and *Low* (Table 3-2). In particular, the HMPT found the HIRA-NY analysis understated the risks associated with hurricanes, floods, and winter storms.

Table 3-2 Hazard Ranking by Columbia County HMPT

Hazard	Ranked High	Ranked Medium	Ranked Low
Hurricane	9	1	0
Flood	9	2	0
Winter Storm (Severe)	8	1	0
Coastal Storm	7	1	0
Ice Storm	7	1	0
Tornado	2	8	0
Hailstorm	1	8	0
Dam Failure	6	0	0
Extreme Temps	5	0	0
Drought	2	0	3
Earthquake	2	3	2
Land Subsidence	1	4	2
Other	1	0	0
Expansive Soils	0	1	4
Ice Jams	0	4	2
Infestation	0	2	3
Wildfire	0	2	4
Windstorm	0	6	1
Severe Storm (included in *Other*)	N/A	N/A	N/A

The hazards chosen as significant by the HMPT were those that scored *"7"*or higher in the *high* or *medium* category and where more than 8 municipalities voted in favor of profiling the hazard in the Mitigation Plan (see highlighted hazards in Table 3-2). Out of the hazards selected by the HMPT, all but "Ice Storm" scored a *Moderately High or Moderately Low* in the HIRA-NY hazard ranking. "Hailstorm" was not identified in HIRA-NY but was ranked as important by the HMPT.

As the changing climate impacts Columbia County, weather-related hazards will continue to evolve. Within New York State, climate change is extremely likely to bring warmer temperatures; heat waves are very likely to become more frequent, more intense and to last longer; and droughts are more likely to become more severe. More frequent intense rainstorms

have and will continue to increase precipitation (New York State Hazard Mitigation Plan 2011). However, some of these natural hazards (*wildfire, drought, earthquake, extreme temperatures* and *landslides)* were excluded from being profiled because these threats were seen as having a low probability of occurrence and were not ranked highly by the HMPT. *Dam Failure* and *Windstorm* were important hazards selected by some communities but were not selected to be profiled in the Plan as they fell below the thresholds set for inclusion in the plan (i.e., "7" rating and important to 8 municipalities). Additionally, *Dam Failure* received a *Low* ranking in the HIRA-NY analysis while *Windstorm* was not ranked.

3.1.2 History of Declared Disasters

Federal and/or state disaster declarations may be granted when the severity and magnitude of an event surpasses the ability of the local government to respond and recover. The federal government may issue a disaster declaration through FEMA, the U.S. Department of Agriculture (USDA), and/or the Small Business Administration (SBA). The quantity and types of damages are the determining factor. Table 3-3 lists state and federal disasters declarations in which Columbia County was involved from 1973 to 2012.

Table 3-3 Declared Federal Disasters in Columbia County 1973-2012

No.	Date Declared	Event	Damages
DR - 3351	28-Oct-12	Hurricane Sandy	$71,400,000,000
DR - 4020	31-Aug-11	Hurricane Irene	$685,077,679
DR - 1957	18-Feb-11	Severe Winter Storm	$37,909,642*
DR - 1827	4-Mar-09	Severe Winter Storm	$17,953,077*
DR - 1692	24-Apr-07	Severe Storms and Flooding	$82,844,049*
DR - 1589	19-Apr-05	Severe Storms and Flooding	$51,871,003*
DR - 1564	1-Oct-04	Severe Storms and Flooding	$14,064,701*
DR - 1486	29-Aug-03	Severe Storms, Flooding and Tornados	$25,513,680*
DR - 1391	11-Sep-01	Terrorist Attack	$4,681,627,693*
DR - 1335	21-Jul-00	Severe Storms and Flooding	$31,020,492*
DR - 1095	24-Jan-96	Severe Storms and Flooding	N/A
DR - 1083	12-Jan-96	Severe Winter Storm	N/A
DR - 3107	17-Mar-93	Severe Winter Storm	N/A
DR - 801	10-Nov-87	Severe Winter Storm	N/A
DR - 401	20-Jul-73	Severe Storms and Flooding	N/A

*Public Assistance Grants Only

It is important to note that the federal funding listed does not reflect the amount provided to Columbia County but, rather, the combined amount provided to all affected counties. As an example, total damages caused by Hurricane Irene were $685,077,679. Columbia County's Hurricane Irene damages totaled $2,523,411.91, as reported by NYSDHSES. It should also be noted that federal funding was not provided to any disaster until 1979.

3.2 Hazard Profiles

The level of information presented in the profiles in this section varies by hazard based on the information available. With each update of this plan, new information will be incorporated to provide for better evaluation and prioritization of the hazards that affect Columbia County. The sources used to collect information for these profiles include those mentioned below as well as those cited individually in each hazard section.

- New York State Hazard Mitigation Plan (2011).
- Automated HIRA-NY (Hazard Identification and Risk Assessment) Tool.
- Columbia County Emergency Operations Plan (2009).
- Information on past extreme weather and climate events from NOAA, National Climatic Data Center (NCDC) and National Severe Storms Laboratory (NSSL).
- Information on past hazard events from Spatial Hazard Event Research Lab that compiles county-level hazard data for 18 different natural event types.
- Disaster declaration history from the FEMA, the Public Entity Risk Institute, and the USDA Farm Service Agency Disaster Declarations.

The hazards selected to be profiled in the plan were floods, severe storms, coastal storms, hurricanes, winter storm, ice storm, hailstorm and tornado; however, as some of the hazards are very closely related, they were grouped and profiled in detail as follows:

- Floods
- Severe storms (includes severe coastal storms, hailstorms, and hurricanes)
- Severe winter storms (includes ice storms)
- Tornado

3.2.1 Flood

Hazard Description

A flood is the temporary inundation of land that is normally dry. The National Weather Service measures these events as minor, moderate, or major flooding events. During flood events, rivers and streams naturally overflow into adjacent floodplains. Most floodplains are mapped by the FEMA for their Flood Insurance Rate Maps (FIRMs) as part of the National Flood Insurance Program (NFIP). FEMA defines several types of floodplains:

- A **100-year flood zone** is an area that is subject to a 1 percent chance of flooding annually,
- A **500-year flood zone** has a 0.2 percent chance of flooding annually.

Floods can result from heavy precipitation, river overflow, flash floods, dam-breaks, local draining due to high groundwater levels, and fluctuating lake levels. Various weather conditions such as large thunderstorms, hurricanes, Nor'easters, ice storms and other types of winter storms increase the risk of floods, especially flash floods. Floods in winter months are typically caused by ice jams that inhibit the natural river flow while those in spring months are susceptible to rapid snow melt. Beaver dams or man-made dam failure may result in flooding and are a threat year round.

The severity, predictability, and probability of floods caused by these varied factors and events often result in different associated flood risks. The highest risk flood event is a flash flood because of the low predictability, quick onset, and high and turbulent water flow.

Severe floods may result in serious injuries and fatalities as well as damage to public facilities and private property. Cascading effects from flood hazards may include damaged power lines, blocked roadways, hindered commerce, and damaged infrastructure such as flooded water supply wells and waste water treatment plants.

Geographic Location and Extent

Municipalities in a county located within or near floodplains along rivers and streams are most susceptible to flood damage. The towns of Ancram, Austerlitz, Canaan, Chatham, Claverack, Clermont, Copake, Gallatin, Germantown, Ghent, Greenport, Hillsdale, Hudson, Kinderhook, Livingston, New Lebanon, Stockport, Stuyvesant, Taghkanic, and Valatie, as well as the villages of Chatham and Kinderhook, are partially located within floodplains and are therefore subject to significant flood risk.

Areas outside of floodplains are also susceptible to flood damage caused by large thunderstorms, hurricanes, Nor'easters, ice storms, and other types of winter storms. However, outside of defined flood zones, risk to properties and facilities are not generally considered significant. Of the 23 jurisdictions within Columbia County, 22 jurisdictions currently participate and are in good standing with the National Flood Insurance Program (NFIP). (Note: Columbia County and the Village of Philmont are not currently in the NFIP.) Appendix F provides further details about municipalities participating in the NFIP, current effective Flood Insurance Rate Maps (FIRM), and available detailed FEMA flood insurance studies (FIS).

Because Digital Flood Insurance Rate Maps (DFIRM) were not available for Columbia County, Hazards U.S. Multi-hazard, Ver. 1.3 (HAZUS-MH MR3), software used by FEMA to provide estimates of potential losses from disasters was analyzed and provided an estimate for a 100-year flood event along all major rivers and streams in the County (Figure 3-1).

Previous Occurrences

Columbia County has experienced many historic floods. Since 1987, the County has recorded 26 floods that have caused approximately $18.9 million in damages, 9 injuries, and 3 deaths. Flood damages to the County have included bridge collapses, tree and fence loss, road inundation, road and bridge closures, and other property damage. Appendix F provides more information on past flood events, impacts, and estimated losses.

Magnitude/Severity/Probability

All municipalities of Columbia County located within 100-year flood zones have a 1 in 100, or 1%, chance annually of a flood. In the 500-year flood zone there is 1 in 500, or 0.2% chance annually of a flood occurring. Future flood events in the County are likely to vary in severity and magnitude from relatively smaller events with $10,000 of reported damage to much larger events with more than ten times this damage reported.

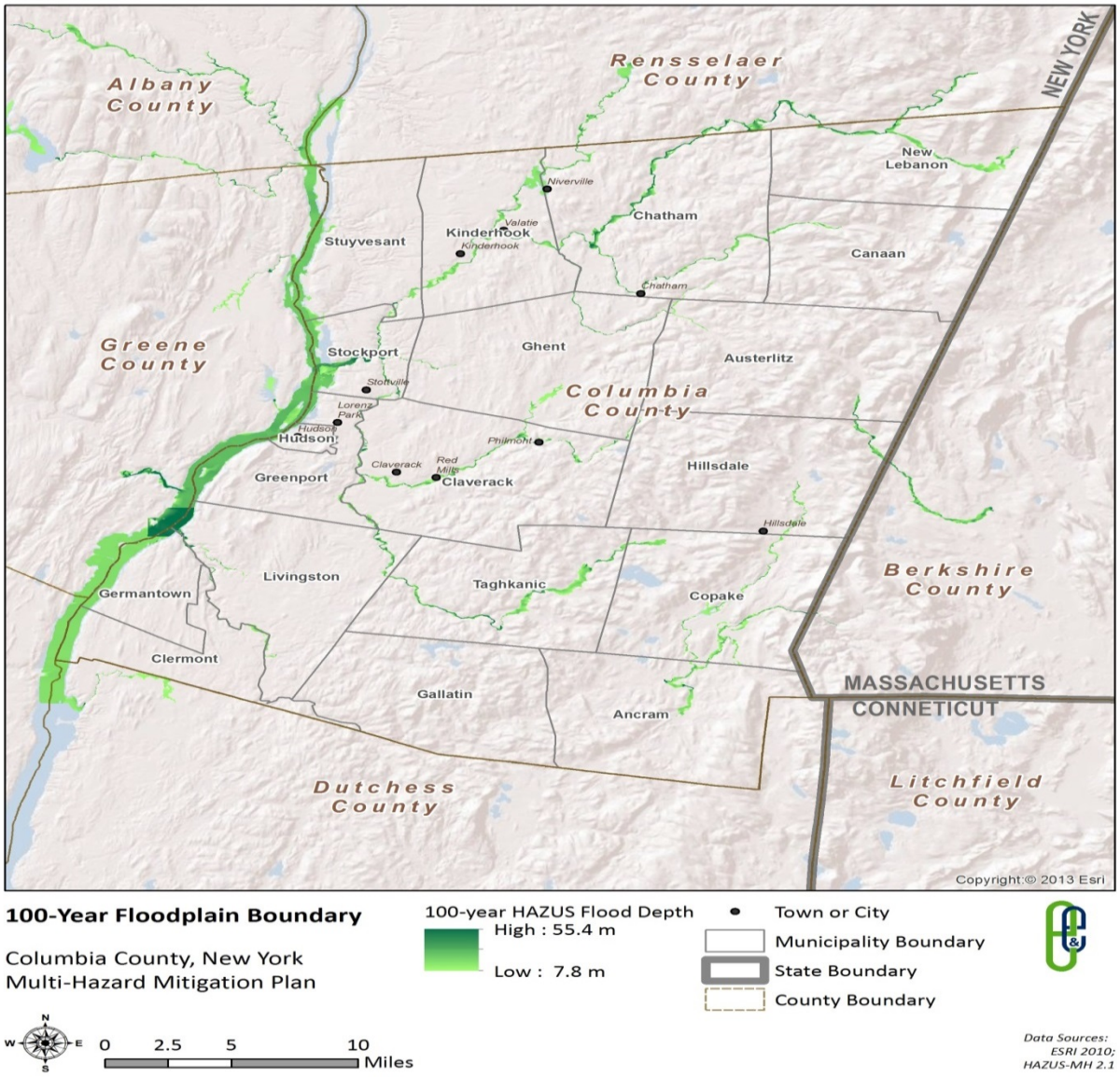


Figure 3-1 HAZUS 100-year Flood depth, Columbia County

Potential Impacts from Climate Change

As climate shifts occur globally, precipitation and surface wind patterns are likely to shift with them. Exactly how these shifts occur is widely debated among scientists. The precise effects of climate change on flood risks in the county remain unknown; however, increases in precipitation and storm events are likely to increase the hazard risk. Precipitation in the Mid-Hudson region from 1971-2000 was 48 inches on average and is expected to change from 0 to +5% by 2020, 0 to +10% by 2050 and +5 to 10% by 2080s (2013 Mid-Hudson Regional Sustainability Plan).

3.2.2 Severe Storms (includes Coastal Storms/Hurricanes/Hailstorms)

Hazard Description

A severe storm is a type of weather condition characterized by high winds and rainfall and often accompanied by thunder and lightning.

Severe storms encompass many types of climatic events, including hail and thunder storms that can sometime spawn tornados (see Section 3.2.4,"Tornado") as well as Nor'easters and coastal storms that can cause flooding (see Section 3.2.1, "Flood") and may occur year round.

The hazard of a severe storm may vary based on type and time of year. Because Columbia County is in a relatively inland location, the effects of costal storms and hurricanes are similar to severe storms and are therefore included in this section. Coastal storms and Nor'easters are large, cyclonic storms that can last several days and produce gale-force winds and heavy precipitation in the form of rain or snow. These windstorms are measured using the Beaufort Wind Scale. Cyclonic storms are sometimes 1,000-mile wide or greater. Hurricanes are a classification of tropical cyclonic low-pressure systems, and are measured using the Saffir-Simpson Scale. Tropical depressions have a maximum sustained wind of 39 miles per hour (mph) or less; Tropical storms have maximum sustained wind of 39 to 74 mph; and hurricanes have maximum sustained winds of 74 mph or higher.

Hailstorms are most prevalent late April through July, and high winds are most prevalent mid-May through August. Severe storms may result in serious injury and fatalities and can damage both public and private infrastructure. Cascading effects from this hazard may include increased vulnerability of individuals dependent on life support, blocked roadways, hindered commerce, and damaged infrastructure, e.g., flooded water supply wells. Figure 3-2 is graphical representation of the wind speeds in Columbia County.

Geographic Location and Extent

All of Columbia County is susceptible to wind damage, localized flooding, and damage from hail and lighting from severe storms. Past severe storms have damaged buildings and power lines, caused floods, and created conditions that have caused vehicle accidents in Columbia County. County assets (critical facilities, businesses, historic, cultural, and natural resource areas, and areas of special consideration) that are susceptible to damage from severe storms are discussed in greater detail in *Chapter 4, "Vulnerability Assessment."*

Previous Occurrences

Columbia County has experienced many historic severe storm events causing property damage and loss of life. Appendix F provides information on severe storm events, impacts, and estimated losses. Columbia County and its municipalities have experienced approximately $10.8 million in total estimated damages from 1995 to present. The history of severe storm events affecting Columbia County may not account for recent storms where losses have not been estimated.

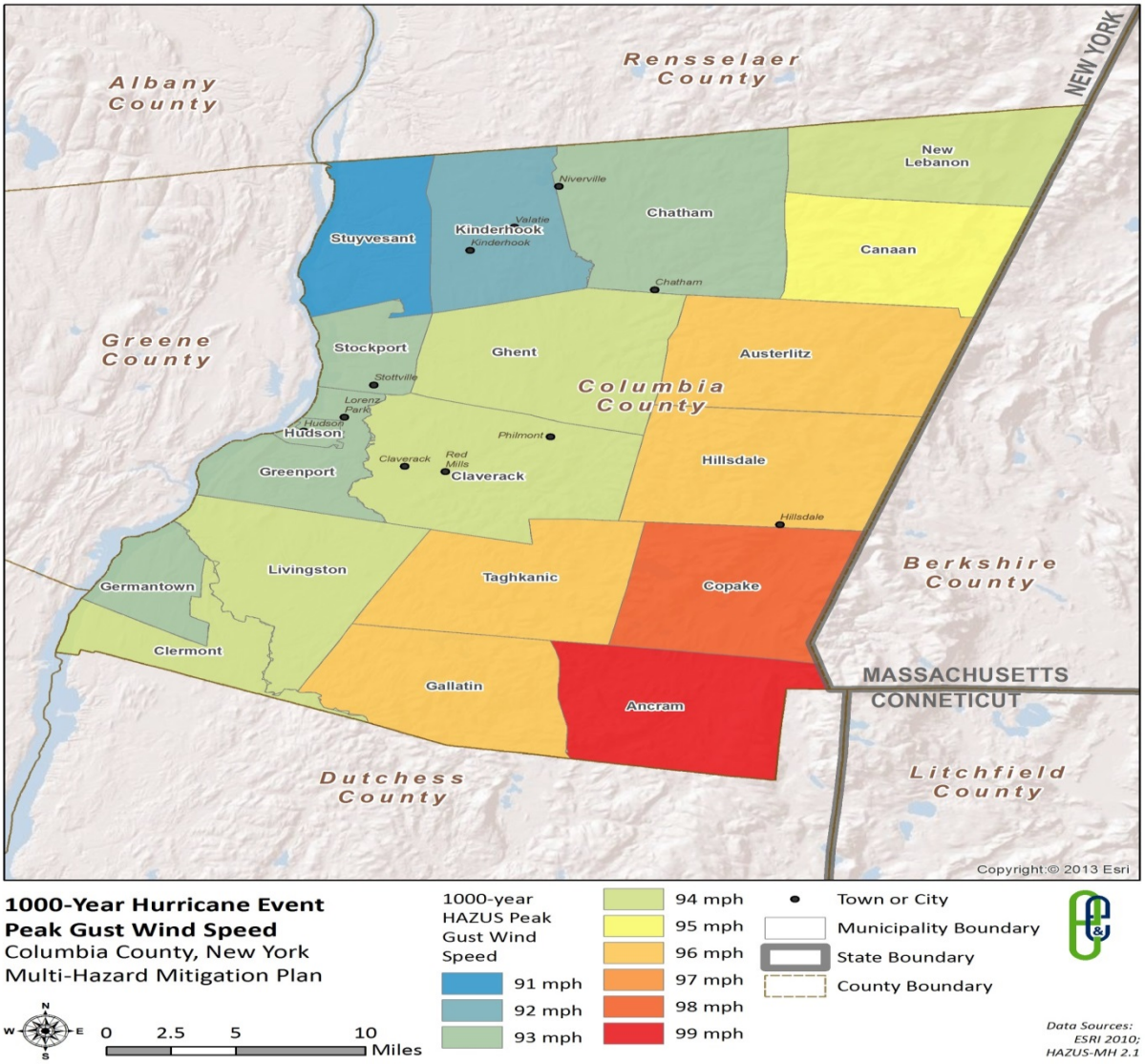


Figure 3-2 1,000-Year Hurricane Wind Gust Speed in Columbia County

Magnitude/Severity/Probability

NOAA's National Severe Storms Laboratory predicts that in any given year from 1980 to 1999, Columbia County experienced between 5 and 6 days with severe storms characterized by winds of at least 57.5 miles per hour (Figure 3-3). Future storm probability is expected to follow historic trends; however, the severity of storms may increase due to the effects of climate change.

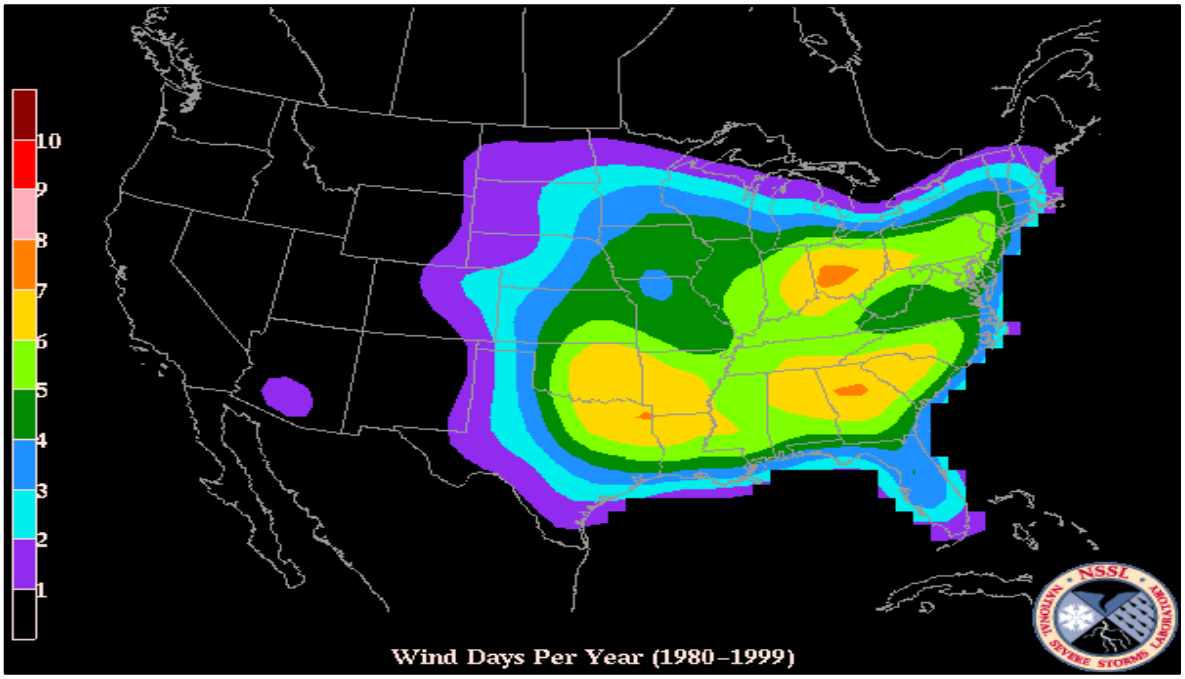


Figure 3-3 Historic Annual Severe Storm Probability

Potential Impacts from Climate Change

While exact changes in precipitation patterns remain unknown, future Atlantic hurricanes such as Hurricane Sandy are more likely to move farther up the coast and inland, which may lead to extreme rainfall, as occurred in 2012. Additionally, more powerful frontal systems driving down out of the Arctic through Canada may contain higher winds with larger amounts of precipitation throughout the year, which can pose a risk to Columbia County.

3.2.3 Severe Winter Storms (includes Ice Storms)

Hazard Description

A winter storm is a weather phenomenon characterized by near or below freezing temperatures, snowfall, sleet and/or freezing rain, and is measured using the Regional Snowfall (RSI) Index. Severe storms may include one or more of the following conditions: ice storms, extreme cold, blizzard conditions, or heavy snow. For the purposes of this analysis, severe winter storms are characterized as:

- Severe ice storms – A storm comprising mostly freezing rain;
- Heavy snow storms – 6 inches or more within 12 hours; and
- Blizzard conditions – considerable or heavy snow, wind in excess of 35 mph, low visibility (1/4 mile or less), and low temperatures for at least 3 hours.

Severe storm hazards include downed power lines, communications interference, exposure/hypothermia, and dangerous road conditions that could result in serious injuries and

fatalities. Additionally, infrastructure and property damage such as dam failure, floods, food and fuel shortage, fixed-site and transit-related hazardous materials accidents, ice jams, structural collapse, transportation accidents, blocked roadways, and hindered commerce can result from severe storms.

Geographic Location and Extent

All areas of Columbia County are susceptible to frequent severe winter storms. Past severe storms have collapsed roofs, damaged and destroyed trees and crops, downed power and communications lines, and resulted in motor vehicle accidents in Columbia County. County assets, including structures, agricultural products, and transportation infrastructure are susceptible to damage from severe storms and are discussed in greater detail in *Chapter 4, "Vulnerability Assessment."*

Previous Occurrences

Columbia County has experienced many historic severe winter storm events. Appendix F provides information on winter storm events, impacts, and estimated losses. Damages that are specifically attributed to Columbia County and municipalities from 2002 to present total approximately $850,000. The history of severe storm events affecting Columbia County shown in Appendix F do not account for region-wide storms where losses are estimated for areas larger than Columbia County. Region- and area-wide winter storm events have resulted in approximately $22 million in estimated losses from 1993 to present, including estimated losses in Columbia County.

Magnitude/Severity/Probability

Average snowfall was evaluated to provide the probability of future severe winter storm events. Figure 3-4 shows that from 1979 to 2009 Columbia County had an average annual snowfall of 41.3 inches. This average rate is expected to remain consistent in the immediate future.

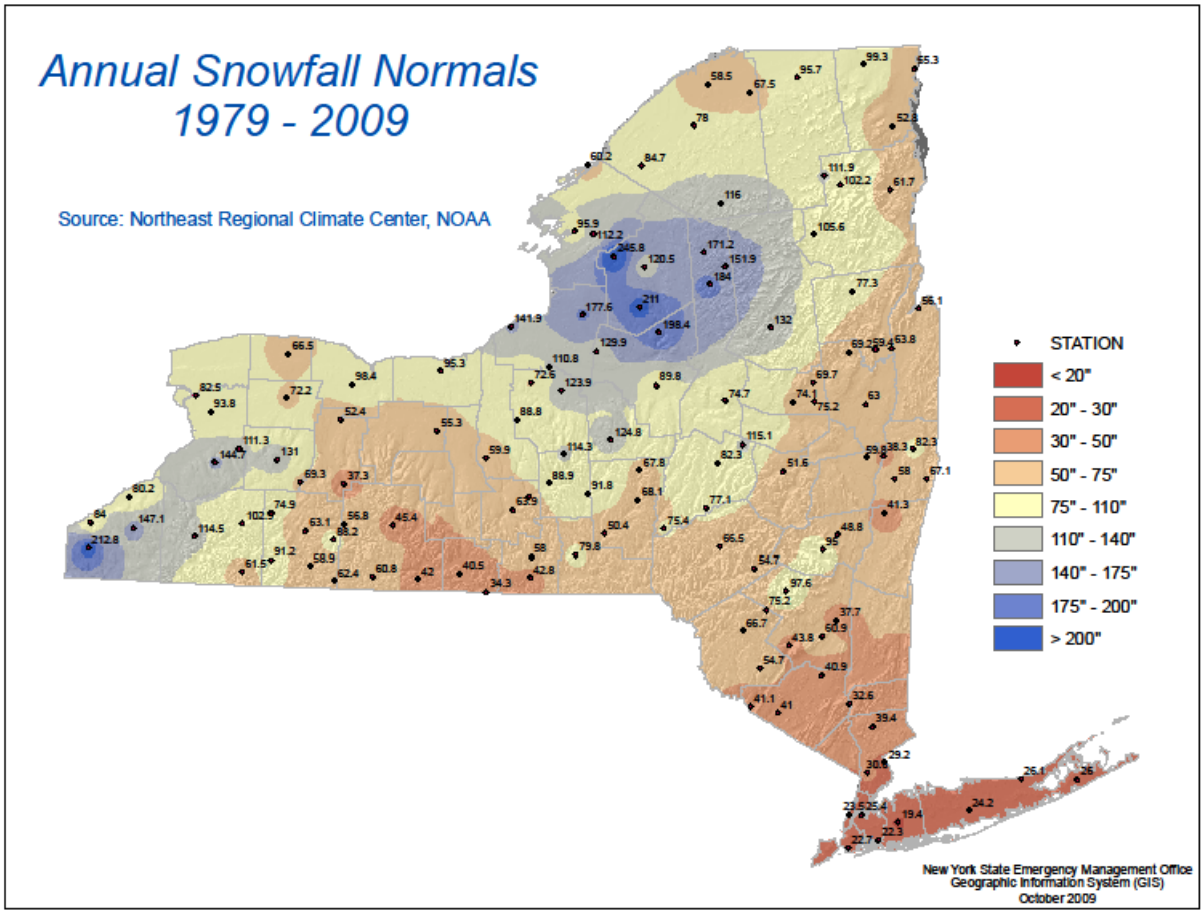


Figure 3-4 Normal Annual Snowfall 1979-2009

Potential Impacts from Climate Change

As noted in Section 3.2.2, climate and weather patterns are hard to predict but the increase in the number of winter storms in recent years and related damages increases this hazard's risk in Columbia County. Additionally, any powerful frontal systems driving down out of the Arctic through Canada in future years can contain higher winds with larger amounts of precipitation that can result in more intense winter storms.

3.2.4 Tornado

Hazard Description

A tornado is a local storm formed by winds rotating at very high speeds. Tornados typically occur between March and August but may occur year-round.

Tornados are typically of short duration and have a vortex of up to several hundred yards wide. The severity of tornados is measured using the Enhanced Fujita Scale (EF) based on estimated wind speeds and typical damage.

- **EF0** – wind speeds less than 73 mph typically causing light damage.
- **EF1** – wind speeds from 73 to 112 mph typically causing moderate damage.
- **EF2** – wind speeds from 113 to 157 mph typically causing considerable damage.
- **EF3** – wind speeds from 158 to 206 mph typically causing severe damage.
- **EF4** – wind speeds from 207 to 260 mph typically causing devastating damage.
- **EF5** – wind speeds from 261 to 318 mph typically causing incredible damage.



Source: http://www.erh.noaa.gov/aly/Past/2003/21July03/july_21.htm

Figure 3-5 Tornado damage to a home in Columbia County July 21, 2003

Tornados are formed from powerful thunderstorms and appear as a rotating, funnel-shaped cloud that extends from the thunderstorm to the ground. Damage from tornados can range from light damage (i.e., branches broken off trees, an EF0 tornado) to major damage (i.e., houses blown off foundations and swept away, an EF5 tornado). In addition to serious injury and fatalities and damage to public and private infrastructure, tornados can have cascading effects such as fire, fuel shortage, hazardous materials incidents at fixed facilities and in transit, transportation accidents, and utility failures.

Geographic Location and Extent

All areas of Columbia County are susceptible to tornados and high winds. Figure 3-6 below shows FEMA wind speed design zones and previous tornado tracks (1961-1990) for New York State. Columbia County is squarely within the area at highest risk for a tornado.

Past tornado events in Columbia County have damaged and destroyed buildings and homes, knocked down trees and power lines, destroyed automobiles, and caused crop damage. County assets that are susceptible to tornado damage are discussed in greater detail in *Chapter 4, "Vulnerability Assessment."*

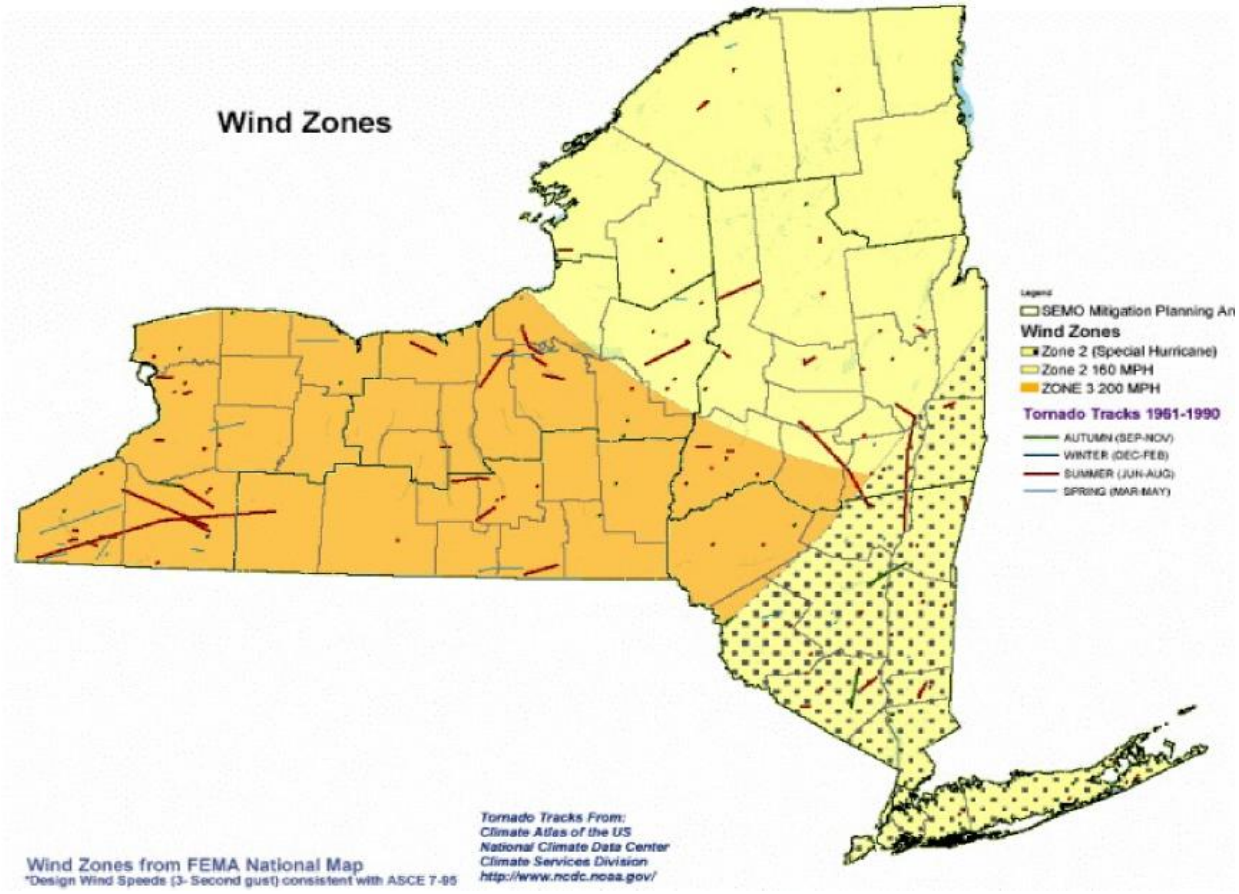
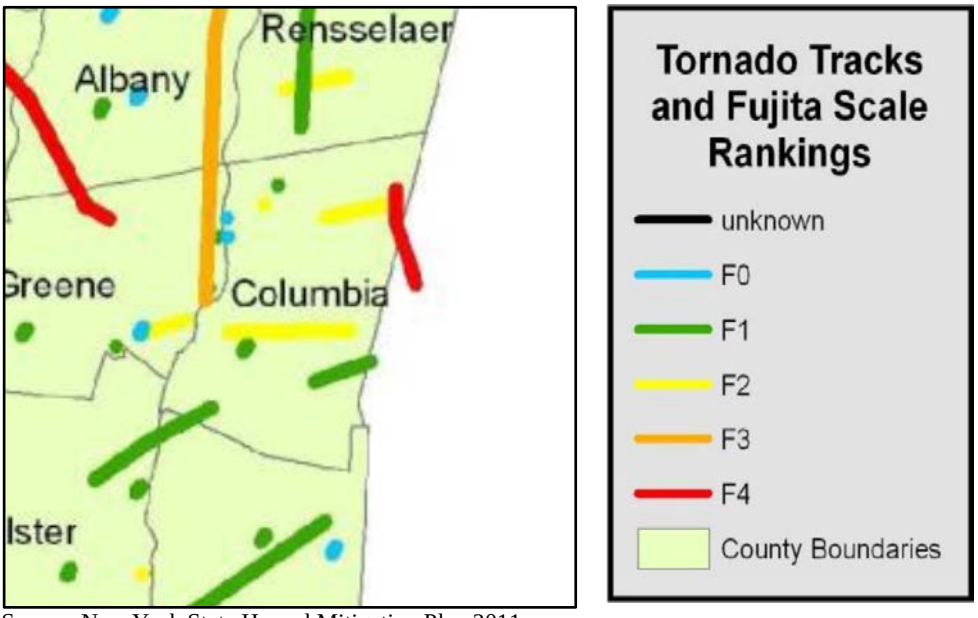


Figure 3-6 Tornado Risk Areas

Previous Occurrences

Historic tornado events in Columbia County are detailed in Appendix F. In total, Columbia County and its municipalities have experienced approximately $11.2 million in damage and 8 injuries from 1973 to present. Figure 3-7 indicates the historic tornado paths within Columbia County from 1950 to 2005.



Source: New York State Hazard Mitigation Plan 2011

Figure 3-7 History of Tornados from 1950-2005

Magnitude/Severity/Probability

NOAA's National Severe Storms Laboratory's Time Series of Tornado Annual Cycle Probability (Figure 3-8) indicates that Columbia County had, on average, a 0.25% chance of a tornado in any given year between 1980 and 1999 during peak tornado season in July and that Columbia County has an average of 0.2 to 0.6 tornado days per year (Figure 3-9). Recent tornado activity, which includes tornado events in 2003, 1997, and 1995, suggests that tornados may be more prevalent now than the previous 20-year average indicates.

Potential Impacts from Climate Change

The risk of tornados is directly tied to that of severe storms. Cascading hazard events such as tornados may be more likely to spawn from more powerful frontal systems than individual stand-alone events. For information on the potential impacts of climate change on severe storms, see Section 3.2.2 and 3.2.3.

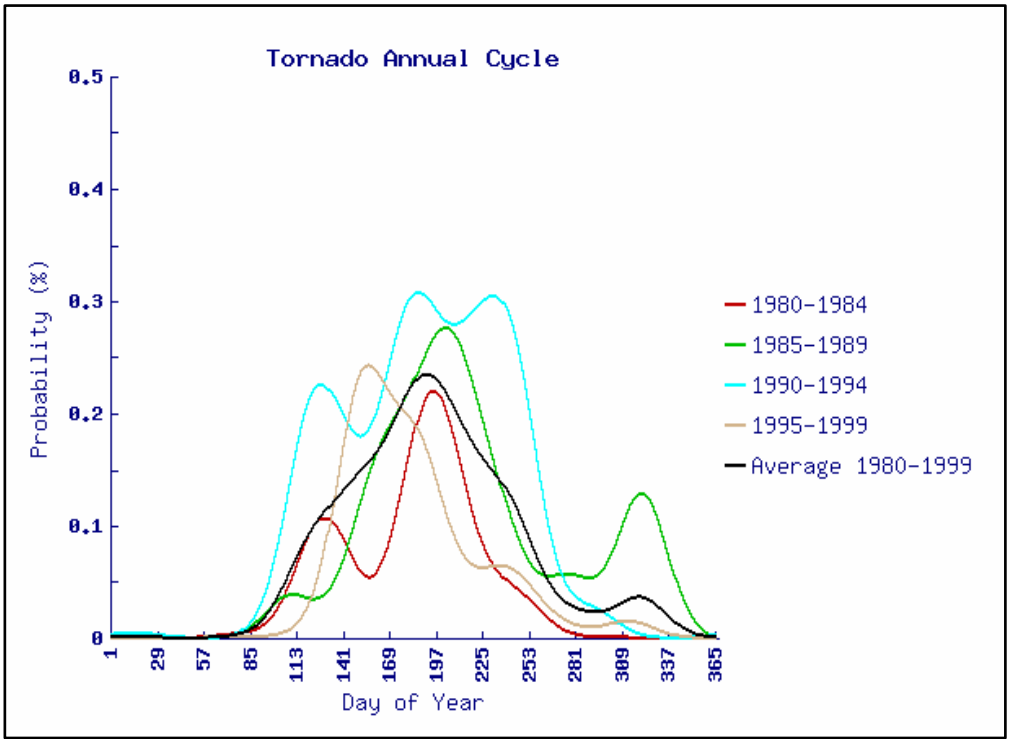


Figure 3-8 Historic Annual Tornado Probability In New York State

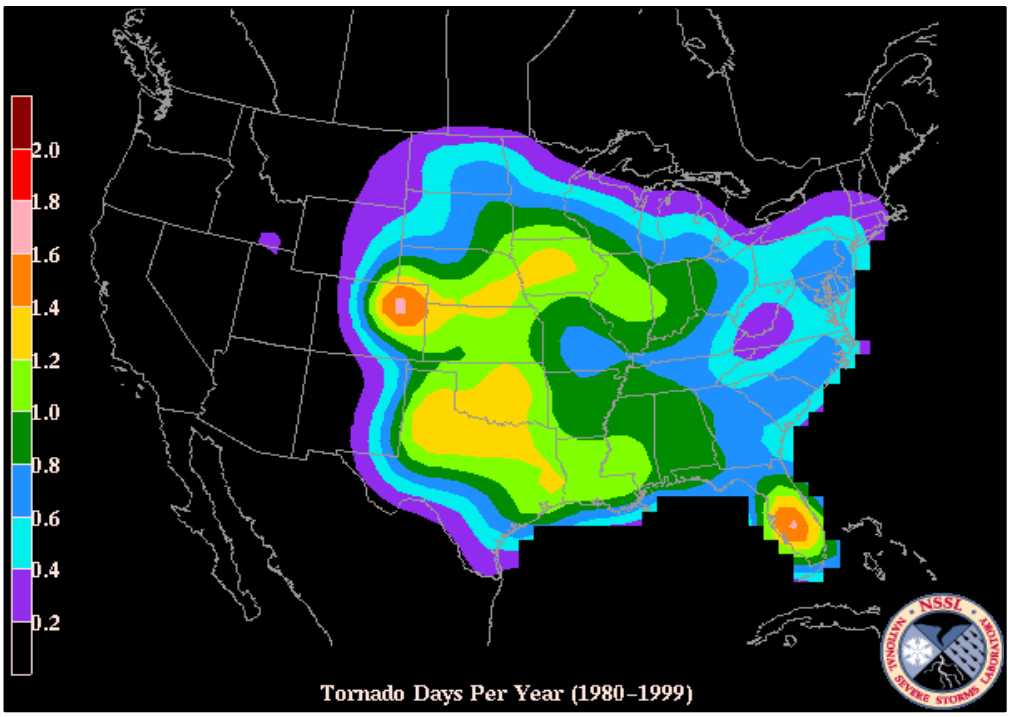


Figure 3-9 Tornado days per year in United States

4 VULNERABILITY ASSESSMENT

Chapter 4 presents a vulnerability analysis for Columbia County. This chapter describes the critical county assets that are at risk from the hazards identified in Chapter 3 and discusses damage estimates for critical facilities in the hazard area. This analysis supports the county in developing a mitigation strategy that maximizes loss reduction. A full asset inventory for the county is provided in Appendix G.

4.1 Identifying Critical Infrastructure

Critical infrastructures are assets that are essential to the functioning of society and economy and that provide utility and/or direction either during a response to an emergency or during the recovery operation post-emergency. Common assets that are defined as critical include electrical infrastructure, telecommunication facilities, transportation infrastructure (highways, roads, bridges, and tunnels), water supply and treatment facilities (dams, levees, power plants) and public service facilities (hospitals, other medical facilities, schools, police and fire stations, and emergency operation centers).

To determine critical infrastructure that could be affected by natural disasters, each municipality in the county was asked to identify the types and, if possible, the total percentage of infrastructure located within known hazard zones such as mapped floodplains (Appendix B).

The County is charged with identifying shelters and emergency housing. More information related to emergency sheltering within the county can be found in the Emergency Shelter Plan, an appendix to the Columbia County Comprehensive Emergency Management Plan, and included as an appendix to this plan.

4.2 Asset Inventory

An asset inventory for Columbia County was conducted through an analysis of information collected from federal and state databases and existing plans and reports and then supplemented and revised through discussions and input from the communities in the county. The federal database that provided the baseline asset inventory came from FEMA's HAZUS-MH 2.2 tool, which is a nationally applicable standardized methodology containing models for estimating potential losses from hazard events. The results are summarized in Appendix G along with the total exposure of people and property; critical facilities and infrastructure; and economic assets in each jurisdiction of Columbia County. Assets were categorized such that only those affected by the hazards profiled in Chapter 3 were included in the inventory. These hazards were:

- Floods;
- Severe storms (includes severe coastal storms, hailstorms, and hurricanes);
- Severe winter storms (includes ice storms); and
- Tornados.

Other Assets

Assessing the vulnerability of Columbia County to disaster also involves inventorying the natural, historical (Appendix H), cultural, and economic assets of the area (Appendix G). This is important for the following reasons:

- The county may decide that these types of resources warrant a greater degree of protection due to their unique and irreplaceable nature and contribution to the overall economy.
- If these resources are impacted by a disaster, knowing about them ahead of time allows for more prudent care in the immediate aftermath.
- The rules for reconstruction, restoration, rehabilitation, and/or replacement are often different for these types of designated resources.
- Natural resources, such as wetlands and riparian habitat which, help absorb and attenuate floodwaters, can have beneficial functions that reduce the impacts of natural hazards.
- Losses of economic assets (e.g., major employers or primary economic sectors) could have severe impacts on a community and its ability to recover from disaster.

In Columbia County, specific assets include the following:

- **Endangered, threatened, special status species**: (U.S. Department of the Interior, Fish and Wildlife Service, New York Field Office, October 2013)
  - The bald eagle (*Haliaeetus leucocephalus*) has been delisted.
  - Bog turtle, (*Glyptemys muhlenbergii*) is a threatened species.
  - Indiana bat (*Myotis sodalist*) is an endangered species.
  - New England cottontail (*Sylvilagus transitionalis*) is a species of concern.

- **Lakes**
  - **Copake Lake** is a 410-acre lake. The mean depth is 16 feet. The fish species present are the bluegill, brown bullhead, black crappie, smallmouth bass, largemouth bass, white perch, and yellow perch.
  - **Kinderhook Lake** is a 350-acre lake. The mean depth is 15 feet. The fish species present are the bluegill, chain pickerel, largemouth bass, white perch, and yellow perch.
  - **Lake Taghkanic** is a 168-acre lake. The mean depth is 19 feet. The fish species present are bluegill, brown bullhead, largemouth bass, chain pickerel, yellow perch, and cisco.
  - **Ore Pit Pond** is a 3-acre pond. The mean depth is 23 feet. The fish species present are brown bullhead, largemouth bass, golden shiner, banded killifish, rainbow trout, and pumpkinseed.

- **Queechy Lake** is a 14-acre lake. The mean depth is 19 feet. The fish species present are the brown bullhead, brown trout, largemouth bass, chain pickerel, pumpkinseed, rock bass, rainbow trout, and yellow perch.
- **Weed Mines Pond** is a 3-acre pond. The mean depth is 10 feet. The fish species present are the brown bullhead, largemouth bass, golden shiner, and rainbow trout.

- **Rivers -** The Hudson River forms the western border of Columbia County. Other notable creeks include:
  - Ancram Creek
  - Claverack Creek
  - Copake Creek
  - Kinderhook Creek
  - Roeliff-Jansen Kill
  - Valatie Kill

  The Rossman Falls and Stuyvesant Falls lie on Kinderhook Creek.

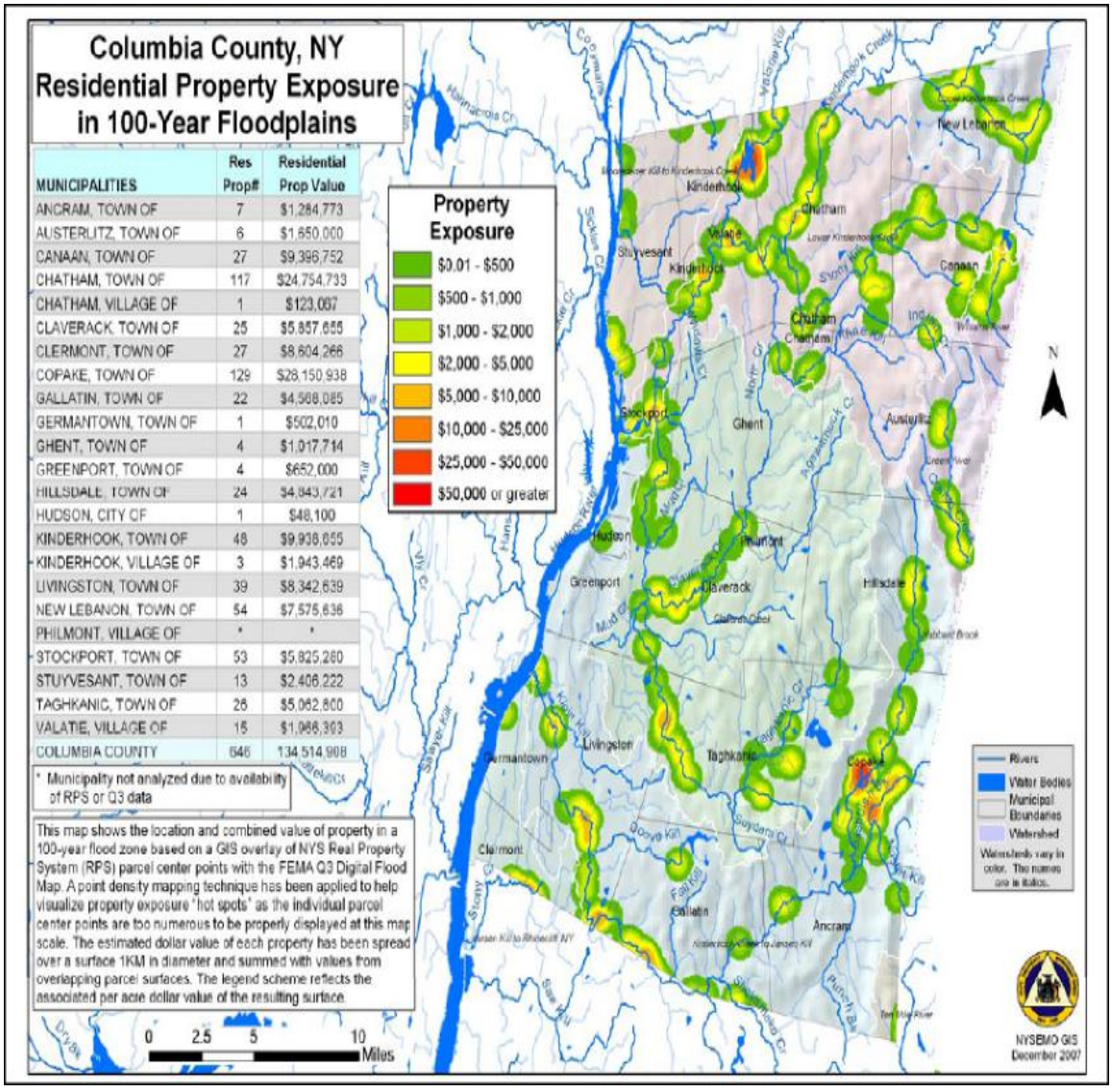
- **Historic resources:** There are 118 Columbia County properties on the National Register of Historic Places.

4.3 Flood Vulnerability Analysis

Cascading effects from flooding may include damaged power lines, blocked roadways, hindered commerce, and damaged infrastructure such as flooded water supply wells and waste water treatment plants. Structures, bridges, and water supply and wastewater infrastructure in Columbia County are vulnerable to flooding.

A 100-year floodplain map was generated for major rivers and creeks in the county to estimate the potential losses from flood events (Figure 4-1). Potential losses to the county were estimated using a Level 1 HAZUS-MH analysis, based on default buildings and population inventory and the flood hazard data. This resulted in the estimation of flood losses by jurisdiction. The loss estimations for general building stock are presented in Appendix G. Based on this analysis, total potential economic losses to structures in the hazard areas due to flooding are estimated at $176,450,666 (Appendix G3). Only one critical facility, the Hudson Correctional Facility, located in Greenport, was found to be located within the HAZUS generated floodplain (Figure 4-1). Based on new information received since the original MHMP plan was drafted, an updated HAZUS-MH analysis was carried out in February 2015 for a 100 year flood event scenario (Appendix G). The updated analysis estimated that there are 29,767 buildings in the region which have an aggregate total replacement value of 8,854 million (2010 dollars); if this scenario was to occur, 23 buildings will be completely destroyed in the county while 91 buildings will be moderately damaged. 611 households and 1832 people will be displaced. Displacement includes households evacuated from within or very near to the inundated area. Of

these, 543 people (out of a total population of 63,096) will seek temporary shelter in public shelters. 192 hospital beds will be available in the county for use.



MUNICIPALITIES	Res Prop#	Residential Prop Value
ANCRAM, TOWN OF	7	$1,284,773
AUSTERLITZ, TOWN OF	6	$1,650,000
CANAAN, TOWN OF	27	$9,396,752
CHATHAM, TOWN OF	117	$24,754,733
CHATHAM, VILLAGE OF	1	$123,087
CLAVERACK, TOWN OF	25	$5,857,655
CLERMONT, TOWN OF	27	$8,604,266
COPAKE, TOWN OF	129	$28,150,938
GALLATIN, TOWN OF	22	$4,568,085
GERMANTOWN, TOWN OF	1	$502,010
GHENT, TOWN OF	4	$1,017,714
GREENPORT, TOWN OF	4	$652,000
HILLSDALE, TOWN OF	24	$4,843,721
HUDSON, CITY OF	1	$48,100
KINDERHOOK, TOWN OF	48	$9,938,655
KINDERHOOK, VILLAGE OF	3	$1,943,469
LIVINGSTON, TOWN OF	39	$8,342,639
NEW LEBANON, TOWN OF	54	$7,575,636
PHILMONT, VILLAGE OF	*	*
STOCKPORT, TOWN OF	53	$5,825,260
STUYVESANT, TOWN OF	13	$2,406,222
TAGHKANIC, TOWN OF	26	$5,062,800
VALATIE, VILLAGE OF	15	$1,966,393
COLUMBIA COUNTY	646	134,514,908

* Municipality not analyzed due to availability of RPS or Q3 data

This map shows the location and combined value of property in a 100-year flood zone based on a GIS overlay of NYS Real Property System (RPS) parcel center points with the FEMA Q3 Digital Flood Map. A point density mapping technique has been applied to help visualize property exposure 'hot spots' as the individual parcel center points are too numerous to be properly displayed at this map scale. The estimated dollar value of each property has been spread over a surface 1KM in diameter and summed with values from overlapping parcel surfaces. The legend scheme reflects the associated per acre dollar value of the resulting surface.

Figure 4-1 Columbia County Residential Property Exposure in 100-Year Floodplains

National Flood Insurance Program and Repetitive Flood Loss Properties

The National Flood Insurance Program (NFIP) has been the primary provider of flood insurance in the U.S. since 1977. The organization maintains detailed records of submitted and paid claims. All the jurisdictions in the county, except the Village of Philmont and Columbia County itself, participate in the NFIP. According to the NYS Hazard Mitigation Plan, for every one property in Columbia County located in a 100-year flood zone insured by the NFIP there are 5.67 properties that are not insured against flooding.

Figure 4-2 below shows Columbia County's building inventory in floodplains. The 646 properties in Columbia County in the 100-year flood zones in NFIP have an aggregate property value of $134,514,908. The estimated total property value of the 268 NFIP policies that have been written in all of Columbia County is $59,059,300. Since 1978, Columbia County has paid a total of $243,799 in premiums to the NFIP and filed more than 168 claims recouping $1,776,178 in flood losses.

Repetitive Flood Losses Properties

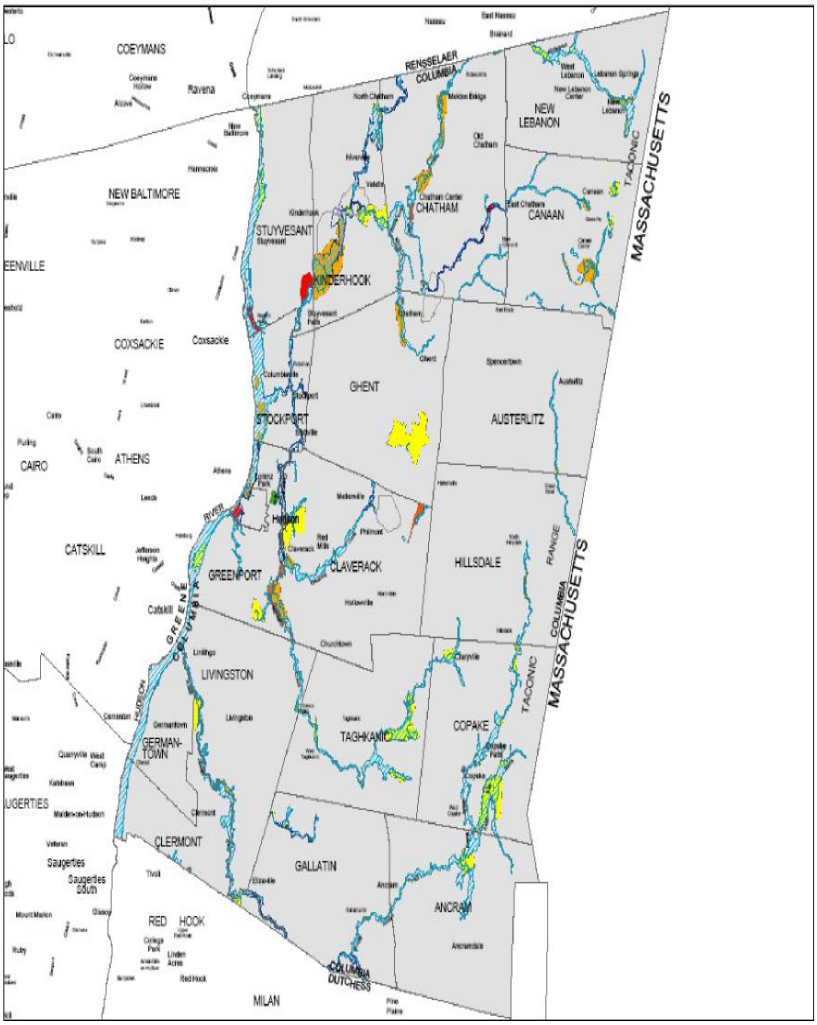
When a property has had two claims of $1,000 or more within a 10-year period, it is labeled as a "repetitive loss property." As a result of being labeled a repetitive loss property, certain restrictions are put in place on both the property and the property owner concerning how a property can be rebuilt, with the intention of increasing the mitigation measures in place on these properties to reduce future damage resulting from floods. In Columbia County, nine properties have filed a total of 54 losses over a 10-year period estimated at $941,452.

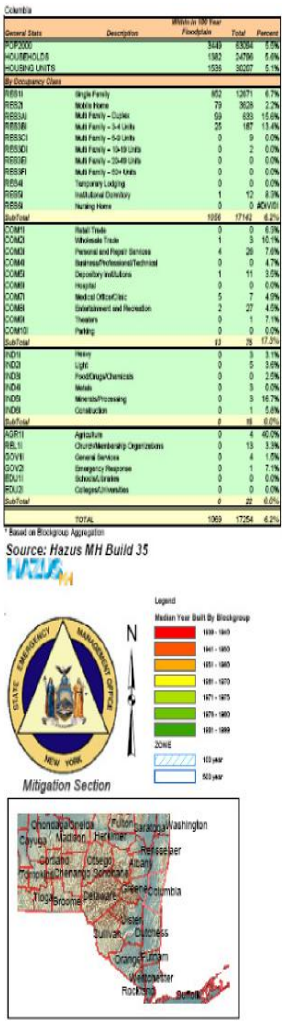
Table 4-1 Repetitive Loss Properties Information for Columbia County

Community	Properties	Losses	Total Payments
Town of Ancram	1	2	$ 4,057
Town of Copake	3	6	$ 70,879
Town of Hillsdale	1	3	$ 11,259
City of Hudson	3	6	$ 33,172
Town of Kinderhook	2	4	$ 368,286
Town of Livingston	1	2	$ 12,860
Town of New Lebanon	5	47	$ 888,937
Town of Stockport	3	9	$ 149,486
Town of Stuyvesant	4	9	$ 395,986
Village of Valatie	2	4	$ 35,277
Total	**25**	**92**	**$ 1,970,200**

Source: NY State Hazard Mitigation Plan

Figure 4-2 Columbia County: Building Inventory within the 100-Year Floodplain





Columbia

General Stats	Description	Within the 100 Year Floodplain	Total	Percent
POP2000		3143	63094	5.0%
HOUSEHOLDS		1382	24766	5.6%
HOUSING UNITS		1536	30207	5.1%
By Occupancy Class				
RES1	Single Family	852	12671	6.7%
RES2	Mobile Home	79	3626	2.2%
RES3A	Multi Family - Duplex	69	693	15.6%
RES3B	Multi Family - 3-4 Units	35	187	18.4%
RES3C	Multi Family - 5-9 Units	0	9	0.0%
RES3D	Multi Family - 10-19 Units	0	2	0.0%
RES3E	Multi Family - 20-49 Units	0	0	0.0%
RES3F	Multi Family - 50+ Units	0	0	0.0%
RES4	Temporary Lodging	0	0	0.0%
RES5	Institutional Dormitory	1	12	8.3%
RES6	Nursing Home	0	0	#DIV/0!
SubTotal		1036	17140	6.2%
COM1	Retail Trade	0	0	6.3%
COM2	Wholesale Trade	1	3	10.1%
COM3	Personal and Repair Services	4	28	7.6%
COM4	Business/Professional/Technical	0	0	4.7%
COM5	Depository Institutions	1	11	3.5%
COM6	Hospital	0	0	0.0%
COM7	Medical Office/Clinic	5	7	4.5%
COM8	Entertainment and Recreation	2	27	4.5%
COM9	Theaters	0	1	7.1%
COM10	Parking	0	0	0.0%
SubTotal		13	75	17.3%
IND1	Heavy	0	3	3.1%
IND2	Light	0	5	3.6%
IND3	Food/Drugs/Chemicals	0	0	2.5%
IND4	Metals	0	3	0.0%
IND5	Mineral Processing	0	3	16.7%
IND6	Construction	0	1	5.6%
SubTotal		0	15	6.0%
AGR1	Agriculture	0	4	40.0%
REL1	Church/Membership Organizations	0	13	3.3%
GOV1	General Services	0	4	1.0%
GOV2	Emergency Response	0	1	7.1%
EDU1	Schools/Libraries	0	0	0.0%
EDU2	Colleges/Universities	0	0	0.0%
SubTotal		0	22	6.0%
	TOTAL	1069	17254	6.2%

* Based on Blockgroup Aggregation

Source: Hazus MH Build 35

4.4 Severe Storms (Coastal Storms/Hurricanes/Hailstorms) Vulnerability Analysis

The risk from severe storms impacts all assets within the county equally. In recent years severe storms, especially hurricanes, have had direct impacts on Columbia County. A Level 1 HAZUS-MH analysis was run for a 1,000-year return period. The loss estimations for general building stock, modified with any amendments from the jurisdiction, are presented in Appendix G. It should be noted that the building valuations are based on 2000 U.S. census data. Thus, the potential losses originally derived from HAZUS-MH, the best available data, may contain some inaccuracies.

Based on this analysis, total potential losses due to hurricanes are estimated at $59,237,061 (Appendix G4). HAZUS-MH provides reports on the number of buildings impacted, estimates of the building repair costs, and the associated loss of building contents and inventory. The NYS Hazard Mitigation Plan has identified Columbia County to be in a hurricane susceptible location.

4.5 Severe Winter Storms/Ice Storms Vulnerability Analysis

Severe winter storms often cause significant impacts and losses to businesses (closure, loss of revenue), roads, utilities, and population. According to the NYS Hazard Mitigation Plan, Columbia County has never had a federally declared disaster due to ice storms but has had five federally declared winter storm disasters. The annual average snowfall for Columbia County is 52.3 inches. According to HAZUS MH, 23,405 potential structures would be affected by a severe snow storm.

The cascade effects of severe winter storms include utility losses and transportation accidents. Particular areas of vulnerability include low-income and elderly populations, trailer homes, and infrastructure such as roadways and utilities that can be damaged by such storms. However, the cost of such damages may be very difficult to quantify. Existing and future mitigation efforts should continue to be developed and employed that will enable the planning area to be prepared for these events when they occur.

4.6 Tornado Vulnerability Analysis

The risk from tornados impacts all assets within the county equally. A tornado that takes a direct path across the county, depending upon its wind speed, and duration on the ground, could have devastating effects on residential and commercial property located in the county. Columbia County has experienced 13 tornados; 23,405 structures in Columbia County are vulnerable to these events. According to statistics, nearly three in four tornados occurring in New York State are classified as magnitude of F0 or F1 on the Fujita-Pearson Scale.

4.7 Climate Change Vulnerability Analysis

Potential impacts of climate change include increased average temperatures, decreased snow accumulation, and increased peak stream flow. The increasing average temperature is expected to be more pronounced during summer months, and decreased summer precipitation is expected to accompany this shift. The frequency and magnitude of extreme precipitation events is also expected to increase, particularly in the winter. In short, what it is currently viewed as a 100-year event, may soon be reconsidered as a 10-year event. This would place further stress onto storm drainage systems and natural stream systems – placing residents at an increased risk for flooding.

Furthermore, changing precipitation and temperature may impact potable water availability. If precipitation falls during a shorter period of the year, with a longer, drier, hotter summer, the need for water storage may grow. Decreased water availability combined with increased demand may exacerbate water rights conflicts.

Finally, changing climate conditions can impact ecosystems, with complicated feedbacks that may affect ecosystem services that Columbia County residents rely on for recreation, water quality, and overall well-being.

Columbia County is implementing a mitigation action to identify potential impacts of climate change which will include specific strategies and recommendations to reduce the impact of climate change and incorporate climate change into planning mechanisms.

5 MITIGATION STRATEGY

Chapter 5 presents the mitigation strategy developed by the Columbia County HMPT based on the asset inventory and risk assessment. The mitigation strategy was developed through a collaborative group process and consists of goals, objectives, and mitigation actions.

5.1 Goals and Objectives

The HMPT developed goals and objectives for reducing hazard-related losses in Columbia County. These goals and objectives were based upon the results of the risk assessment and a review of goals and objectives from the previous Columbia County Hazard Mitigation Plan, the New York State Hazard Mitigation Plan, and the Columbia County Emergency Operations Plan.

Each goal is, in essence, an inclusive and generalized policy statement and is intended to be sufficiently broad such that mitigation activities defined in the objectives can also address new and emerging issues. A consensus on four main goals was made during the third HMPT meeting. The goals were as follows:

- Goal 1: Protect life and property
- Goal 2: Increase public awareness
- Goal 3: Encourage partnerships
- Goal 4: Provide for emergency services

The HMPT then identified particular objectives, i.e., actions that would achieve each overarching goal. Each objective defines strategies or implementation steps and is designed to be measurable. The objectives tied to each goal were as follows:

Goal 1: Protect Life and Property

Objective 1-1: Implement actions that will make homes, businesses, infrastructure, and critical facilities more resistant to hazards and thereby help protect lives and property.

Objective 1-2: Encourage owners of property that are vulnerable to hazards to take preventive actions.

Objective 1-3 Better characterize flood and storm water hazards by identifying inadequate storm water facilities and poorly drained areas.

Objective 1-4: Review and revise, as needed, existing local laws and ordinances, safety inspection procedures, and other applicable standards to protect the building stock and environmental resources.

Objective 1-5: Incorporate information of hazard risks and ways to avoid and/or plan for risks into land-use planning and natural resource management.

Objective 1-6: Educate homeowners, renters, and businesses about insurance coverage available for natural hazards (especially floods).

Objective 1-7: Integrate the recommendations of this plan into existing local programs.

Objective 1-8: Implement mitigation actions that encourage environmental stewardship.

Goal 2: Increase Public Awareness

Objective 2-1: Develop and implement educational and outreach programs to increase public awareness of the types of risks associated with specific hazards.

Objective 2-2: Provide information about tools, partnership opportunities, funding resources, and government initiatives to better assist the public in implementing mitigation activities.

Objective 2-3: Implement mitigation actions that enhance technological capabilities for profiling and assessing exposure of the community to hazards.

Objective 2-4: Provide comprehensive information to local emergency service providers, municipalities, the media, and the public during and following disaster and hazard events regarding emergency traffic routes, road closures, shelter locations, traffic restrictions, etc.

Goal 3: Encourage Partnerships

Objective 3-1: Strengthen inter-jurisdictional and inter-agency communication, coordination, and partnerships to foster hazard mitigation actions and/or projects.

Objective 3-2: Identify and implement actions to engage public agencies and individual citizens, neighborhood groups, non-profit organizations, business, and industry to address and mitigate hazards specific to specific areas.

Objective 3-3: Encourage jurisdictions to share services and equipment among themselves in acquiring, maintaining, and providing emergency services and equipment.

Goal 4: Provide for Emergency Services

Objective 4-1: Establish policies to help ensure the prioritization and implementation of mitigation actions and/or projects that will benefit essential facilities, services, and infrastructure.

Objective 4-2: Where appropriate, coordinate and integrate hazard mitigation actions with existing local emergency operations plans.

Objective 4-3: Identify the need for, and acquire, any special emergency services training and equipment to enhance response capabilities for specific hazards.

Objective 4-4: Review and improve, if necessary, emergency traffic routes; inform the public about these routes.

Objective 4-5: Ensure continuity of governmental operations, emergency services, and essential facilities at the local level during and immediately after disaster and/or hazardous events.

Objective 4-6: Identify and pursue funding opportunities to develop and implement local and county mitigation activities.

Objective 4-7: Maintain communications with the county/state regarding drainage and icy road conditions.

5.2 Identification and Analysis of Mitigation Actions

Supporting the Mitigation Plan's identified goals and objectives, the HMPT also developed specific mitigation actions for the various hazards identified in the county. The discussion about these actions centered on different types of mitigation actions for various hazards as well as those actions necessary to join FEMA's NFIP Community Rating System. All proposed and implemented projects are designed to protect critical facilities to a 500-year flood event or the actual worst-case scenario, whichever is greater. Other types of actions discussed included the following:

- **Prevention –** Actions include planning and zoning, building codes, capital improvement programs, open space preservation, and storm water management regulation.
- **Property Protection –** Actions include acquisition, elevation, relocation, structural retrofits, and use of storm shutters and shatter-resistant glass.
- **Public Education and Awareness** – Actions include developing outreach projects, encouraging real estate disclosures, establishing hazard information centers, and school-age and adult education programs.
- **Natural Resource Protection** – Actions include sediment and erosion control, stream corridor restoration, watershed forest and vegetation management, and wetland restoration and preservation.
- **Emergency Services** – Actions include warning systems, emergency response services, and protection of critical facilities.
- **Structural Projects** – Actions that involve building structures to reduce the impact of a hazard, e.g., dams, levees, floodwalls, and retaining walls that reduce the impact of flooding.

5.3 Implementation of Mitigation Actions

To prioritize these identified mitigation actions, the HMPT utilized the STAPLEE prioritization criteria recommended by FEMA. STAPLEE is a tool used to assess the costs and benefits and overall feasibility of migration actions. STAPLEE stands for the following:

Social: Will the action be acceptable to the community? Could it have an unfair effect on a particular segment of the population?

Technical: Is the action technically feasible? Are there secondary impacts? Does it offer a long-term solution?

Administrative: Is there adequate political and public support for the project?

Political: Will there be adequate political and public support for the project?

Legal: Does your jurisdiction have the legal authority to implement the action?

Economics: Is the action cost-beneficial? Is there funding available? Will the action contribute to the local community?

Environmental: Will there be negative environmental consequences from the action? Does it comply with environmental regulations? Is it consistent with community environmental goals?

Each jurisdiction was requested to complete a STAPLEE worksheet for inclusion in the plan (Appendix C). STAPLEE scores are used to help determine the amount of money to be used for the various objectives, thus ensuring that the most effective actions are completed first. Mitigation actions were outlined for all hazards identified by the communities in Columbia County, including those identified only by a single community. In total, the HMPT came up with 81 specific mitigation actions.

Table 5-1 lists all of the mitigation actions and corresponding STAPLEE Scores for both existing and new mitigation actions. Appendix C provides detailed STAPLEE scores and worksheets for all actions detailed in Table 5-1.

The strategies fall into four categories aligning with the goals identified at the beginning of Chapter 5:

- Protect Life and Property (PPL)
- Increase Public Awareness (IPA)
- Encourage Partnerships (EP)
- Provide for Emergency Services (PES)

Table 5-1 Mitigation Strategies (Actions)

Strategy	Mitigation Action	New or Existing Assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Status (Carryover/ Ongoing/New)	Priority (High/ Medium/Low)	STAPLEE Score	Timeline
COLUMBIA COUNTY										
EP-1	Collect additional information to fill any existing data gaps in this plan. Proper implementation of this plan depends on current and accurate data. Proper identification of hazard areas and highly vulnerable assets will assist in the reduction of risks.	Existing	All Hazards	Goal 1, Objective 1 and 2; Goal 2, All Objectives, Goal 3, All Objectives	All jurisdictions	Low	Ongoing	High	36	1 year
EP-2	Develop and implement a countywide sandbagging action plan to encourage partnerships between communities vulnerable to flood damages.	Both	Floods	Goal 1, Objective 1 and 2; Goal 2, All Objectives, Goal 3, All Objectives	All jurisdictions	Low	New	High	36	1 year
EP-3	Conduct a cooperative study with the Office of the State Comptroller using their Cooperation and Consolidation Consulting Service to encourage local inter-jurisdictional agreements where local resources are insufficient to handle a severe hazardous event, including sheltering evacuating citizens.	Existing	All Hazards	Goal 1, Objective 1 and 2; Goal 2, All Objectives, Goal 3, All Objectives	Legislative bodies	Low	New	High	41	1 year

EP-4	Municipalities to enter into Inter-Municipality Agreements to provide work force and equipment support during a severe hazardous event.	Existing	All Hazards	Goal 1, Objective 1 and 2; Goal 2, All Objectives, Goal 3, All Objectives	All jurisdictional Highway departments	Low	New	High	39	1 year
IPA-1	Develop and implement a full-scale public outreach program to inform the public about the hazard risks in their community and provide useful best practices to help minimize these risks. Provide floodplain information and maps as part of the program.	Both	All Hazards	Goal 1, Objective 1 and 2; Goal 2, All Objectives, Goal 3, All Objectives	All jurisdictions	Low	New	High	37	1 year
IPA-2	Educate citizens of available countywide mechanisms for complaints about debris in drainage ditches and flood water across roadways (identical to Goal 4: PES-5).	Existing	Severe Storms and Floods	Goal 1, All objectives	Highway departments	Low	New	Medium	34	1 year
IPA-3	Institute an annual public information campaign to remind citizens to inspect and clear properties of tree limb debris before storm season.	Existing	Severe Storms and Floods	Goal 1, Objective 1 and 2; Goal 2, All Objectives	All jurisdictions	Moderate	New	Medium	31	1 year
PES-1	Develop an inventory map of county assets vulnerable to flood damage.	Both	Floods	Goal 1, All objectives	Legislative bodes	Moderate	New	Medium	39	2 years
PES-2	Conduct a study to prioritize county assets for future flood-proofing or elevation (i.e., elevation of utilities).	New	Floods	Goal 1, All objectives	Floodplain managers	Moderate	New	Medium	35	2 years

PES-3	Develop a program to identify funding streams for hazard mitigation projects and help municipalities apply for project funding.	Existing	Multiple Hazards	Goal 1, All objectives	All jurisdictions	Low	New	High	32	5 years
PES-4	Incorporate Flood Insurance Rate Maps (FIRM) into the county GIS.	Both	Floods and Severe Storms	Goal 1, Objective 1 and 2; Goal 2, All Objectives	Floodplain managers	Moderate	New	High	34	1 year
PES-5	Annually inspect municipal utility right-of-way for overhanging and impinging tree limbs before the storm season.	Existing	Severe Storms	Goal 1, Objective 1 and 2; Goal 2, All Objectives	All jurisdictions	Low	New	Medium	32	1 year
PES-21	Removal of trees and brush from nearby power lines.	Existing	All Hazards	Goal 1, Objective 1 and 2; Goal 2, All Objectives	All jurisdictional highway departments	Moderate	New	High	34	2 years
PPL-1	Develop and implement new building codes to increase disaster-resistant construction for new structures and encourage renovations to existing structures.	New	Multiple Hazards	Goal 1, Objective 1 and 2; Goal 2, All Objectives	Building departments	Moderate	Carryover	High	40	2 years
PPL-2	Develop and implement zoning code updates to limit the types of structures that may be built in disaster-prone areas.	New	Multiple Hazards	Goal 1, All objectives	Legislative bodies	Moderate	Carryover	High	36	2 years
PPL-3	Develop and implement program for bi-annual inspections of floodplain zoning ordinances.	New	Flood	Goal 1, All objectives	All jurisdictions	Moderate	New	Medium	34	1 year
PPL-4	Develop and implement a program to flood-proof repetitive loss properties.	New	Flood	Goal 1, All objectives	All jurisdictions	Low	New	High	40	2 years

PPL-31	Update County evacuation and mass care plans including development of community-specific evacuation routes, identification of shelter locations, and identification of potential sites for temporary housing and longer-term housing solutions.	Existing	All Hazards	Goal 1, Objective 1 and 2; Goal 2, All Objectives	CCEMO	Low	New	High	38	1 year
PPL-35	Conduct an analysis of the potential impact of climate change on the County to include an analysis of how climate change may affect the County's vulnerability to hazards identified in the mitigation plan (flood, severe storms, winter storms, and tornado). The study should also include concrete strategies and recommendations for action that the community can implement to reduce the impact of climate change and incorporate climate change into multiple planning mechanisms.	New	All Hazards	Goal 1, Objective 1 and 2; Goal 2, All Objectives	CCEMO	Moderate	New	High	35	3 years

Strategy	Mitigation Action	Status (Carryover/ Ongoing/ New)	Priority (High/ Medium/ Low)	STAPLEE Score	Hazards
CITY OF HUDSON					

PPL-21	Upgrade sewer pump stations to protect against overflows from limited capacity.	New	High	36	Multiple Hazards
PPL-22	Replace Ferry Street Bridge to be upgraded to minimize debris scouring and allow for improved river capacity through the town.	New	High	38	Multiple Hazards
PPL-23	Upgrade to City Waste Water Treatment Plant, substantial improvements to systems within 100-yr sea level rise areas.	New	High	36	Climate Change/Flood
PPL-34	Backup power water supply for chemical field to ensure utilities are functional.	New	High	35	All Hazards
TOWN OF ANCRAM					
PPL-5	Install snow fencing on Carlson Road to ease snow removal.	Carryover	Medium	36.5	Severe Winter Storm
PPL-6	Install snow fencing on Sawchuck Road to ease snow removal.	Carryover	Medium	36.5	Severe Winter Storm
PPL-7	Install snow fencing on State Route 22 to ease snow removal.	Carryover	Medium	36.5	Severe Winter Storm
PPL-17	Conduct a drainage study on Finkle Road to determine how to reduce flooding.	New	Medium	34	Flood
TOWN OF AUSTERLITZ					
PPL-8	Reinforce bridges over the Green River to prevent damage from flooding.	Ongoing	Low	28	Flood
TOWN OF CANAAN					
PES-12	A disaster plan will be created to coordinate with: Town of Canaan, Highway Department, Fire Companies, and County Emergency Shelters to provide and service generators to senior citizens who cannot leave their home during severe hazards.	New	High	39	All Hazards

PPL-20	Scheduled road maintenance, which surpasses normal maintenance and replaces major culverts, bridges, infrastructure trouble spots.	New	High	38	All Hazards
PPL-24	Budgeting Contingencies for Hazard Repair and Mitigation	New	High	35	All Hazards
TOWN OF CHATHAM					
PPL-9	Clear debris in sluiceway on annual basis to improve drainage and alleviate road flooding.	Carryover	Medium	38	Flood
PPL-10	Increase the culvert size on Highland Road and River Street to reduce washouts from Hunt Road to River Road.	New	Low	39	Flood
TOWN OF CLAVERACK					
PPL-14	Develop and implement a program to annually inspect and repair the Philmont Reservoir Dam using local resources and inspectors.	New	Medium	37	Flood
PPL-15	Elevate water/wastewater treatment plant.	New	Medium	40	Flood
TOWN OF CLERMONT					
PES-18	Removal of power lines, trees, and brush for the implementation of national grid.	New	High	43	All Hazards
PES-19	Evaluate and manage debris along all town roads, culvert replacement, and road ditching.	New	High	38	All Hazards
TOWN OF COPAKE					
EP-5	Review Comprehensive Plan to bring lessons learned from mitigation planning process into other planning processes.	New	High	37	All Hazards
PES-13	Annual update to the Town's Snow and Ice Policy and Emergency Management Plan to mitigate winter storm related risks.	New	High	42	Winter storms
PES-14	Annual tree and limb maintenance program to reduce risk of power outages.	New	High	42	All Hazards
PPL-25	Installation of 1,750' snow fence to protect roads during snowstorms.	New	High	37	Winter storms

PPL-26	Annual inspections and cleaning of culverts and ditches town wide	New	High	41	Flooding
PPL-27	Sunset Road Project maintenance prevents hazardous road conditions by strengthening roadway.	New	High	37	All Hazards
TOWN OF GALLATIN					
PES-7	Annual tree trimming activities to reduce risk of power outages near the power company building	New	High	28	Multiple Hazards
PES-8	Develop and implement a transportation study to identify and improve roads most vulnerable to flood hazards.	New	Low	43	Multiple Hazards
PES-20	Purchase backup generator for Gallatin Highway Garage.	New	Medium	34	All Hazards
PPL-32	Replace Elsohn Road Culvert to address damage caused by DR 1857.	New	High	36	Flooding
PPL-33	Replace Kosowski Road Culvert.	New	High	36	Flooding
TOWN OF GERMANTOWN					
IPA-4	Generate a cost-effective option for improving drainage systems through an initial study of appropriate systems.	New	Medium	39	Flood
IPA-5	Increase awareness of floodplain management through the creation and distribution of floodplain maps.	New	Medium	44	Flood
PES-10	Develop an Emergency Preparedness Plan in conjunction with the town and fire departments.	New	Medium	46	Multiple Hazards
PES-11	Develop an inventory and map of structures that are vulnerable to damage during severe weather.	New	Medium	40	Multiple Hazards
PPL-18	Powder Mill Spring Dam Restoration Project designed to improve the structural integrity of the dam and improve flood controls.	New	Medium	40	Flood
TOWN OF GHENT					
PPL-36	An H&H study will be completed to determine the appropriate culvert size and ensure that the project will not create negative impacts upstream or	New	High	18	Flood

	downstream. After determining the best project design, the Town will secure all appropriate permits will be obtained; order materials; and stage materials at the project site. Existing culverts will be removed and disposed of. New culvert will be installed, surrounding area will be filled, and pavement installed.				
PPL-37	Work will be performed by the Town DPW. All appropriate permits will be obtained, and materials ordered/staged at project site. Existing driveway culverts will be removed and disposed of. New culverts will be installed, and concrete ditching and rip-rap placed as bulking of driveway culverts as appropriate. Intermediate weirs will be installed in ditches.	New	High	18	Flood/Erosion
PPL-38	Conduct an H&H study to develop detailed engineering analysis. Work will be performed by Town DPW and contractor(s) after the study has been completed. Ghent Town DPW will work with NYSDEC and (if needed) USACE to secure permitting application(s) and address site preparation. DPW/contractor(s) will then obtain permits, order project materials, and stage them at the project site. Exact details of the stream alignment work to be completed will be determined by the engineering results.	New	High	18	Flood
TOWN OF GREENPORT					
PES-9	Improve access to town wells.	New	Medium	34	Flood
PPL-16	Replace or retrofit the Finger Road bridge over Mud Creek to reduce scouring risk.	New	Medium	33	Flood
TOWN OF HILLSDALE					
PES-22	The firehouse serves as the town Emergency Operations Center (EOC) and emergency shelter that serves a local population of 1,600 people. There are many documented instances of the town losing power during natural hazard events, including wind, lightning, hail, and downed trees. The town needs a generator that can power firehouse operations, including the garages, kitchen, toilets etc., as well as the EOC and emergency shelter, should the facility lose power from regular utility resources.	New	High	20	Multiple Hazards
PPL-28	Paving and resurfacing Wolf Hill Road with prevent hazardous road conditions for the Town of Hillsdale.	New	High	28	Multiple Hazards

PPL-39	Larger culverts in North Hillsdale & Harlemville will alleviate flooding on the town roads. The town will commission a Phase 1 study to identify topographical issues creating flood conditions, and the level of storm protection needed for the project to be effective.	New	High	18	Flood
TOWN OF KINDERHOOK					
PES-15	Purchase generator for Highway Department	Carryover	High	35	All Hazards
PES-23	Purchase a generator for the Martin H. Glynn Municipal Center, which houses operations for the Town of Kinderhook, the Village of Valatie, and a substation for Columbia County Sheriff's Office. A generator would ensure continuity of operations for all three entities in disasters. Consider cost-sharing among the three government entities. This action would include the following steps: • Discuss with the Building Inspector the work required to have a generator installed. • Discuss project with the Sheriff's Office and Village of Valatie. Explore possibility of sharing project-related expenses. • Present recommendation to the Town Board for its consideration and approval. • Secure bids for the generator and installation. • Install generator. • Invite media coverage showing the project and extolling its implications for continuity of operations and enhanced public safety. Highlight the joint effort between governmental entities.	New	High	20	All Hazards
PPL-40	Create a program for review of floodplain zoning ordinances. The review will take place bi-annually and after a major storm or flood. Ensure that current ordinances governing floodplain zoning and floodplain management are adequate for community needs. Recent shifts in the frequency and severity of local flooding show that early review of flood lines and proximity of water to nearby assets (homes businesses, infrastructure) will enable the Town of Kinderhook and its collocated villages to identify potentially critical situations sooner rather than after assets are affected.	New	High	23	Flood

TOWN OF LIVINGSTON					
PPL-29	Repair sluiceway/culvert on Roe-Jan Creek at Rt. 9 and Buckwheat.	Carryover	High	37	All Hazards
TOWN OF NEW LEBANON					
PPL-11	Install flood control (concrete beds) on Wyomanock Creek.	Carryover	Low	37	Flooding
PPL-12	Install flood control (concrete beds) on Kinderhook Creek.	Carryover	Low	37	Flooding
TOWN OF STOCKPORT					
PES-7	Trim trees by power company building.	Ongoing	Medium	28	Multiple Hazards
PPL-46	Elevate homes along Park Place, in the Hamlet of Stottville (located in the Village of Stockport). The structures are near Claverack Creek, as shown on the accompanying map. • Collect cost estimates, photographs, maps, property information, and insurance claims history. • Develop engineering designs that elevate homes above the base flood elevation in accordance with NYS building codes. • Evaluate historic losses to ensure cost effectiveness, as well as an evaluation of compliance with environmental policy and historic preservation standards.	New	High	20	Flood
PPL-47	Studies will need to be conducted along Kinderhook Creek to determine feasibility and cost-effectiveness of reconstructing dams. Considerations include: specifying the dam's purpose; choosing the best location, site investigation, laboratory and field testing, hydrology studies, engineering design, seepage control design and slope stability. Once studies have been completed and appropriate design selected, activities needing to take place will include: permitting and coordination with DEC and USACE and Conditional Letter of Map Revision consultation.	New	Medium	15	Flood

TOWN OF STUYVESANT					
PPL-30	Develop and enforce steep slope laws and regulations to protect property owners from landslide risk.	New	High	34	All Hazards
PPL-41	This project was first mentioned in 2013 during New York Rising community meetings as #021-HA-51498-2013. The structure on Ferry Road is identified as being of historic importance. Steps toward completion at this point include: • Review completed paperwork for structure located at 41 Ferry Road. • Ensure application is in keeping with the Town's "Flood Damage Prevention Local Law" (adopted in 1987 as Local Law #1) to modify existing structures to bring them into compliance. • Submit grant applications to GOSR, Raise New York and New York State Historic Preservation Office.	New	High	20	Flood
PPL-42	Create a program for review of floodplain zoning ordinances. The review will take place bi-annually and after a major storm or flood. Ensure that current ordinances governing floodplain zoning and floodplain management are adequate for community needs. Recent shifts in the frequency and severity of local flooding show that early review of flood lines and proximity of water to nearby assets (homes businesses, infrastructure) will enable the Town of Kinderhook and its collocated villages to identify potentially critical situations sooner rather than after assets are affected.	New	High	23	Flood
TOWN OF TAGHKANIC					
PPL-13	Identify location for and install new culverts to eliminate and alleviate road flooding.	New	Low	40	Flood
PPL-43	Several culverts must be replaced and enlarged to accommodate stormwater from heavy rain events and flooding from creek overflow. Top priority would be given to the culvert on New Forge Road 2 because it washed out after heavy rains in July 2013. Columbia County weather was reported by the NOAA/UAlbany CSTAR program (http://cstar.cestm.albany.edu/PostMortems/CSTARPostMortems/2013/July_7_2013/7%20July%202013.htm).	New	High	18	Flood

PPL-44	This two-phase project would begin with Phase 1: Hire an engineering firm to determine how to best control/reduce Taghkanic Creek flooding, especially in the area of the Fire Department and Town Hall; and Phase 2 would entail carrying out the Phase 1 recommendations.	New	High	21	Flood
VILLAGE OF CHATHAM					
PES-16	Purchase generator for sewer plant.	Carryover	High	35	All Hazards
VILLAGE OF KINDERHOOK					
PES-6	Purchase a generator for the Village Hall, the seat of local government.	New	High	20	All Hazards
PPL-45	Create a program for review of floodplain zoning ordinances. The review will take place bi-annually and after a major storm or flood. Ensure that current ordinances governing floodplain zoning and floodplain management are adequate for community needs. Recent shifts in the frequency and severity of local flooding show that early review of flood lines and proximity of water to nearby assets (homes, businesses, infrastructure) will enable the Village of Kinderhook and the collocated Town of Kinderhook to identify potentially critical situations sooner rather than after assets are affected.	New	High	23	Flood
VILLAGE OF PHILMONT					
N/A					
VILLAGE OF VALATIE					
PES-17	Improve sewer system to eliminate infiltration from storm water overflows during large storm events.	Ongoing	High	41	All Hazards
PES-24	Purchase a generator for the Village Hall (in the Martin H. Glynn Municipal Center), which serves as the seat of Valatie government.	New	High	20	All Hazards
PPL-19	Ensure that current ordinances governing floodplain zoning and floodplain management are adequate for community needs. Recent shifts in the frequency and severity of local flooding show that early review of flood	New	High	23	Flood

	lines and proximity of water to nearby assets (homes businesses, infrastructure) will enable the Village and collocated Town of Kinderhook to identify potentially critical situations sooner rather than after assets are affected.				
PPL-48	Improvements would take place in two phases. Phase 1 is an engineering study to identify a reasonable solution to the problem. Improvements made as part of Phase 2 would be identified during the study. A map of the neighborhood and measurements of the study area are shown on the next page. A linear measurement of the road is provided in the text box and shows the street length as roughly one-quarter of a mile. Conduct a hydrogeologic study of the underground stream running through the New Street neighborhood. Measure level of flooding in each structure to determine how seepage affects each property. Compile report and recommend solution that enhances the resiliency of each property and the neighborhood.	New	High	18	Flood

5.4 Priority and Mitigating Measure Identification

The HMPT developed a benefit-cost review to prioritize and evaluate mitigation actions to determine a community's vulnerability before and after strategy implementation. Tables 5-2 and 5-3 provide the basic criteria for the benefit-cost review based on population affected (benefit) and costs associated (dollar range).

Table 5-2 Cost Benefit Review Methodology - Benefits

Benefit	Population Affected
High	Greater than or equal to 40,000 people
Medium	20,000 to 39,999 people
Low	Less than or equal to 19,999 people

Table 5-3 Cost Benefit Review Methodology - Costs

Cost	Dollar Range
High	Greater than or equal to $1,000,000
Medium	$500,000 to $999,999
Low	Less than or equal to $499,999

Mitigation actions for each hazard were then assigned a priority level (*high, medium, and low*) and further evaluated to determine the following:

- Difference in vulnerability from before and after a mitigation strategy is implemented.
- Analysis of benefits (pros) and costs (cons).
- Timeframe to implement mitigation strategy actions.
- Agency responsible for implementing the mitigation measures.
- Potential funding sources.

Mitigation actions prioritized as *high* are actions that, once implemented, will substantially reduce the community's vulnerability to hazards that occur frequently. Mitigation actions that substantially reduce the community's vulnerability to hazards that occur less frequently are prioritized as *medium,* and *low* priority actions are mitigation actions that do not substantially reduce the community's vulnerability and/or mitigate rare hazards.

FEMA regulations do not require a formal cost-benefit analysis for hazard mitigation plans; however, a formal cost-benefit analysis of mitigation measures is required in order to be approved for Hazard Mitigation Grant Program funding. Therefore, a more formal cost-benefit analysis will be conducted as a component of any future mitigation grant applications.

5.5 National Flood Insurance Program Participation

The National Flood Insurance Program (NFIP) allows property owners and communities to purchase insurance to protect against flood-induced losses. Structures within the mapped Special Flood Hazard Area (the 100-year floodplains, which has a 1% probability of flooding in any given year are required to carry flood insurance if the owner holds a federally regulated or insured mortgage. While NFIP's main mission is to protect these structures, over of 20% of claims are reported outside of these high-risk areas. Therefore, local governments in Columbia County should be proactive in taking action to ensure residents are aware of their unique flood risks and potential mitigation options.

While NFIP insurance protects residents from costly damages, a secondary goal is to encourage effective floodplain management and dis-incentivize the development of high risk areas. The cost burden of flood insurance, as well as increased community awareness through educational outreach, ideally redirects development to lower risk areas.

5.5.1 New York State NFIP Program

Floodplain management and the NFIP program are administered by the New York State Department of Environmental Conservation (NYSDEC). NYSDEC enforces statewide floodplain management policies, provides educational and outreach information pertaining to flood hazards. In addition, all local flood damage prevention laws must be approved NYSDEC and FEMA. To build and support local capabilities, NYSDEC provides three model local flood damage prevention laws for communities to adopt and join the NFIP.

5.5.2 NFIP Participation

NFIP participation in the County is managed at community level and while all communities within Columbia County participate in the program to varying degrees, the County itself is not a member. The program is administered by each participating jurisdiction and is anchored by flood prevention codes and ordinances. Details on NFIP participation by community are included in each community's respective profile in *Appendix B – Community Profiles*. Additional NFIP participation data is included in *Appendix F – NFIP Information*.

5.5.3 Application of Best Management Practices

As previously mentioned, NFIP is not designed to simply protect structures. It is designed to decrease a community's flood risk. Jurisdictional NFIP administration requires public outreach and code enforcement. The County and its communities will, as allowed by resources and practicality, apply best management practices (BMPs) for floodplain management including

- Participation in NFIP's Community Rating System (CRS).
- Updated floodplain maps.
- Ongoing maintenance and clearance of stormwater drainage systems.
- Streamflow monitoring activities and flow rating curve development.

- Precipitation monitoring activities.
- Improved and enlarged built drainage infrastructure.
- Improved stormwater retention and detention.
- Decreased development in hazard areas through purchase of repetitive loss properties, new zoning regulations, and more stringent building codes.

5.5.4 Community Rating System (CRS)

The NFIP CRS is a voluntary program used to further the mission of decreasing flood risks. CRS provides flood insurance discounts in exchange for increased community outreach and planning in the forms of: improved flood mapping and delineation; public education and information outreach; flood damage reduction; and warning and response programs. CRS participation entitles policy holders in a Special Flood Hazard Area to up to a 45% discount on NFIP premiums. For this reason, more than 68 percent of flood insurance policies in the nation are held in CRS-participating communities.

To date none of the municipalities in Columbia County have joined the CRS and many residents in the county have purchased flood insurance through NFIP on their own at full cost.

The County will, in participation with its communities, explore opportunities to expand NFIP participation, including joining the CRS in the next planning cycle.

5.5.5 Community-Specific Actions

Communities with repetitive loss properties have a responsibility to build additional capabilities to address continued flooding. The example from the Town of Kinderhook provides insight into planning and regulatory functions, financial impacts of repetitive loss properties, and promotes education and outreach strategies to be implemented.

Town of Kinderhook Model Text:

The Town of Kinderhook entered into the NFIP on 10/25/1974 with effective flood rate maps dated 12/1/1982. The Town maintains a Flood Damage Prevention Ordinance (Chapter 134). The Town's NFIP Program is overseen by the Building Official. All new construction and development is subject to a site plan review, which measures present flood hazards and flood insurance regulations. A mitigation strategy within this plan is the development of a county-led flood hazard education and outreach program.

According to the NFIP data from FEMA, since 1978 there have been 4 repetitive loss claims resulting in $368,286 in payments. The latest claim was in 2009. These claims were spread between 2 properties as follows:

- *Single Family Residences – 0*
- *Other Residences – 0*
- *Non-Residences – 2*

5.6 Status of 2008 Mitigation Actions

Many of the newly identified actions draws heavily on the actions identified in the 2008 plan. Many of those strategies were either not completed due to resource limitations, or are ongoing actions. However, some actions were removed due to being completed or having been determined by the HMPT as not required in this plan update. Appendix I identifies the actions from the 2008 plan and provides a reason they were not carried over to this update or the location they can now be found in the updated plan.

6 PLAN IMPLEMENTATION AND MAINTENANCE

This chapter provides an overview of the overall strategy for plan maintenance and outlines the method and schedule for monitoring, updating, and evaluating the plan. The chapter also discusses incorporating the plan into existing planning mechanisms and how to address continued public involvement.

6.1 Plan Monitoring and Evaluation

6.1.1 Participating Jurisdictions

With adoption of this plan, each participating jurisdiction will be tasked with plan monitoring, evaluation, and maintenance of the plan. The participating jurisdictions, led by the Columbia County Emergency Management Office (CCEMO), agree to:

- Meet annually in May to monitor and evaluate the implementation of the plan;
- At their discretion, meet after a disaster event to evaluate the plan;
- Act as a forum for hazard mitigation issues;
- Disseminate hazard mitigation ideas and activities to all participants;
- Pursue the implementation of high, medium, low, or no-cost recommended actions;
- Maintain vigilant monitoring of multi-objective, cost-share, and other funding opportunities to help the community implement the plan's recommended actions for which no current funding exists;
- Monitor and assist in implementation and update of this plan;
- Report on plan progress and recommended changes to the Columbia County Board of Supervisors and governing body of participating jurisdictions; and
- Inform and solicit input from the public through public meetings and web notices.

6.1.2 Plan Maintenance Schedule

Each participating jurisdiction representative will monitor and track their jurisdiction's progress towards achieving the action items listed in the plan. Then, as identified in Chapter 1, the HMPT will meet annually and, as needed after a hazard event, to monitor progress and update the mitigation strategy on their action items in the plan. After each meeting, a report will be made available to the public via the county website. The report will include a meeting summary and a list of all action items the HMPT will move forward with in the next year.

In coordination with other participating jurisdictions, a five-year written update of the plan will also be submitted to the New York State Office of Emergency Management and FEMA Region II per Requirement §201.6(c)(4)(i) of the Disaster Mitigation Act of 2000 and adopted by participating jurisdictions. The update will be submitted within a five-year period from the final approval of this plan unless disaster or other circumstances (e.g., changing regulations) require a change to this schedule.

6.1.3 Plan Maintenance Process

Evaluation of progress can be achieved by monitoring changes in vulnerabilities identified in the plan. Changes in vulnerability can be identified by noting the following:

- Decreased vulnerability as a result of implementing recommended actions,
- Increased vulnerability as a result of failed or ineffective mitigation actions, and/or
- Increased vulnerability as a result of new development (and/or annexation).

Updates to this plan will:

- Consider changes in vulnerability due to implementation of mitigation activities,
- Document success stories where mitigation efforts have proven effective,
- Document areas where mitigation actions were not effective,
- Document any new hazards that may arise or were previously overlooked,
- Incorporate new data or studies on hazards and risks,
- Incorporate new capabilities or changes in capabilities,
- Incorporate growth and development-related changes to inventories, and
- Incorporate new action recommendations or changes in action prioritization.

In order to best evaluate any changes in vulnerability as a result of plan implementation, the participating jurisdictions will take the following steps:

- Report the status of mitigation actions identified in their jurisdiction to the CCEMO on an annual basis;
- Provide input as to whether completed mitigation actions reduce vulnerabilities as intended;
- Create additional implementation measures to correct for any failed mitigation actions as necessary.

Changes will be made to the plan to accommodate actions that have failed or are not considered feasible after a review of their adherence to established criteria, time frame, community priorities, and/or funding resources. Actions that were not ranked high but were identified as potential mitigation activities will be reviewed during the monitoring and update of this plan to determine the feasibility of future implementation. Updating of the plan will be enacted through written changes and submissions, as CCEMO deems appropriate and necessary, and as approved by the Columbia County Board of Supervisors and the governing boards of the other participating jurisdictions.

6.1.4 Monitoring and Updating

On a day-to-day basis, the Columbia County Department of Public Work's (CCDPW) will coordinate with local jurisdictions to incorporate the objectives and actions of this plan into local planning documents, procedures, and budgets.

These operational changes may include updates to job descriptions, work plans, site reviews, and staff training. Long-term changes may include revisions to existing comprehensive plans, capital improvement plans, zoning and building codes, permitting, and other planning tools.

The CCDPW will also work with jurisdictions to include mitigation projects in annual budgets, rather than relying solely upon grant programs, and integrate hazard mitigation in future land use and strategic planning.

6.1.5 Continued Public Involvement

Public involvement is a key component of the plan implementation and update process. Each year CCEMO will prepare and distribute a report on the implementation of the current mitigation plan, which is made available to the HMPT and the public by August of that year. These reports, along with specific reports for each mitigation measure being implemented and all stakeholder comments received, are assessed to make improvements in the plan update, and released every five years.

Comments received from the public will also be considered and incorporated where appropriate into the HMPT updates. The county website, local jurisdictions' websites, and local media, including newspapers and newsletters, are good sources for information regarding upcoming meetings, recent developments, and directions on how to provide comments.

The county and the participating jurisdictions are committed to the continued involvement of the public in the hazard mitigation process. The plan will be posted on the county web site and copies of the plan will be made available for review during normal business hours at CCEMO's offices.

6.2 Integration of Mitigation into Existing Planning Mechanisms

Integration of the principles of mitigation into Columbia County's daily operations and ongoing planning activities is a priority of the County's mitigation program. These activities will support:

- Raising awareness of the importance of hazard mitigation for the whole community.
- Facilitating an understanding that hazard mitigation is not just an 'emergency services' function and building ownership of mitigation activities across the organization.
- Reduction in duplication or contradiction between county plans.
- Maximization of planning resources through linked or integrated planning efforts.

6.2.1 Existing Plans

The following existing plans provide ongoing opportunity for integration of hazard mitigation and the County will work with plan owners and stakeholders to consider hazard mitigation data and principles when these plans are updated.

Columbia County Community Health Assessment and Community Health Improvement Plan (2014-2017) was developed to monitor the health status of the community, identify health problems and prescribe community health improvements. The plan integrates the following mitigation/prevention and protection goals and strategies:

- Assess community health.
- Strategically identify and rank potential health hazards.
- Engage the public to identify strategies to address health hazards.
- Prescribe and prioritize health improvement strategies.

The **Columbia County Agriculture and Farmland Protection Plan (2013)** "sets out a strategy to conserve and manage the exceptionally rich agricultural resources of Columbia County and ensure that farming continues to play a central role in the economy and culture" of the county's communities. The plan does not currently include goals related to hazard mitigation or addressing climate change. Goals that may be strengthened by considering the County's protection from hazards include, but are not limited to:

- Address drought concerns and ensure water availability for agricultural uses.
- Further promote the benefits of flooding, and the impacts on groundwater retention.

The **Columbia County Comprehensive Emergency Management Plan** while not publicly available provides an all-hazard approach to responding to emergencies and disasters in the community. The Plan integrates concepts from all phases of emergency management including mitigation and prevention, preparedness, response, and recovery.

6.2.2 Community-Specific Integration Actions

Integration of mitigation actions into existing plans and day-to-day operations is also a priority at the community level. All communities in Columbia County are encouraged to consider integration actions into planning mechanisms such as:

- Operating and Capital Improvement Budget
- Building and Zoning Ordinances
- Comprehensive Land Use Plan
- Municipal Ordinances
- Emergency Response Plan
- Local School Service Projects

- Economic Development Plan

See the community profiles in Appendix B for community-specific integration actions for each participating jurisdiction.

7 REFERENCES

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Columbia County, New York

Appendix A

FEMA Local Mitigation Plan Review Tool

MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN

April 2018

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FEMA Review of the
Columbia County Multi-jurisdictional Hazard Mitigation Plan

[This is a FEMA Review. DHSES comments may be provided under separate cover.]

This *Local Mitigation Plan Review Tool* documents where the Mitigation Plan met or did not meet federal planning requirements and it offers additional feedback.

- Section 1: The Regulation Checklist provides a summary of FEMA's evaluation of whether the Plan has addressed all requirements. It may also note where modifications are required to comply with federal regulations.
- Section 2: The Plan Assessment identified the plan's strengths and recommends areas for future improvement.
- Section 3: The Multi-Jurisdictional Summary Sheet denotes those jurisdictions that are APA and for those that have required revisions, it notes which elements require revision.

This plan is Approved for Columbia County and each of the towns and villages listed on the Plan Summary page of this Review Tool. The Village of Philmont chose not to take any actions and as such, they are not part of this plan.

The Town of Austerlitz formally adopted the plan on 5/15/18, making this the approval date for the multi-jurisdictional plan. This plan will remain approved through 5/14/23.

Jurisdiction: Columbia County and 22 of its Municipalities	**Title of Plan:** Multi-Jurisdictional Hazard Mitigation Plan	**Date of Plan:** Updated April 2018
Local Point of Contact:		**Address:** 85 Industrial Tract Hudson, New York 12534
Title:		
Agency: Columbia County Office of Emergency Management		
Phone Number:		**E-Mail:**

State Reviewer:	**Title:**	**Date:**
Harry J. Bartik, Debra Dunbrook, Kevin Clapp, and Barbara Spaulding	Planning Specialists DHSES Planning Supervisor	Multiple Dates
Corrina Cavallo	Mitigation Planning Supervisor	5/03/2018

FEMA Reviewer: Paul Hoole	**Title:** Mitigation Planner	**Date:** 5/25/18
Date Received in FEMA Region ***(insert #)***	5/09/18	
Plan Not Approved		
Plan Approvable Pending Adoption		
Plan Approved	5/25/18	

SECTION 1:
REGULATION CHECKLIST

1. REGULATION CHECKLIST **Regulation** (44 CFR 201.6 Local Mitigation Plans)	Location in Plan (section and/or page number)	Met	Not Met
ELEMENT A. PLANNING PROCESS			
A1. Does the Plan document the planning process, including how it was prepared and who was involved in the process for each jurisdiction? (Requirement §201.6(c)(1))	Now in section 1.3, Appendix D. Formerly in sections 1.3 & 1.4, App B	Met	
A2. Does the Plan document an opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, agencies that have the authority to regulate development as well as other interests to be involved in the planning process? (Requirement §201.6(b)(2))	Now in section 1.3.1 and 1.3.5. Formerly in sections 1.3 and 1.4	Met	
A3. Does the Plan document how the public was involved in the planning process during the drafting stage? (Requirement §201.6(b)(1))	Now in section1.3.5, Appendix D. Formerly in section 1.4 (1.4.3) App B	Met	
A4. Does the Plan describe the review and incorporation of existing plans, studies, reports, and technical information? (Requirement §201.6(b)(3))	Now in section 1.3.6. Formerly in section 1.4 (1.4.4)	Met	
A5. Is there discussion of how the community(ies) will continue public participation in the plan maintenance process? (Requirement §201.6(c)(4)(iii))	Now in section 6.1 only. Formerly in Sections 6.1 & 6.2	Met	
A6. Is there a description of the method and schedule for keeping the plan current (monitoring, evaluating and updating the mitigation plan within a 5-year cycle)? (Requirement §201.6(c)(4)(i))	Now in sections 6.1.3 and 6.1.4. Formerly in sections 6.1 & 6.2	Met	
ELEMENT A: REQUIRED REVISIONS None			

1. REGULATION CHECKLIST **Regulation** (44 CFR 201.6 Local Mitigation Plans)	Location in Plan (section and/or page number)	Met	Not Met
ELEMENT B. HAZARD IDENTIFICATION AND RISK ASSESSMENT			
B1. Does the Plan include a description of the type, location, and extent of all natural hazards that can affect each jurisdiction(s)? (Requirement §201.6(c)(2)(i))	Section 3	Met	
B2. Does the Plan include information on previous occurrences of hazard events and on the probability of future hazard events for each jurisdiction? (Requirement §201.6(c)(2)(i))	Now in section 3 and Appendix F	Met	
B3. Is there a description of each identified hazard's impact on the community as well as an overall summary of the community's vulnerability for each jurisdiction? (Requirement §201.6(c)(2)(ii))	Now in Section 3.2.1, 4 and Appendix G.	Met	
B4. Does the Plan address NFIP insured structures within the jurisdiction that have been repetitively damaged by floods? (Requirement §201.6(c)(2)(ii))	Now in section 4.3, Table 4-1 and Appendices F. & B.	Met	
ELEMENT B: REQUIRED REVISIONS None			

1. REGULATION CHECKLIST **Regulation** (44 CFR 201.6 Local Mitigation Plans)	Location in Plan (section and/or page number)	Met	Not Met
ELEMENT C. MITIGATION STRATEGY			
C1. Does the plan document each jurisdiction's existing authorities, policies, programs and resources and its ability to expand on and improve these existing policies and programs? (Requirement §201.6(c)(3))	Now Table 5-1, Appendix B. (Capability Assessment)	Met	
C2. Does the Plan address each jurisdiction's participation in the NFIP and continued compliance with NFIP requirements, as appropriate? (Requirement §201.6(c)(3)(ii))	Appendix B, Appendix F, Base Plan section 3.1.2, 4.3, and 5.5.	Met	
C3. Does the Plan include goals to reduce/avoid long-term vulnerabilities to the identified hazards? (Requirement §201.6(c)(3)(i))	Now only in section 5.1.	Met	
C4. Does the Plan identify and analyze a comprehensive range of specific mitigation actions and projects for each jurisdiction being considered to reduce the effects of hazards, with emphasis on new and existing buildings and infrastructure? (Requirement §201.6(c)(3)(ii))	Appendix B and section 5.3 Table 5-1.	Met	
C5. Does the Plan contain an action plan that describes how the actions identified will be prioritized (including cost benefit review), implemented, and administered by each jurisdiction? (Requirement §201.6(c)(3)(iv)); (Requirement §201.6(c)(3)(iii))	Appendix B Sections 5.3 and 5.4	Met	
C6. Does the Plan describe a process by which local governments will integrate the requirements of the mitigation plan into other planning mechanisms, such as comprehensive or capital improvement plans, when appropriate? (Requirement §201.6(c)(4)(ii))	Appendix B, and section 6.1.4 and 6.1.5.	Met	
ELEMENT C: REQUIRED REVISIONS None – please note that the Village of Philmont is not part of this plan.			

1. REGULATION CHECKLIST **Regulation** (44 CFR 201.6 Local Mitigation Plans)	Location in Plan (section and/or page number)	Met	Not Met
ELEMENT D. PLAN REVIEW, EVALUATION, AND IMPLEMENTATION (applicable to plan updates only)			
D1. Was the plan revised to reflect changes in development? (Requirement §201.6(d)(3))	Section 4.2.5, Section 9.X.2 Municipal Profiles– Growth/Dev. Trends	Met	
D2. Was the plan revised to reflect progress in local mitigation efforts? (Requirement §201.6(d)(3))	Section 6.1, Section 9.X.6 "Mitigation Strategy and Prioritization – Past Mitigation Initiative Status"	Met	
D3. Was the plan revised to reflect changes in priorities? (Requirement §201.6(d)(3))	Section 6.3 Section 6.5.1	Met	
ELEMENT D: REQUIRED REVISIONS None			

1. REGULATION CHECKLIST **Regulation** (44 CFR 201.6 Local Mitigation Plans)	Location in Plan (section and/or page number)	Met	Not Met
ELEMENT E. PLAN ADOPTION			
E1. Does the Plan include documentation that the plan has been formally adopted by the governing body of the jurisdiction requesting approval? (Requirement §201.6(c)(5))		NA	NA
E2. For multi-jurisdictional plans, has each jurisdiction requesting approval of the plan documented formal plan adoption? (Requirement §201.6(c)(5))	Austerlitz provided adoption resolution under separate cover.	Met	
ELEMENT E: REQUIRED REVISIONS The Town of Austerlitz has adopted the plan, making the plan approved and setting the five-year period during which this plan is approved. The County and the other municipalities are at this point designated Approvable Pending Adoption (APA), meaning they have met all the requirements for approval except for each of them formally adopting the plan. They should formally adopt the plan at the earliest opportunity, at which time they will become eligible for FEMA mitigation grants through 5/14/23.			

SECTION 2A: PLAN ASSESSMENT

Plan Strengths and Opportunities for Improvement

Strengths

- The county and municipalities are to be commended for bring this plan to a successful conclusion. As a small community with relatively low level of risk, it required a personal commitment from all

Opportunities for Improvement

- The Executive Summary for the plan should be revised to include all the municipalities in the County, with the exception of the Village of Philmont.

- The New York State Division of Homeland Security and Emergency Services (DHSES) are working hard to make mitigation planning at the local level easier and more meaningful. It is strongly recommended that they be contacted in the spring of 2021 to initiate a dialogue that will lead to this plan being updated before it expires.

Plan Summary Sheet

FEMA Review Tool

Plan Name: Columbia County Hazard Mitigation Plan

Status by Jurisdiction:

Jurisdiction Name	Designated Approved or APA	Elements Requiring Revisions			
	Yes / No	Element A	Element B	Element C	Element D
Columbia County	Yes	na	na	na	na
Ancram, T	Yes	na	na	na	na
Austerlitz, T	Yes	na	na	na	na
Canaan, T	Yes	na	na	na	na
Chatham, T	Yes	na	na	na	na
Chatham, V	Yes	na	na	na	na
Claverack, T	Yes	na	na	na	na
Clermont, T	Yes	na	na	na	na
Copake, T	Yes	na	na	na	na
Gallatin, T	Yes	na	na	na	na
Germantown, T	Yes	na	na	na	na
Ghent, T	Yes	na	na	na	na
Greenport, T	Yes	na	na	na	na
Hillsdale, T	Yes	na	na	na	na
Hudson, City	Yes	na	na	na	na
Kinderhook, T	Yes	na	na	na	na
Kinderhook, V	Yes	na	na	na	na
New Lebanon, T	Yes	na	na	na	na
Livingston, T	Yes	na	na	na	na
Stockport, T	Yes	na	na	na	na
Stuyvesant, T	Yes	na	na	na	na
Taghkanic, T	Yes	na	na	na	na
Valatie, V	Yes	na	na	na	na

The Village of Philmont is not part of this plan.

Columbia County, New York

Appendix B

Community Profiles

MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN

April 2018

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CITY OF HUDSON

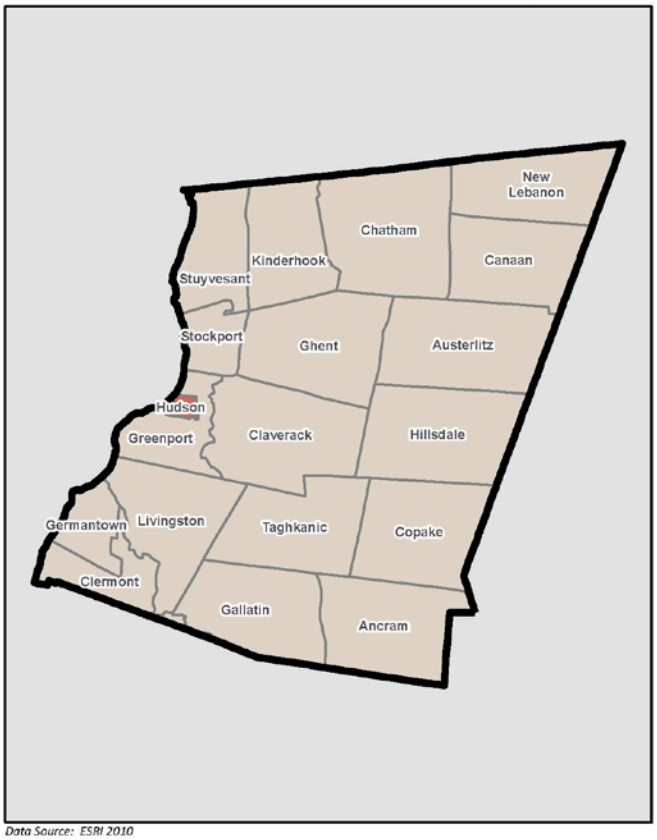
Last updated: 4/23/2018

Community Profile

Location and Geography

The City of Hudson (Hudson) is located along the waterfront of the Hudson River in the central western region of Columbia County. Hudson is bordered by the Town of Greenport to the north, south and east. Across the Hudson River to the west is Greene County, New York.

Town of Hudson Within Columbia County



Data Source: ESRI 2010

Climate

The climate in Hudson is similar to that of Columbia County which experiences lows that range between 0°F and -10°F and highs of 90°F-100°F (NYS Climate Office Cornell ND).

Population Trends and Demographics

The population of Hudson is 6,713, which represents 10.64% of the total population in Columbia County. The population is 59% White, 25% African American, 5.2 % a mix of two or more races, 8.2% Hispanic or Latino, 7.1% Asian, 0.4% American Indian and Alaska Native, and 0.1% Native Hawaiian and Other Pacific Islander (U.S. Census Bureau 2010).

As shown in Table 1, the median age in Hudson is 37.5. Approximately 13.5% of the population is over 65 while 6.7% is under 5 years old (U.S. Census Bureau 2010).

Table 1: Age Distribution in the City of Hudson, 2000 to 2010

Age Group	Population	
	2000	**2010**
Under 5 years	535 (7.1%)	453 (6.7%)
65 years and older	1,201 (16.0%)	906 (13.5%)
Median Age	36.6	37.5

Sources: U.S. Census Bureau 2000, 2010

Governance

Hudson is located within the 19th Congressional District, 43rd State Senate District, and 106th Assembly District (Columbia County Board of Elections 2012).

Hudson is served by ten Aldermen, a president and a mayor to represent the city regarding planning and city budget.

Hudson has a fire department with 100 firefighters to protect the community and a police department to provide protection and assistance.

Economy

Based on U.S. Census Bureau statistics, approximately 58.7% of the total population in Hudson is considered part of the labor force. Of the 58.7%, approximately 4.3% is unemployed (U.S. Census Bureau 2010).

Nearly 31% of the population is employed in management, business, science, and art occupations; 19.4% of the working population is employed in service occupations; sales and office occupations make up 25%; 14% is employed in production, transportation, and material moving occupations; and natural resource, construction and maintenance occupations make up almost 11% of the jobs. The educational, health care and social assistance services industries are the highest grossing industries within the county followed by the retail trade industry (U.S. Census Bureau 2010).

Land Use

Table 2 categorizes land use development by acreage for Hudson. The top five land uses in Hudson are community services, residential, industrial, vacant, and roads.

Table 2: Land Use Classification in the City of Hudson, Columbia County, New York

Property Class	Acres	Percent of Land Area
Residential	246.5	17.2
Agricultural	0.17	0.0
Commercial	55.03	3.8
Industrial	197.38	13.8
Community Services	473.94	33.1
Public Services	58.5	4.1
Recreation and Entertainment	38.45	2.7
Wild, Forested,	0.45	0.0
Vacant land	190.01	13.3
Unknown	12.2	0.9

Table 2: Land Use Classification in the City of Hudson, Columbia County, New York

Property Class	Acres	Percent of Land Area
ROW (Roads)	142.3	9.9
Oakdale Lake Underhill Pond	15.78	1.1
Total	**1,430.71**	**100**

Table 3: Structures in the City of Hudson, Columbia County, New York

Type of Structure (Occupancy Class)	# in Community	$ in Community	No. in Hazard Area	$ in Hazard Area
Residential	1885	$572,060,000	0	$148,000
Commercial	239	$349,547,000	0	$251,000
Industrial	59	$96,408,000	0	$487,000
Agricultural	16	$6,856,000	0	$0
Religious/Non-Profit	25	$39,722,000	0	$0
Government	13	$19,192,000	0	$0
Education	5	$24,259,000	0	$0
Utilities				
Total	**2242**	**$1,108,044,000**	**0**	**$886,000**

No known changes in land use patterns or development patterns have been identified in the City of Hudson.

National Flood Insurance Program Participation

The City of Hudson entered into the NFIP on 11/15/1974 with effective flood rate maps dated 9/29/1989. The City's NFIP Program is overseen by the Executive Director of the Hudson Community Development and Planning Agency. A Flood Damage Prevention Ordinance (Chapter 148) regulates all construction and development within mapped floodplains. A mitigation strategy within this plan is the development of a county-led flood hazard education and outreach program.

According to the NFIP data from FEMA, since 1978 there have been 6 repetitive loss claims resulting in $33,172 in payments. The latest claim was in 2009. These claims were spread between 3 properties as follows:

- Single Family Residences – 3
- Other Residences – 0
- Non-Residences – 0

Evacuation, Sheltering, and Housing

Coordination of evacuation operations is the responsibility of local law enforcement and will be guided by Columbia County's evacuation protocols. No jurisdiction-specific evacuation routes have been identified at this time.

Identification of sites for intermediate- and long-term housing is addressed in coordination with the County.

Capability Assessment

This section identifies the following capabilities of the local jurisdiction:

- Legal and regulatory capability;
- Administrative and technical capability; and
- Fiscal capability.

Table 4: Legal and Regulatory Capability

Regulatory Tool	Y/N	Comments
Master Plan	Y	
Zoning ordinance	Y	
Subdivision ordinance	Y	
Growth management ordinance	N	
Floodplain ordinance	Y	
Other special purpose ordinance (stormwater, steep slope, wildfire)	N	
Building code	Y	
Fire department ISO rating	Y	64.20/100.0
Erosion or sediment control program	N	
Stormwater management program	N	
Site plan review requirements	Y	
Capital improvements plan	N	
Economic development plan	N	
Local emergency operations plan	Y	

Table 4: Legal and Regulatory Capability		
Regulatory Tool	**Y/N**	**Comments**
Other special plans (i.e. flood mitigation plan)	N/A	
Flood insurance study or other engineering study for streams	N	
Elevation certificates	N	
Other		

Table 5: Administrative and Technical Capability		
Regulatory Tool	**Y/N**	**Comments**
If you are a City or County jurisdiction, please describe is your government structure? (e.g. Commission, Mayor/City Council, how many members, etc.)	Y	Mayor/City Council
Planner/Engineer with knowledge of land development/land management practices	N	
Engineer/Professional trained in construction practices related to buildings and/or infrastructure	N	
Planner/Engineer/Scientist with an understanding of natural hazards	N	
Personnel skilled in GIS	N	
Full time building official	Y	Code Enforcement
Floodplain Manager	Y	Overseen by the Executive Director of the Hudson Community Development and Planning Agency
Emergency Manager	Y	
Grant writer	Y	Consultant on retainer
Other personnel		
Other		

Table 6: Fiscal Capability		
Regulatory Tool	**Y/N**	**Comments**
Community Development Block Grants	Y	
Capital improvements project funding	Y	
Authority to levy taxes for specific purposes	Y	
Fees for water, sewer, gas, or electric services	Y	
Impact fees for new development	N	
Incur debt through general obligation bonds	Y	
Incur debt through special tax bonds	N	
Incur debt through private activities	N	
Withhold spending in hazard prone areas	N/A	
Other		

City of Hudson Mitigation Strategies

Please refer to Chapter 5, tables 5-1 and 5-2 to view countywide as well as jurisdiction-specific mitigation strategies.

Table 7: City of Hudson Mitigation Strategy

Strategy	Mitigation Action	Applies to New or Existing Assets	Hazard(s) Mitigated	Objectives Met	Lead Agency	Support Agencies	Estimated Cost	Sources of Funding	Timeline
PPL-21	Upgrade sewer pump stations to protect against overflows from limited capacity.	Existing	Multiple Hazards	Goal 1, All objectives	Public Works Department	Code Enforcement	Medium	State/Federal grants	1 year
PPL-22	Replace Ferry Street Bridge to be upgraded to minimize debris scouring and allow for improved river capacity through the town.	Existing	Multiple Hazards	Goal 1, All objectives	Public Works Department	Code Enforcement	High	County TAC or State grants	5 years, completion by 2020
PPL-23	Upgrade to City Waste Water Treatment Plant, substantial improvements to systems within 100-yr sea level rise areas.	Both	Climate Change/ Flooding	Goal 1, All objectives	Public Works Department	Code Enforcement	High	State/Federal grants	10 years

Strategy	Mitigation Action	Applies to New or Existing Assets	Hazard(s) Mitigated	Objectives Met	Lead Agency	Support Agencies	Estimated Cost	Sources of Funding	Timeline
PPL-34	Backup power water supply for chemical field to ensure utilities are functional.	Both	All Hazards	Goal 1, Objective 1 and 2; Goal 2, All Objectives, Goal 3, All Objectives	Public Works Department	None at this time	Medium	HMGP – DR 1857	1 year

Status of Incorporation of Mitigation Planning Into Existing and Future Planning Mechanisms

Each jurisdiction within Columbia County intends to incorporate mitigation planning into daily municipal operations. Hazard mitigation will be an integral component of City procedures. Planning mechanisms that have or will incorporate hazard mitigation planning include but are not limited to:

- Operating and Capital Improvement Budget;
- Building and Zoning Ordinances;
- Comprehensive Land Use Plan;
- Municipal Ordinances;
- Fire Plan;
- Local School Service Projects; and
- Economic Development Plan.

Specific actions that the community is taking or intends to pursue in the future include:

- The City will consider establishing a line item in its municipal budget to fund pre-disaster mitigation projects to reduce its vulnerability.
- The City will utilize the mitigation plan's risk assessment to guide emergency response planning including development of evacuation plans.
- The City will consider development of a hazard mitigation goal in the next update of its Comprehensive Plan.

ADOPTION RESOLUTION

(Name of Jurisdiction) City of Hudson

(Governing Body) City Clerk

(Address) 520 Warren Street, Hudson NY 12534

RESOLUTION

Whereas, the City of Hudson recognizes the threat that natural hazards pose to people and property within our community; and
Whereas, undertaking hazard mitigation actions will reduce the potential for harm to people and property from future hazard occurrences; and
Whereas, the U.S. Congress passed the Disaster Mitigation Act of 2000 ("Disaster Mitigation Act") emphasizing the need for pre-disaster mitigation of potential hazards;
Whereas, the Disaster Mitigation Act made available hazard mitigation grants to state and local governments; and
Whereas, an adopted Multi-Jurisdictional Hazard Mitigation Plan is required as a condition of future funding for mitigation projects under mitigation FEMA pre- and post-disaster mitigation grant programs; and
Whereas, the City of Hudson fully participated in the FEMA-prescribed mitigation planning process to prepare this Multi-Jurisdictional Hazard Mitigation Plan; and
Whereas, the New York Emergency Management Office and the Federal Emergency Management Agency Region II officials have reviewed the "Columbia County Multi-Jurisdictional Hazard Mitigation Plan" and approved it contingent upon this official adoption of the participating governing body; and
Whereas, the City of Hudson desires to comply with the requirements of the Disaster Mitigation Act and to augment its emergency planning efforts by formally adopting the Columbia County Multi-Jurisdictional Hazard Mitigation Plan; and
Whereas, adoption by the governing body for the City of Hudson demonstrates the jurisdictions' commitment to fulfilling the mitigation goals and objectives outlined in the Multi-Jurisdictional Hazard Mitigation Plan.
Whereas, adoption of this legitimizes the plan and authorizes responsible agency to carry out their responsibilities under the plan;
Now, therefore, be it resolved, that the City of Hudson adopts the "Columbia County Multi-Jurisdictional Hazard Mitigation Plan" as an official plan; and
Be it further resolved, the City of Hudson will submit this Adoption Resolution to the New York State Office of Emergency Management and Federal Emergency Management Agency Region II officials to enable the plan's final approval.

Passed: _____

Certifying Official

TOWN OF ANCRAM

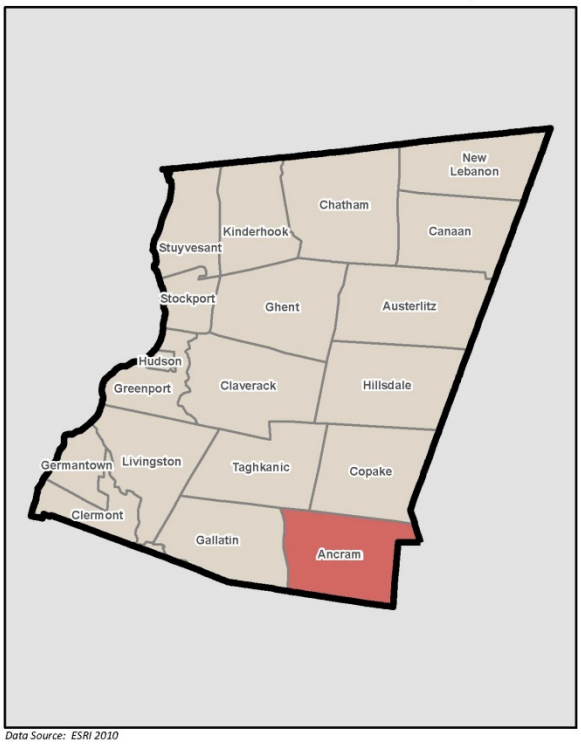
Last updated: 4/23/2018

Community Profile

Location and Geography

The Town of Ancram (Ancram) is located in the southeastern corner of Columbia County, covering approximately 42.9 square miles or 27,475 acres. It is bordered by Dutchess County, New York to the south and east, the Town of Gallatin to the west, and the Towns of Taghkanic and Copake to the north. A small area in the northeastern corner of the town borders Taconic State Park.

Town of Ancram Within Columbia County



Data Source: ESRI 2010

Ancram primarily consists of rolling topography with summit elevations as high as 890 to 1,080 feet above sea level and valley elevations as low as 480 feet above sea level along the Roeliff Jansen Kill. The Taconic Range traverses the eastern portion of the town and elevations exceed 1,900 feet above sea level (Winkley 2008). Steep slopes, floodplains, and poor soils are important natural resources features that highly influence both the natural and man-made environment (Town of Ancram 2012).

Roeliff Jansen Creek and its major tributaries, including Punch Brook, Bashbish Brook, and Noster Kill, drain into the Lower Hudson River Basin and are the primary watersheds in Ancram. A small area in the southeastern portion of the town drains towards Webatuck Creek, a tributary of Tenmile River, which ultimately discharges to the Housatonic River Basin (Winkley 2008). Many of the small tributaries to these streams also have smaller wetlands associated with them, which coincide with mapped 100-year floodplain areas (Town of Ancram 2009).

Climate

The climate in Ancram is similar to that of Columbia County, which experiences lows that range between 0°F and -10°F and highs of 90°F-100°F (NYS Climate Office Cornell ND).

In 2000, a declared natural disaster across Columbia County caused over $1,500,000 in damages. Small streams flooded throughout Ancram during this disaster. Other major storm events reported by NOAA that have affected Ancram over the last two decades include two thunderstorm events in 1994 and one thunderstorm event in 1997, 1999, 2004, 2007, and 2010.

These events caused downed trees and road closures; one flood and two flash floods in 1994, 2008, and 2009, that caused several road closures including major thruways such as SR-82 and SR-22 and $60,000 in damages combined; one hail event in 1997; and two lightning storms in 1994 and 2004, the first of which caused one injury due to lightning strike and the latter of which caused one death.

Population Trends and Demographics

According to the 2010 census, the population of Ancram is 1,573, which is equivalent to 2.49% of the total population of Columbia County. Approximately 96.4% of the population is White, 1.4% is African American, and 2.2% is Asian, American-Indian, Hispanic or Latino.

Table 1 below shows that the median age in Ancram is increasing based on the 2010 U.S. Census Bureau statistics. From 1980 to 2010, the population under 5 years of age declined while the 65 years of age and older population increased (Town of Ancram 2009; U.S. Census Bureau 2010).

Table 1: Age Distribution in the Town of Ancram, 1990 to 2010

Age Group	Population		
	1990	**2000**	**2010**
Under 5 years	121 (8%)	66 (4.4%)	59 (3.8%)
65 years and older	212 (14%)	259 (17.1)	296 (18.8%)
Median Age	N/A	42.2	48.2

Sources: U.S. Census Bureau 2009, 2010, 2012

Governance

Ancram is located within the 19th Congressional District, 43rd State Senate District, and 106th Assembly District (Columbia County Board of Elections 2012). The legislative and governing body for the town is the Town Board, made up of four councilmembers and a town supervisor.

The Ancram Fire District is the local taxing authority responsible for providing the financial resources to operate the Fire Company. The District owns the building, trucks, and equipment used by the Fire Company. The Fire District is managed by four Fire Commissioners who are elected by the voters in Ancram residents. A volunteer fire company with 50 active members is available to respond to hazard events. There is also a five member Highway Department that assists the volunteer fire company in the event of a hazard.

Ancram has no town police, but is provided law enforcement support from the County Sheriff's Department and the State Police.

Economy

Based on the Town of Ancram Data Profile and Industry prepared in 2009, there are approximately 37 businesses in Ancram including several dairy farms, organic livestock, fruit and vegetable farms, horse farms, antique shops, architects, attorneys, beauty salons, general contractors, excavating businesses, gravel mines, graphic designers, photographers, landscape designers, lawn care and maintenance firms, plumbers, electrical contractors, carpenters, massage therapy businesses, realtors, sporting goods, tax preparation, trucking, website design, taverns, restaurants, caterers, veterinarians, a golf course, a paint ball operation and a gas station. Many of these businesses are home-based or owner-operated with no employees.

The highest grossing and highest employing commercial industries located within the town are educational, health and social services (171); manufacturing (106); retail trade (101); and a combination of the agricultural, forestry, fishing, hunting, and mining industries (83).

Land Use

As mentioned previously, much of land in Ancram is located on steep ridges in higher elevations, which are not conducive to prime soils or soils of statewide significance. The soils that make up the most productive farmland in Ancram and can be found closely associated with the valley soils of the Roeliff Jansen Kill, Punch Brook, and Shekomeko Creek. There are more than 3,000 acres of prime farmland soils and 7,844 acres of soils of statewide importance in the town (Town of Ancram 2009). The soil type problems encountered are rockiness, thin soil mantel or lack of depth to bedrock, or lack of permeability. Wet soils are found associated with wetlands and other locations along the many creeks found in Ancram.

The portion of Ancram on the Massachusetts border is part of the Taconic Ridge (Taconic State Park). Four high quality forest types are found here: hemlock-northern hardwood forest, maple-basswood mesic forest, Appalachian oak hickory forest, and chestnut-oak forest.

A dashboard of land uses by number of parcels, acreage, and percent of total land area in Ancram are detailed in Table 2 below. This information was based on data from the local assessor, as shown in the town's 2009 Profile and Inventory. It provides a general picture of the characteristics of various land uses in town. As shown in the table, residential and agricultural lands uses comprise over 72 percent of the land acreage in Ancram. There is less than one percent of land area in commercial land uses. Twenty percent of the land base is classified as vacant, which is defined as unimproved lands. It is likely that much of this land is forested land in the Taconic Range.

Table 2: Land Use Classification in the Town of Ancram, Columbia County, New York			
Property Class	**Number of Parcels**	**Acres**	**Percent of Land Area**
Residential	832	9,845.3	35.8
Agricultural	98	9,751.1	35.5
Commercial	22	203.3	0.7
Industrial	3	129.7	0.5
Community Services	12	43.3	0.2
Public Services	2	0.3	0.001
Recreation and Entertainment	10	353.7	1.3
Wild, Forested,	8	879.8	3.2
Vacant land	304	5,585.1	20.3
ROW (Roads)	1	627.5	2.3
Water (large water bodies)	1	55.6	0.2
Total	**1,293**	**27,474.8**	**100**

Source: Town of Ancram 2009

As shown in Table 3, the majority of structures within the town are residential followed by commercial and industrial.

Table 3: Structures in the Town of Ancram, Columbia County, New York				
Type of Structure (Occupancy Class)	**# in Community**	**$ in Community**	**No. in Hazard Area**	**Economic Loss in Hazard Area**
Residential	823	$195,000,000	1	$960,000
Commercial	22	$5,000,000	0	$324,000
Industrial	3	$5,000,000	0	$2,000
Agricultural	98	$15,000,000	0	$156,000
Religious/Non-Profit	6	$2,000,000	0	$43,000
Government	13	$5,000,000	0	$41,000
Education	3	$500,000	0	$211,000

Table 3: Structures in the Town of Ancram, Columbia County, New York				
Type of Structure (Occupancy Class)	**# in Community**	**$ in Community**	**No. in Hazard Area**	**Economic Loss in Hazard Area**
Utilities	2	$500,000	0	$0
Total	**970**	**$228,000,000**	**970**	**$1,737,000**

No known changes in land use patterns or development patterns have been identified in the Town of Ancram.

Critical Infrastructure

The volunteer fire company in Ancram serves the entire town as well as 20% of the Town of Gallatin. The Fire Company covers fires, automobile accidents, assists with local rescue squads, as needed, and answers mutual aid calls. The Ancram Fire House and all associated equipment is owned by the District and managed by four elected fire commissioners. The Fire House is located at the intersection of County Route 7 and State Route 82. This facility is a six-bay station housing five vehicles and a meeting room. It is considered critical infrastructure within Ancram.

There are 56.4 miles of town roads in Ancram. Columbia County provides winter snow removal on Route 8 during the winter. During the summer, Ancram shares services such as trucks and staff with Copake, Pine Plains, Taghkanic and Gallatin for highway paving. These roads are considered part of Ancram's critical infrastructure (Town of Ancram 2010).

Gas and electric are provided through Central Hudson, National Grid, and New York State Electric and Gas. Fairpoint Communications and Charter Business provide telephone and other communication services. Based on information from Ancram staff, there are two utility structures located within the town, which are both located within a hazard area. This infrastructure would be considered critical.

There are no municipal water systems or sewers in Ancram. All on-site septic systems are approved by the Columbia County Department of Health.

No known changes in land use patterns or development patterns have been identified in the Town of Ancram.

National Flood Insurance Program Participation

The Town of Ancram entered into the NFIP on 11/15/1974 with effective flood rate maps dated 6/5/1985. The Town's NFIP Program is overseen by the town zoning ordinance. Additionally, the Town has identified an area of flood concern within their 2014 Zoning Law, and encourages conservation of rural lands to minimize flooding and erosion. All subdivision and site plan applications are reviewed to ensure they abide by Local Law # 1 (Flood Damage Prevention).

According to the NFIP data from FEMA, since 1978 there have been 2 repetitive loss claims resulting in $4,057 in payments. The latest claim was in 2011. These claims were made by 1 property as follows:

- Single Family Residences – 1
- Other Residences – 0
- Non-Residences – 0

Evacuation, Sheltering, and Housing

Coordination of evacuation operations is the responsibility of local law enforcement and will be guided by Columbia County's evacuation protocols. The county's newly implemented reverse 911 system notifies residents of a potential need to shelter or evacuate from a hazard. No jurisdiction-specific evacuation routes have been identified at this time.

Identification of sites for intermediate- and long-term housing is addressed in coordination with the County.

Capability Assessment

This section identifies the following capabilities of the local jurisdiction:

- Legal and regulatory capability;
- Administrative and technical capability; and
- Fiscal capability.

Table 4: Legal and Regulatory Capability

Regulatory Tool	Y/N	Comments
Master Plan	Y	2010 Comprehensive Plan
Zoning ordinance	Y	
Subdivision ordinance	Y	
Growth management ordinance	N	
Floodplain ordinance	Y	Part of town zoning ordinance

Table 4: Legal and Regulatory Capability		
Regulatory Tool	**Y/N**	**Comments**
Other special purpose ordinance (stormwater, steep slope, wildfire)	N	
Building code		Version:
Fire department ISO rating		Rating:
Erosion or sediment control program	N	
Stormwater management program	N	
Site plan review requirements	Y	Part of town zoning ordinance
Capital improvements plan	N	
Economic development plan	Y	Community Development Strategic Plan - 2008
Local emergency operations plan	N	
Other special plans (i.e. flood mitigation plan)	N	Agriculture and Farmland Protection Plan - 2011
Flood insurance study or other engineering study for streams	N	
Elevation certificates	N	
Other		

Table 5: Administrative and Technical Capability		
Regulatory Tool	**Y/N**	**Comments**
If you are a City or County jurisdiction, please describe is your government structure? (e.g. Commission, Mayor/City Council, how many members, etc.)	N	Town Council of 4 members and Town Supervisor
Planner/Engineer with knowledge of land development/land management practices	Y	Town uses planner and attorney to advise on land development and management practices. County resources available
Planner/Engineer/Scientist with an understanding of natural hazards	y	Town has a Conservation Advisory Council knowledgeable in these areas. County resources available
Personnel skilled in GIS	Y	Planning Board Clerk & town planning

Table 5: Administrative and Technical Capability		
Regulatory Tool	**Y/N**	**Comments**
		advisors knowledgeable about GIS
Full time building official	N	Part time building inspector & deputy
Floodplain Manager	Y	Code Enforcement
Emergency Manager	Y	Town Supervisor
Grant writer	N	
Other personnel	Y	Highway department (five members) and volunteer fire company (50 active members) are available to respond to hazard events
Other		

Table 6: Fiscal Capability		
Regulatory Tool	**Y/N**	**Comments**
Community Development Block Grants	N	Town Council of 4 members and town supervisor
Capital improvements project funding	N	
Authority to levy taxes for specific purposes	Y	
Fees for water, sewer, gas, or electric services	N	
Impact fees for new development	N	
Incur debt through general obligation bonds	Y	
Incur debt through special tax bonds	Y	
Incur debt through private activities	Y	
Withhold spending in hazard prone areas	Y	

Town of Ancram Mitigation Actions

Please refer to Chapter 5, tables 5-1 and 5-2 to view countywide as well as jurisdiction-specific mitigation strategies.

Table 7: Town of Ancram Mitigation Actions

Strategy	Mitigation Action	Applies to New or Existing Assets	Hazard(s) Mitigated	Objectives Met	Lead Agency	Support Agencies	Estimated Cost	Sources of Funding	Timeline
PPL-5	Install snow fencing on Carlson Road to ease snow removal.	Existing	Winter storms	Goal 1, Objective 1 and 2; Goal 2, All Objectives, Goal 3, All Objectives	Highway Department	None at this time	Low	Ancram Highway Department General Fund	6 months
PPL-6	Install snow fencing on Sawchuck Road to ease snow removal.	Existing	Winter storms	Goal 1, Objective 1 and 2; Goal 2, All Objectives, Goal 3, All Objectives	Highway Department	None at this time	Low	Ancram Highway Department General Fund	6 months
PPL-7	Install snow fencing on State Route 22 to ease snow removal.	Existing	Winter storms	Goal 1, Objective 1 and 2; Goal 2, All Objectives, Goal 3, All Objectives	Highway Department	None at this time	Low	Ancram Highway Department General Fund	6 months
PPL-17	Conduct a drainage study on Finkle Road to determine how to reduce flooding.	Existing	Flood	Goal 1, Objective 1 and 2; Goal 2, All Objectives, Goal 3, All Objectives	Highway Department	None at this time	Low	Ancram Highway Department General Fund	6 months

Status of Incorporation of Mitigation Planning Into Existing and Future Planning Mechanisms

Each jurisdiction within Columbia County intends to incorporate mitigation planning into daily municipal operations. Hazard mitigation will be an integral component of Town procedures. Planning mechanisms that have or will incorporate hazard mitigation planning include but are not limited to:

- Operating and Capital Improvement Budget;
- Building and Zoning Ordinances;
- Comprehensive Land Use Plan;
- Municipal Ordinances;
- Fire Plan;
- Local School Service Projects; and
- Economic Development Plan.

Specific actions that the community is taking or intends to pursue in the future include:

- The Town will consider establishing a line item in its municipal budget to fund pre-disaster mitigation projects to reduce its vulnerability.
- The Town will utilize the mitigation plan's risk assessment to guide emergency response planning including development of evacuation plans.
- The Town will consider development of a hazard mitigation goal in the next update of its Comprehensive Plan.

ADOPTION RESOLUTION

(Name of Jurisdiction) Town of Ancram

(Governing Body) Town Board

(Address) 1416 Co Road 7, Ancram NY 12502

RESOLUTION

Whereas, the Town of Ancram recognizes the threat that natural hazards pose to people and property within our community; and
Whereas, undertaking hazard mitigation actions will reduce the potential for harm to people and property from future hazard occurrences; and
Whereas, the U.S. Congress passed the Disaster Mitigation Act of 2000 ("Disaster Mitigation Act") emphasizing the need for pre-disaster mitigation of potential hazards;
Whereas, the Disaster Mitigation Act made available hazard mitigation grants to state and local governments; and
Whereas, an adopted Multi-Jurisdictional Hazard Mitigation Plan is required as a condition of future funding for mitigation projects under mitigation FEMA pre- and post-disaster mitigation grant programs; and
Whereas, the Town of Ancram fully participated in the FEMA-prescribed mitigation planning process to prepare this Multi-Jurisdictional Hazard Mitigation Plan; and
Whereas, the New York Emergency Management Office and the Federal Emergency Management Agency Region II officials have reviewed the "Columbia County Multi-Jurisdictional Hazard Mitigation Plan" and approved it contingent upon this official adoption of the participating governing body; and
Whereas, the Town of Ancram desires to comply with the requirements of the Disaster Mitigation Act and to augment its emergency planning efforts by formally adopting the Columbia County Multi-Hazard Mitigation Plan; and
Whereas, adoption by the governing body for the Town of Ancram demonstrates the jurisdictions' commitment to fulfilling the mitigation goals and objectives outlined in the Multi-Jurisdictional Hazard Mitigation Plan.
Whereas, adoption of this legitimizes the plan and authorizes responsible agency to carry out their responsibilities under the plan;
Now, therefore, be it resolved, that the Town of Ancram adopts the "Columbia County Multi-Jurisdictional Hazard Mitigation Plan" as an official plan; and
Be it further resolved, the Town of Ancram will submit this Adoption Resolution to the New York State Office of Emergency Management and Federal Emergency Management Agency Region II officials to enable the plan's final approval.

Passed: _____

Certifying Official

TOWN OF AUSTERLITZ

Last updated: 4/23/2018

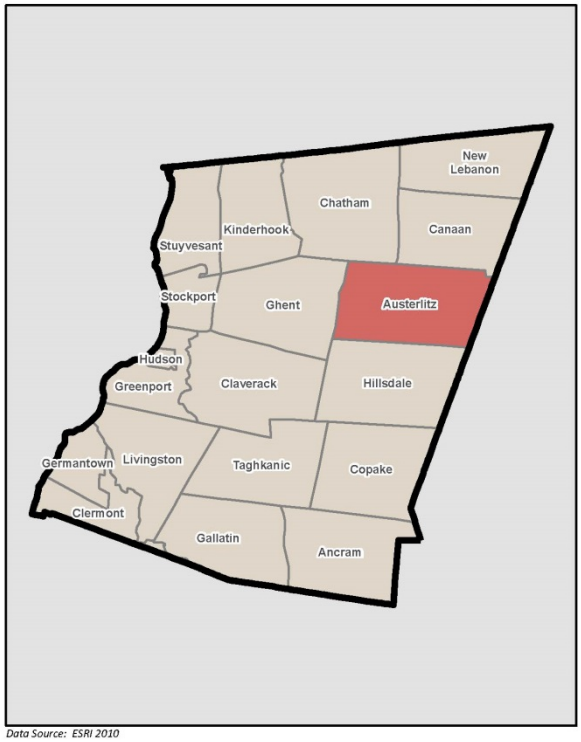
Community Profile

Location and Geography

The Town of Austerlitz (Austerlitz) is located in the easternmost corridor of Columbia County, covering a total area of 48.8 square miles. It is bordered by the Towns of Canaan and Chatham to the north, and the Town of Ghent to the west, and the Town of Hillsdale to the south. Austerlitz's eastern border straddles the crest of the Taconic mountain range where it shares Harvey Mountain, the highest peak in Columbia County, with Massachusetts.

Hudson River Tributaries such as Claverack Creek, Kline Kill Creek, and Roeliff Jansen Creek all drain into the Lower Hudson River Basin in Austerlitz while the eastern portion of the Town is located in the Housatonic River Basin.

Town of Austerlitz Within Columbia County



Data Source: ESRI 2010

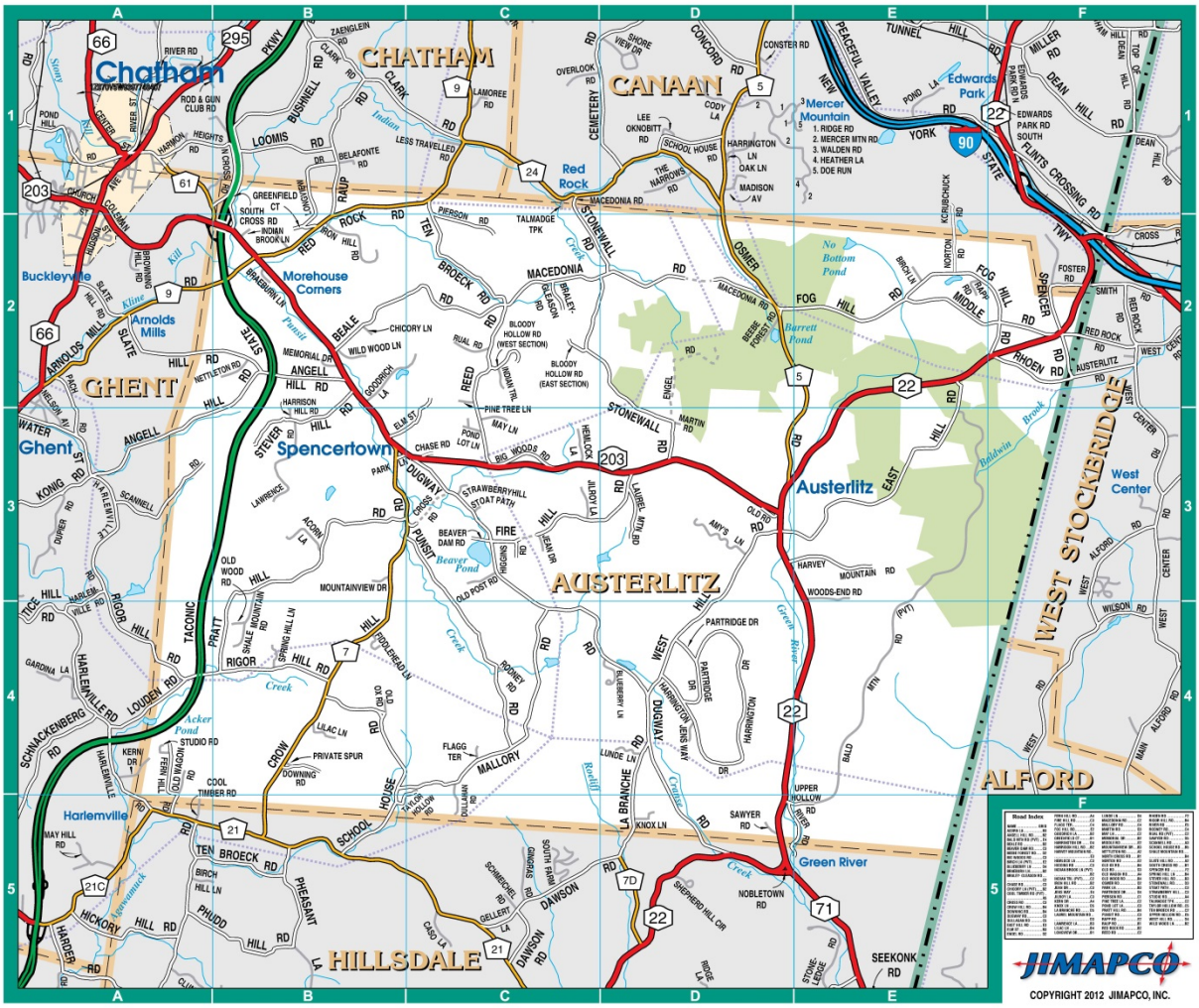
Climate

The climate in Austerlitz is similar to that of Columbia County, which experiences lows that range between 0°F and -10°F and highs of 90°F-100°F (NYS Climate Office Cornell ND).

Since 1996, three major storm events were declared disasters or emergencies. These include a flood, which caused heavy damage to town roads in Austerlitz, Hillsdale, and Canaan causing $4,000,000 in damages; a thunderstorm in 2000 that caused $25,000 in damage; and a flash flood in 2011 in which Route 71 was reported closed due to flooding approximately 4 miles south of Austerlitz. These major floods also caused damage to the Austerlitz Volunteer Fire Company firehouse. Because of previous storm damage, the town is planning to build a new firehouse.

Other major storm events over the last twenty years have included thunderstorms in 1993, 1994, 2004, and 2005, and 2008 that collectively caused $10,000 in damage due to downed trees and power lines; a high wind event in 2006 that caused downed power lines; hail events in 2001, 2002 and 2008; a flash flood in 2009 that caused Green River to overflow; and a flash flood in

2011 that destroyed produce at a farm near Kline Kill Creek and caused small streams to overflow at Red Rock, Austerlitz, and Ancram.



Population Trends and Demographics

Based on the 2010 U.S. Census, there are 1,654 people in Austerlitz, approximately 2.62% of the total population of Columbia County. The population is 96.6% White, 0.7% African American, 1% Asian, and 1.7% are a mix of other races, including those identified as being of more than one race.

Table 1 shows that the median age in Austerlitz is increasing based on U.S. Census Bureau statistics. Between 1990 and 2010, the population under 5 years of age declined while the 65 years and older population increased. In 2010, the U.S. Census reported the median age in Austerlitz to be 50 years of age with over 20 % of the population over 65 and approximately 3.9% of the population under 5 years of age. This median age is relatively high for the region,

nearly 10 years older than that in Dutchess County and more than 4 years older than Columbia County.

Table 1: Age Distribution in the Town of Austerlitz, 1990 to 2010

Age Group	Population		
	1990	**2000**	**2010**
Under 5 years	75 (5.2%)	61 (4.2%)	64 (3.9%)
65 years and older	192 (13.2%)	254 (17.5%)	341 (20.6%)
Median Age	NA	NA	50

Sources: U.S. Census Bureau 1990, 2000, 2010

Governance

Austerlitz is located within the 19th Congressional District, 43rd State Senate District, and 106th Assembly District (Columbia County Board of Elections 2012). A Town Board, made up of four elected councilmembers and a town supervisor, oversees decisions at a local level.

Two fire companies serve Austerlitz. The Spencertown Fire Company consists of 40 fire company members, of which two thirds are active fire fighters (Spencertown Fire District 2006). The Austerlitz Fire Company is an all-volunteer fire company (Austerlitz Fire Company 2012). Combined, these two companies serve Austerlitz and a portion of the Town of Hillsdale. The area covered by these two companies is the largest fire district within Columbia County. In addition to Fire & Rescue service, the Spencertown Fire Company provides residents of the entire Fire District with emergency medical assistance.

There are no town police in Austerlitz. However, the town is provided law enforcement support from the County Sheriff's Department and the State Police.

Economy

Sixty-six percent of the population in Austerlitz is considered part of the local workforce, and 62.1% of the town is employed (USCB 2010). The County's primary grossing industries are construction (17.5%); retail trade services (10.8%); educational/health care services (15.4%); and professional, scientific, and management services (12.6%). The majority of employed individuals in Austerlitz are private wage and salary workers though 16.8% are self-employed in non-incorporated businesses (U.S. Census Bureau 2010).

There are 726 households in the town and the median home value is $299,060. The average household income is $69,500 (U.S. Census Bureau 2013).

Though historically many areas within Austerlitz were clear-cut for agriculture, there are few farms left in the town. Today, land in Austerlitz continues to naturally convert to forest cover.

Reliance on agriculture is changing as traditional farming shifts to better soils and towards specialized production. However, horticultural businesses producing vegetables, herbs, ornamentals, and organic meat and poultry continue to flourish (Town of Austerlitz 2004).

Land Use

Tables 2 and 3 show a breakdown of the value of land uses based on land use assessments completed by the town.

Table 2: Number of Structures

Type of Structure	# in the Community	# in Hazard Area	Percent in Hazard Area
Residential[1]	1,062	62	5.8
Commercial	64	3	4.7
Industrial	28	0	0.0
Agricultural	10	0	0.0
Religious/Non-Profit	5	0	0.0
Government	4	2	50.0
Education	2	0	0.0
Utilities	0	0	0
Total	**1,175**	**68**	**5.7**

[1] 184 (11.5%) out 1,600 residents are located with a hazard area.

Table 3: Value of Structures

Type of Structure	$ in the Community	$ in Hazard Area	Percent in Hazard Area
Residential	$217,918,000	$123,000	0.1
Commercial	$51,274,000	$156,000	0.3
Industrial	$11,014,000	$80,000	0.7
Agricultural	$2,250,000	$0	0
Religious/Non-Profit	$4,812,000	$0	0
Government	$718,000	$0	0
Education	$9,295,000	$0	0
Utilities	$0	$0	0
Total	**$297,281**	**$359,000**	**0.1**

No known changes in land use patterns or development patterns have been identified in the Town of Austerlitz.

Critical Infrastructure

The Town of Austerlitz Highway Department, which consists of six staff and a superintendent, maintains a road system of 57 miles in length, fifty roads of which are unpaved gravel, with a modern, up-to-date fleet of trucks, equipment and tools. A new six bay garage located at 714 Route 203 just east of Spencertown houses all of the town's equipment for storage and repairs. This garage is considered part of Austerlitz's critical infrastructure. Table 4 shows a breakdown of critical infrastructure and its value in Austerlitz.

Table 4: Critical Infrastructure and Cost Value in the Town of Austerlitz

Structure	Type	Location	Cost
Austerlitz Historical Society	Public	27 E Main St	Not Available
Spencertown Fire House[1]	Fire	41 North Street	$4,603,710
Post Office	Public	41 North Street	$7,826,820
Highway Garage	Public	Unknown	Not Available

[1] Approved Red Cross shelter

National Flood Insurance Program Participation

The Town of Austerlitz entered into the NFIP on 12/27/1974 with effective flood rate maps dated 6/5/1985. The Town's NFIP Program is overseen by the Code Enforcement officer/Building Inspector. Additionally, Chapter 101 of the Town Code covers Flood Damage Prevention.

According to the NFIP data from FEMA, since 1978 there have been no repetitive loss claims.

Evacuation, Sheltering, and Housing

Coordination of evacuation operations is the responsibility of local law enforcement and will be guided by Columbia County's evacuation protocols. No jurisdiction-specific evacuation routes have been identified at this time.

Identification of sites for intermediate- and long-term housing is addressed in coordination with the County.

Capability Assessment

This section identifies the following capabilities of the local jurisdiction:

- Legal and regulatory capability;
- Administrative and technical capability; and

- Fiscal capability.

Table 5: Legal and Regulatory Capability		
Regulatory Tool	**Y/N**	**Comments**
Master Plan	Y	2010 COMPREHENSIVE PLAN
Zoning ordinance	Y	
Subdivision ordinance	Y	
Growth management ordinance	N	
Floodplain ordinance	Y	Chapter 101 of Town Code
Other special purpose ordinance (stormwater, steep slope, wildfire)	N	
Building code	Y	Version: 2010 NY
Fire department ISO rating	Y	Rating: 10
Erosion or sediment control program	N	
Stormwater management program	N	
Site plan review requirements	Y	
Capital improvements plan	N	
Economic development plan	N	
Local emergency operations plan	N	
Other special plans (i.e. flood mitigation plan)	N	
Flood insurance study or other engineering study for streams	Y	Chapter 101-4B{15} – Flood Insurance Study
Elevation certificates	N	
Other		

Table 6: Administrative and Technical Capability		
Regulatory Tool	**Y/N**	**Comments**
If you are a City or County jurisdiction, please describe is your government structure? (e.g. Commission, Mayor/City Council, how many members, etc.)	Y	Town Supervisor

Table 6: Administrative and Technical Capability		
Regulatory Tool	**Y/N**	**Comments**
Planner/Engineer with knowledge of land development/land management practices	N	
Engineer/Professional trained in construction practices related to buildings and/or infrastructure	N	
Planner/Engineer/Scientist with an understanding of natural hazards	N	
Personnel skilled in GIS	Y	Data clerk
Full time building official	N	CEO/Inspector is shared with 3 adjacent towns making him full time if needed
Floodplain Manager	Y	Code Enforcement Officer
Emergency Manager	Y	
Grant writer	N	
Other personnel	N	
Other	N	

Table 7: Fiscal Capability		
Regulatory Tool	**Y/N**	**Comments**
Community Development Block Grants	N	
Capital improvements project funding	N	
Authority to levy taxes for specific purposes	Y	
Fees for water, sewer, gas, or electric services	N	
Impact fees for new development	Y	
Incur debt through general obligation bonds	Y	
Incur debt through special tax bonds	Y	
Incur debt through private activities	N	
Withhold spending in hazard prone areas	N	

Table 7: Fiscal Capability		
Regulatory Tool	**Y/N**	**Comments**
Other		

Town of Austerlitz Mitigation Actions

Please refer to Chapter 5, tables 5-1 and 5-2 to view countywide as well as jurisdiction-specific mitigation strategies.

Table 8: Town of Austerlitz Mitigation Actions

Strategy	Mitigation Action	Applies to New or Existing Assets	Hazard(s) Mitigated	Objectives Met	Lead Agency	Support Agencies	Estimated Cost	Sources of Funding	Timeline
PPL-8	Reinforce bridges over the Green River and isolate if bridges are damaged or fail.	Both	All Hazards	Goal 1, Objective 1 and 2; Goal 2, All Objectives, Goal 3, All Objectives	Highway Department	None at this time	Moderate	State/Federal grants	5 years

Status of Incorporation of Mitigation Planning Into Existing and Future Planning Mechanisms

Each jurisdiction within Columbia County intends to incorporate mitigation planning into daily municipal operations. Hazard mitigation will be an integral component of Town procedures. Planning mechanisms that have or will incorporate hazard mitigation planning include but are not limited to:

- Operating and Capital Improvement Budget;
- Building and Zoning Ordinances;
- Comprehensive Land Use Plan;
- Municipal Ordinances;
- Fire Plan;
- Local School Service Projects; and
- Economic Development Plan.

Specific actions that the community is taking or intends to pursue in the future include:

- The Town will consider establishing a line item in its municipal budget to fund pre-disaster mitigation projects to reduce its vulnerability.
- The Town will utilize the mitigation plan's risk assessment to guide emergency response planning including development of evacuation plans.
- The Town will consider development of a hazard mitigation goal in the next update of its Comprehensive Plan.

ADOPTION RESOLUTION

(Name of Jurisdiction) Town of Austerlitz

(Governing Body) Town Board

(Address) 1416 Co Road 7, Austerlitz NY 12502

RESOLUTION

Whereas, the Town of Austerlitz recognizes the threat that natural hazards pose to people and property within our community; and
Whereas, undertaking hazard mitigation actions will reduce the potential for harm to people and property from future hazard occurrences; and
Whereas, the U.S. Congress passed the Disaster Mitigation Act of 2000 ("Disaster Mitigation Act") emphasizing the need for pre-disaster mitigation of potential hazards;
Whereas, the Disaster Mitigation Act made available hazard mitigation grants to state and local governments; and
Whereas, an adopted Multi-Jurisdictional Hazard Mitigation Plan is required as a condition of future funding for mitigation projects under mitigation FEMA pre- and post-disaster mitigation grant programs; and
Whereas, the Town Austerlitz fully participated in the FEMA-prescribed mitigation planning process to prepare this Multi-Jurisdictional Hazard Mitigation Plan; and
Whereas, the New York Emergency Management Office and the Federal Emergency Management Agency Region II officials have reviewed the "Columbia County Multi-Jurisdictional Hazard Mitigation Plan" and approved it contingent upon this official adoption of the participating governing body; and
Whereas, the Town of Austerlitz desires to comply with the requirements of the Disaster Mitigation Act and to augment its emergency planning efforts by formally adopting the Columbia County Multi-Jurisdictional Hazard Mitigation Plan; and
Whereas, adoption by the governing body for the Town of Austerlitz demonstrates the jurisdictions' commitment to fulfilling the mitigation goals and objectives outlined in the Multi-Jurisdictional Hazard Mitigation Plan.
Whereas, adoption of this legitimizes the plan and authorizes responsible agency to carry out their responsibilities under the plan;
Now, therefore, be it resolved, that the Town of Austerlitz adopts the "Columbia County Multi-Jurisdictional Hazard Mitigation Plan" as an official plan; and
Be it further resolved, the Town of Austerlitz will submit this Adoption Resolution to the New York State Office of Emergency Management and Federal Emergency Management Agency Region II officials to enable the plan's final approval.

Passed: _____

Certifying Official

TOWN OF CANAAN

Last updated: 4/23/2018

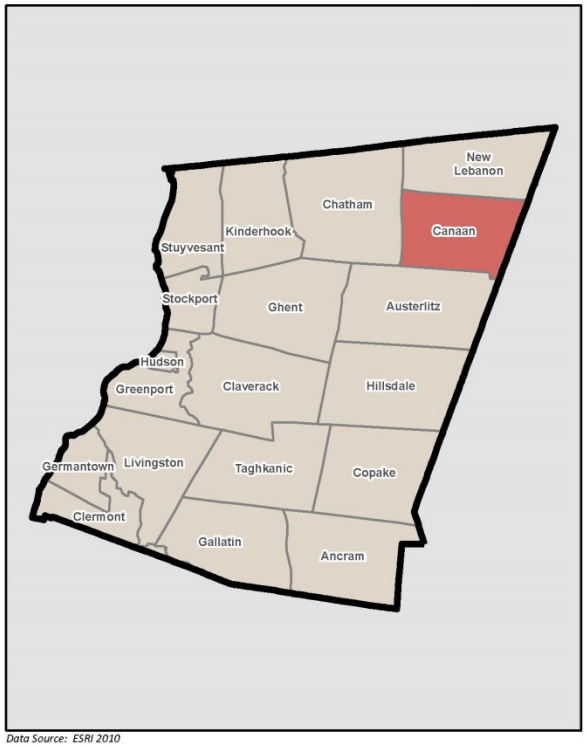
Community Profile

Location and Geography

The Town of Canaan (Canaan) is located along the eastern edge of northern Columbia County, New York. It is bordered by the Town of New Lebanon to the north, the Town of Chatham to the west, and the town of Austerlitz to the south. Along the eastern edge is the Taconic Range, which separates the town from the border of Massachusetts. Canaan covers a total area of 36.7 square miles.

Canaan is the easternmost town in the New York foothills of the Berkshire Mountains.

Town of Canaan Within Columbia County



Data Source: ESRI 2010

Climate

The climate in Canaan is similar to that of Columbia County, which experiences lows that range between 0°F and -10°F and highs of 90°F-100°F (NYS Climate Office Cornell ND).

Based on data provided by Canaan, there have been two storm events that were declared a state of emergency in Canaan since 1996. These include a flood in 1996 that caused over $4,000,000 of damage to town roads in Hillsdale, Austerlitz, and Canaan, and a flash flood in 2004 that affected areas in Germantown and Canaan, causing over $280,000 in damages. Other historical storm events that have affected Canaan include a tornado in 1997, two separate hail events in 2001 and 2002, and a thunderstorm in 2008. The tornado caused over $700,000 in damages countywide.

Population Trends and Demographics

The population of Canaan is 1,710. The population is 92.6% White, 4.3% African-American, 0.8% Asian, and 3.1% other races, including those that consider themselves to be of more than one race. Approximately 30% of the residences are weekenders or seasonal adding over 500 more to the population at various times.

As shown in Table 1, the median age in Canaan is 45.6 years old. Approximately 18.2% of the population is over 65 while 3.7% is under 5 years of age.

Table 1: Age Distribution in the Town of Canaan, 2000 to 2010

Age Group	Population	
	2000	**2010**
Under 5 years	82 (4.5%)	63 (3.7%)
65 years and older	255 (14.0%)	312 (18.2%)
Median Age	37.8	45.6

Sources: U.S. Census Bureau 2000, 2010

There are 673 households in the town and the median home value is $66,494. The average household income is $98,704 (U.S. Census Bureau 2010).

Governance

Canaan is located within the 19th Congressional District, 43rd State Senate District, and 107th Assembly District (Columbia County Board of Elections 2012). In addition, there is a Town Council, made up of four elected councilmembers and a town supervisor, which oversees decisions at a local level.

The Canaan Protective Fire Company, East Chatham Fire Company, and Red Rock Fire Company provide firefighting services to the Town of Canaan. Collectively they are staffed by over 65 trained volunteers (Town of Canaan 2008). In addition, the Chatham Rescue Squad provides ambulance services to the town.

Canaan has no town police, but is provided law enforcement support from the County Sheriff's Department and the State Police.

Economy

Approximately 52.3% of the population in Canaan is employed and 3.3% is unemployed. Approximately 55.5% of the population is part of the workforce. The primary industries in the town include educational/health care services; professional, scientific, and management services; and construction.

Land Use

Tables 2 through 5 provide a breakdown of structures within Canaan at risk for select hazards. The majority of structures are associated with residential use, followed by agriculture and commercial. No known changes in land use patterns or development patterns have been identified in the Town of Canaan.

Table 2: Flood Inventory Assets in Town of Canaan

Type of Structure (Occupancy Class)	Number of Structures			Value of Structures		
	# in Community	# in Hazard Area	% in Hazard Area	$ in Community	$ in Hazard Area	% in Hazard Area
Residential	880	132	15	$239,321,579	$47,864,316	20
Commercial	18	0	0	$10,066,350	0	0
Industrial	1	0	0	$238,280	0	0
Agricultural	19	0	0	$4,241,699	0	0
Religious/Non-Profit	15	0	0	$7,587,230	0	0
Government	7	7	100	$1,510,390	$1,510,390	100
Education	52	0	0	$34,302,800	0	0
Utilities/Railroad	7	0	0	$7,527,323	0	0
Total	**999**	**139**	**13.9**	**$304,795,651**	**$49,374,706**	**16.2**

Table 3: Tornado Inventory Assets in Town of Canaan

Type of Structure (Occupancy Class)	Number of Structures			Value of Structures		
	# in Community	# in Hazard Area	% in Hazard Area	$ in Community	$ in Hazard Area	% in Hazard Area
Residential	880	44	5%	239,321,579	11,966,079	5%
Commercial	18	1	5%	10,066,350	503,318	5%
Industrial	1	0	5%	238,280	11,914	5%
Agricultural	19	1	5%	4,241,699	212,085	5%
Religious/Non-Profit	15	1	5%	7,587,230	379,362	5%
Government	7	0	0%	1,510,390	0	0%
Education	52	3	5%	34,302,800	1,715,140	5%
Utilities/Railroad	7	0	0%	7,527,323	0	0%
Total	999	49.95	5.0%	$304,795,651	$14,787,897	4.9%

Table 4: Hazmat (Fixed) Inventory Assets in Town of Canaan

Type of Structure (Occupancy Class)	Number of Structures			Value of Structures		
	# in Community	# in Hazard Area	% in Hazard Area	$ in Community	$ in Hazard Area	% in Hazard Area
Residential	880	18	2	$239,321,579	$4,786,432	2
Commercial	18	0	2	$10,066,350	$201,327	2
Industrial	1	0	2	$238,280	$4,766	2
Agricultural	19	0	2	$4,241,699	$84,834	2
Religious/Non-Profit	15	0	2	$7,587,230	$151,745	2
Government	7	0	2	$1,510,390	$30,208	2
Education	52	1	2	$34,302,800	$686,056	2
Utilities/Railroad	7	0	2	$7,527,323	$150,546	2
Total	**999**	**19**	**2**	**$304,795,651**	**$6,095,913**	**2**

Table 5: Hazmat (In Transit) Inventory Assets in Town of Canaan

Type of Structure (Occupancy Class)	Number of Structures			Value of Structures		
	# in Community	# in Hazard Area	% in Hazard Area	$ in Community	$ in Hazard Area	% in Hazard Area
Residential	880	44	5	$239,321,579	$11,966,079	5
Commercial	18	1	5	$10,066,350	$503,318	5
Industrial	1	0	5	$238,280	$11,914	5
Agricultural	19	1	5	$4,241,699	$212,085	5
Religious/Non-Profit	15	1	5	$7,587,230	$379,362	5
Government	7	0	5	$1,510,390	$75,520	5
Education	52	3	5	$34,302,800	$1,715,140	5
Utilities/Railroad	7	0	5	$7,527,323	$376,366	5
Total	**999**	**50**	**5**	**$304,795,651**	**$15,239,784**	**5**

Critical Infrastructure

The Canaan Protective Fire Company, located in eastern Canaan at 2126 Route 295, Canaan, NY 12029 and the Town Hall are considered critical infrastructure of Canaan. Both of these structures are located within a hazard zone.

National Flood Insurance Program Participation

The Town of Canaan entered into the NFIP on 11/1/1974 with effective flood rate maps dated 7/3/1985. The Town's NFIP Program is overseen by the Town Supervisor and the Highway Superintendent. The Town's Zoning Regulations cover flood damage prevention under the Flood Area Overzone regulations.

According to the NFIP data from FEMA, since 1978 there have been no repetitive loss claims.

Evacuation, Sheltering, and Housing

Coordination of evacuation operations is the responsibility of local law enforcement and will be guided by Columbia County's evacuation protocols. No jurisdiction-specific evacuation routes have been identified at this time.

Identification of sites for intermediate- and long-term housing is addressed in coordination with the County.

Capability Assessment

This section identifies the following capabilities of the local jurisdiction:

- Legal and regulatory capability;
- Administrative and technical capability; and
- Fiscal capability.

Table 6: Legal and Regulatory Capability

Regulatory Tool	Y/N	Comments
Master Plan	N	
Zoning ordinance	Y	
Subdivision ordinance	Y	
Growth management ordinance	N	
Floodplain ordinance	Y	Flood Area Overzone regulations
Other special purpose ordinance (stormwater, steep slope, wildfire)	N	
Building code	Y	

Table 6: Legal and Regulatory Capability		
Regulatory Tool	**Y/N**	**Comments**
Fire department ISO rating	Y	
Erosion or sediment control program	N	
Stormwater management program	N	
Site plan review requirements	Y	
Capital improvements plan	Y	
Economic development plan	N	
Local emergency operations plan	N	
Other special plans (i.e. flood mitigation plan)	N	
Flood insurance study or other engineering study for streams	N	
Elevation certificates	N	
Other	N	

Table 7: Administrative and Technical Capability		
Regulatory Tool	**Y/N**	**Comments**
If you are a City or County jurisdiction, please describe is your government structure? (e.g. Commission, Mayor/City Council, how many members, etc.)	N	
Planner/Engineer with knowledge of land development/land management practices	N	
Engineer/Professional trained in construction practices related to buildings and/or infrastructure	N	
Planner/Engineer/Scientist with an understanding of natural hazards	N	
Personnel skilled in GIS	Y	
Full time building official	N	
Floodplain Manager	Y	Town Supervisor and Highway Superintendent

Table 7: Administrative and Technical Capability		
Regulatory Tool	**Y/N**	**Comments**
Emergency Manager	N	
Grant writer	N	
Other personnel	N	
Other	N	

Table 8: Fiscal Capability		
Regulatory Tool	**Y/N**	**Comments**
Community Development Block Grants	N	
Capital improvements project funding	N	
Authority to levy taxes for specific purposes	Y	
Fees for water, sewer, gas, or electric services	N	
Impact fees for new development	N	
Incur debt through general obligation bonds	Y	
Incur debt through special tax bonds	N	
Incur debt through private activities	N	
Withhold spending in hazard prone areas	N	
Other	N	

Town of Canaan Mitigation Actions

Please refer to Chapter 5, tables 5-1 and 5-2 to view countywide as well as jurisdiction-specific mitigation strategies.

Table 9: Town of Canaan Mitigation Actions

Strategy	Mitigation Action	Applies to New or Existing Assets	Hazard(s) Mitigated	Objectives Met	Lead Agency	Support Agencies	Estimated Cost	Sources of Funding	Timeline
PES-12	A disaster plan will be created to coordinate with: Town of Canaan, Highway Department, Fire Companies, and County Emergency Shelters to provide and service generators to senior citizens who cannot leave their home during severe hazards.	Existing	All hazards	Goal 1, Objective 1 and 2; Goal 2, All Objectives, Goal 3, All Objectives	Town supervisor	None at this time	Low	State/Federal grants	2 years
PPL-20	The Town Highway Department has a regular annual budget for infrastructure enhancement over and above normal maintenance.	Existing	All hazards	Goal 1, Objective 1 and 2; Goal 2, All Objectives, Goal 3, All Objectives	Highway Departme nt	None at this time	Low	State/Federal grants	5 years
PPL-24	Budgeting Contingencies for Hazard Repair and Mitigation	Existing	All hazards	Goal 1, Objective 1 and 2; Goal 2, All Objectives, Goal 3, All Objectives	Town supervisor	None at this time	Moderate	General Government Budget	Ongoing

Status of Incorporation of Mitigation Planning Into Existing and Future Planning Mechanisms

Each jurisdiction within Columbia County intends to incorporate mitigation planning into daily municipal operations. Hazard mitigation will be an integral component of Town procedures. Planning mechanisms that have or will incorporate hazard mitigation planning include but are not limited to:

- Operating and Capital Improvement Budget;
- Building and Zoning Ordinances;
- Comprehensive Land Use Plan;
- Municipal Ordinances;
- Fire Plan;
- Local School Service Projects; and
- Economic Development Plan.

Specific actions that the community is taking or intends to pursue in the future include:

- The Town has established contingency accounts, amounts, and reserves in its annual budget for weather/hazards.
- The Town has coordinated emergency shelters with the local fire companies which include the Town Hall
- The Highway Department has a scheduled replacement and maintenance program for all Town Roads including culverts, bridges and drainage.
- The Town has entered into inter-municipal agreements with Columbia County and the bordering towns for Highway Department emergency services.

ADOPTION RESOLUTION

(Name of Jurisdiction) Town of Canaan

(Governing Body) Town Board

(Address) 1647 County Route 5, Canaan NY 12029

RESOLUTION

Whereas, the Town of Canaan recognizes the threat that natural hazards pose to people and property within our community; and
Whereas, undertaking hazard mitigation actions will reduce the potential for harm to people and property from future hazard occurrences; and
Whereas, the U.S. Congress passed the Disaster Mitigation Act of 2000 ("Disaster Mitigation Act") emphasizing the need for pre-disaster mitigation of potential hazards;
Whereas, the Disaster Mitigation Act made available hazard mitigation grants to state and local governments; and
Whereas, an adopted Multi-Jurisdictional Hazard Mitigation Plan is required as a condition of future funding for mitigation projects under mitigation FEMA pre- and post-disaster mitigation grant programs; and
Whereas, the Town of Canaan fully participated in the FEMA-prescribed mitigation planning process to prepare this Multi-Jurisdictional Hazard Mitigation Plan; and
Whereas, the New York Emergency Management Office and the Federal Emergency Management Agency Region II officials have reviewed the "Columbia County Multi-Jurisdictional Hazard Mitigation Plan" and approved it contingent upon this official adoption of the participating governing body; and
Whereas, the Town of Canaan desires to comply with the requirements of the Disaster Mitigation Act and to augment its emergency planning efforts by formally adopting the Columbia County Multi-Jurisdictional Hazard Mitigation Plan; and
Whereas, adoption by the governing body for the Town of Canaan demonstrates the jurisdictions' commitment to fulfilling the mitigation goals and objectives outlined in the Multi-Jurisdictional Hazard Mitigation Plan.
Whereas, adoption of this legitimizes the plan and authorizes responsible agency to carry out their responsibilities under the plan;
Now, therefore, be it resolved, that the Town of Canaan adopts the "Columbia County Multi-Jurisdictional Hazard Mitigation Plan" as an official plan; and
Be it further resolved, the Town of Canaan will submit this Adoption Resolution to the New York State Office of Emergency Management and Federal Emergency Management Agency Region II officials to enable the plan's final approval.

Passed: _____

_____
Certifying Official

TOWN OF CHATHAM

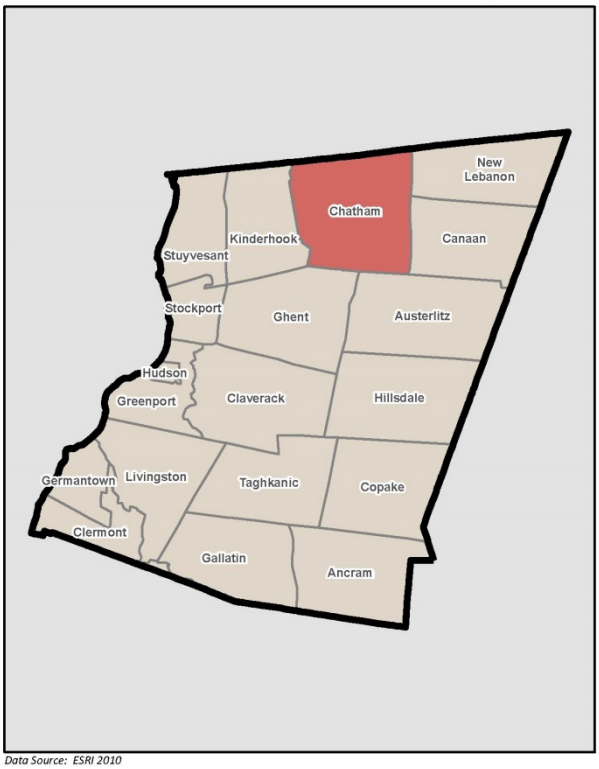
Last updated: 4/23/2018

Community Profile

Location and Geography

The Town of Chatham (Chatham) covers approximately 53.3 square miles and is located in northern Columbia County. It is surrounded by the town of Kinderhook to the west, the town of Austerlitz and Ghent to the south, and the town of Canaan to the east. To the north it borders Rensselaer County, New York. The structure of high, bedrock ridges to the East and North, and the glacial ridges and valleys to the West and South dominate the topography of the Town of Chatham.

Town of Chatham Within Columbia County



Data Source: ESRI 2010

Soil types dictate the differences in the forested eastern and northern areas from the more fertile and less wooded western side. Wetlands, many of them quite small, serve as ecological diversity shelters and create the fertile soils (Town of Chatham 2009b).

Climate

The climate Chatham is similar to that of Columbia County, which experiences lows that range between 0°F and -10°F and highs of 90°F-100°F (NYS Climate Office Cornell ND).

Based on data provided by the town, three hazard events occurred within the town including a flood in 2000 that was declared a disaster; a thunderstorm event in 2003, declared as a disaster; and a thunderstorm event in 2010, declared as a state of emergency. During the flood in 2000, 4.43 inches of rain fell in East Chatham causing $1,500,000 in damages within the region. During the thunderstorm events trees and power lines were damaged. One injury occurred during the storm event in 2010.

Chatham has been reimbursed a total of $1,002,788.02 for disaster damages. Table 1 provides a summary of storm events in Chatham.

Table 1: Significant Storm events in Town of Chatham

Event	Date	Cost of Damages
Thunderstorm Winds	1/17/2012	$12,000
Tornado	11/14/2011	$400,000
Flood/Stone Arch Culvert under Albany Turnpike	9/5/2011	$64,266.08
Flooding	9/5/2011	$204,903.84
Severe Winter Storm	2/18/011	N/A
Severe Winter Storm	3/4/2009	N/A
Severe Winter Storm	12/18/2008	N/A
Severe Storms/Flooding	4/24/2007	N/A
Flooding	4/19/2005	$192,000
Severe Storm	7/2003	N/A
Winter Storm	2/17/2003	N/A
Winter Storm	12/25/2002	N/A
Severe Storm/Flooding	7/2000	$315,000
Flooding	1/24/1996	$85,359.24
Flooding	1973	N/A

On June 29, 1976, heavy rains caused a dam to fail at the paper mill located just outside of Chatham.

Additional storms that affected Chatham include two flash floods in 2008 and 2009, the first of which caused over $45,000 in damages and the closure of School Street; a frost/freeze in 2005 that ended the growing season throughout eastern Columbia County with temperatures below 30 degrees; three hail events in 2002, 2009, and 2011 the first of which reported golf ball size hail in Chatham; four high wind events in 1995, 2005, 2006, and 2007 which caused numerous power outages and downed trees; two lightning storms in 1994 and 2004 that caused telephone outages; and eleven additional thunderstorm wind events from 1996 through 2010 that caused numerous power outages, wire damage, and downed trees that blocked major thruways. Thunderstorms events have caused thousands of dollars in damages within Chatham. In addition, the fifth largest January snowstorm on record hit Chatham in 2002 with almost 15 inches of snow.

Population Trends and Demographics

The Town population increased by 2.2% from 1980 to 1990, and then decreased by about 3.2% during the 1990's. The population in 2000 was 4,249 people, and the 2010 Census shows the current population is 4,128 people in Chatham and 710 people in the Village of Chatham, which is located within the town boundaries but is governed as a separate municipality, therefore the population has continued to decrease. Combined, the Town and Village of Chatham consist of approximately 6.54% of the total population in Columbia County. The population is 94.7% White, 1.9% African-American, 0.7% Asian, 2.2% Hispanic or Latino, and 0.5% other races.

As shown in Table 2, the median age in the Town of Chatham is 48.3 years old, an increase from the median age reported in 2000 of 42.9. Approximately 19.5% of the population is over 65 while 3.7% is under 5 years of age. The number of children fewer than 5 steadily declined while the number of people 65 years or older has steadily increased.

Table 2: Age Distribution in the Town of Chatham, 1990 to 2010

Age Group	Population		
	1990	**2000**	**2010**
Under 5 years	285 (6.5%)	225 (5.3%)	152 (3.7%)
65 years and older	575 (13.1%)	566 (13.3%)	805 (19.5%)
Median Age	Not available	42.9	48.3

Sources: U.S. Census Bureau 1990, 2000, 2010

There are 1,797 households in the town and the median home value is $204,102. The average household income is $46,415 (U.S. Census Bureau 2010).

Governance

Chatham is located within the 19th Congressional District, 43rd State Senate District, and 107th Assembly District (Columbia County Board of Elections 2012). A Town Council, made up of four councilmembers and a town supervisor, oversees decisions at a local level.

Chatham receives fire protection from six different fire organizations: North Chatham, Niverville, Tri-Village, East Chatham, Red Rock, and the Village of Chatham. The North Chatham, East Chatham, and Tri-Village Fire Companies are located within the town. In addition, the Chatham Rescue Squad provides ambulance services to the town.

Chatham has no town police, but is provided law enforcement support from the County Sheriff's Department, the State Police, and the Hudson City Police.

Economy

Based on a Chatham's Comprehensive Plan prepared in 2009, Chatham has experienced dramatic shifts in the workforce, similar to those seen in other areas in the United States. There has been a reduction in jobs associated with farming, manufacturing, retail and wholesale trade, and transportation. At the same time, service-oriented occupations have increased such as communications (107% increase), finance, insurance and real estate (15% increase), health administration (23%) and public administration (13%) (U.S. Census Bureau 2010). Chatham encourages the development of small-scale retail and service businesses to diversify its tax base and provide a variety of job opportunities (Town of Chatham 2009).

2010 U.S. Census statistics show that there is currently a 5.2% unemployment rate in Chatham.

Land Use

Chatham's rural landscape pattern is typically a patchwork of land uses shaped by current or past countryside economic activities including agriculture, forestry, and low density residential uses, interspersed with open spaces left or reverting to a natural state. Features of active or past agricultural activity are often present, including crop fields, livestock, pasture, corrals, orchards, farm buildings such as barns or silos, stone walls, windbreaks, hedgerows, and woodlots.

Farmland within the town is considered part of Agricultural District 10. Productive farmlands are found in the valleys west and south of the Town (Columbia County Planning 2005). These areas have higher-quality groundwater availability and small wetlands are found throughout the area. About half of the 33,180 acres, primarily within the eastern and northeastern areas of the town, are forested (Town of Chatham 2009). Figures 1 through 7 show land use/land cover within Chatham.

Based on a tax parcel breakdown prepared in 2013 as part of the Town's comprehensive plan:

- 1700 parcels designated as residential;
- 498 parcels designated as vacant land;
- 103 parcels designated as commercial;
- 85 parcels designated as waterfront;
- 72 parcels designated for agricultural production;
- 15 parcels designated for Religious/Non-Profit;
- 5 parcels designated as educational;
- 5 parcels designated as industrial;
- 4 parcels designated as government; and
- 3 parcels designated as Rec/Entertainment.

As shown in Table 3, the majority of structures within the town are residential followed by commercial, industrial, and agricultural.

Table 3: Structures in the Town of Chatham

Type of Structure (Occupancy Class)	Number of Structures			Value of Structures x 1000		
	# in Community	# in Hazard Area	% in Hazard Area	$ in Community (in 1000's)	$ in Hazard Area (in 1000's)	% in Hazard Area
Residential	1700	13	0.76	$434,258	$6,565	1.5
Commercial	139	0	0	$103,204	$0	0
Industrial	35	0	0	$30,542	$0	0
Agricultural	23	0	0	$8,410	$0	0
Religious/Non-Profit	11	0	0	$25,160	$0	0
Government	7	0	0	$5,538	$0	0
Education	6	0	0	$6,241	$0	0
Total	**1921**	**13**	**0.67**	**$613,353**	**$6,565**	**10.7**

Source: Town of Chatham 2009

Figure 1: Town of Chatham Topography

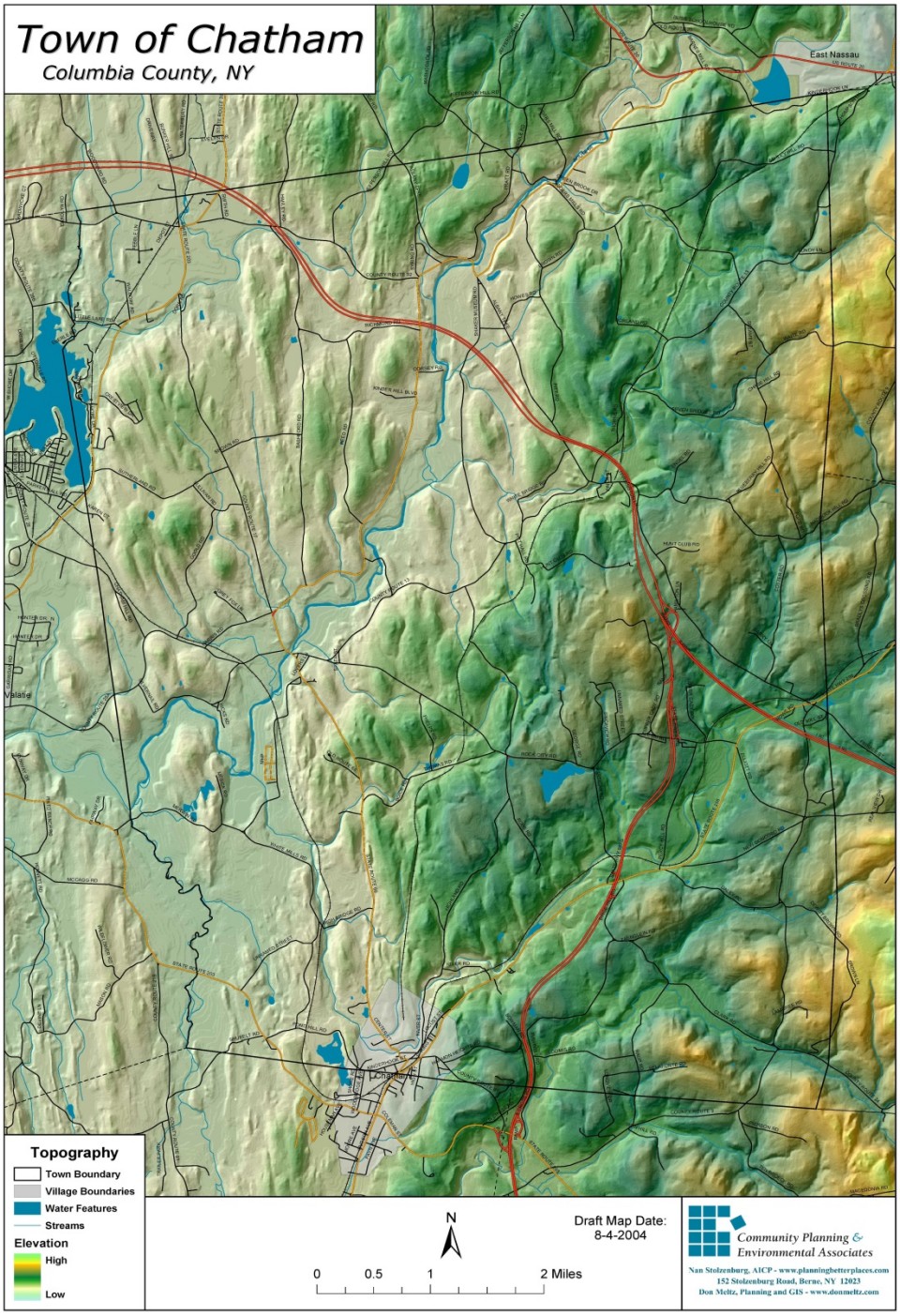


Figure 2: Water Features in Town of Chatham

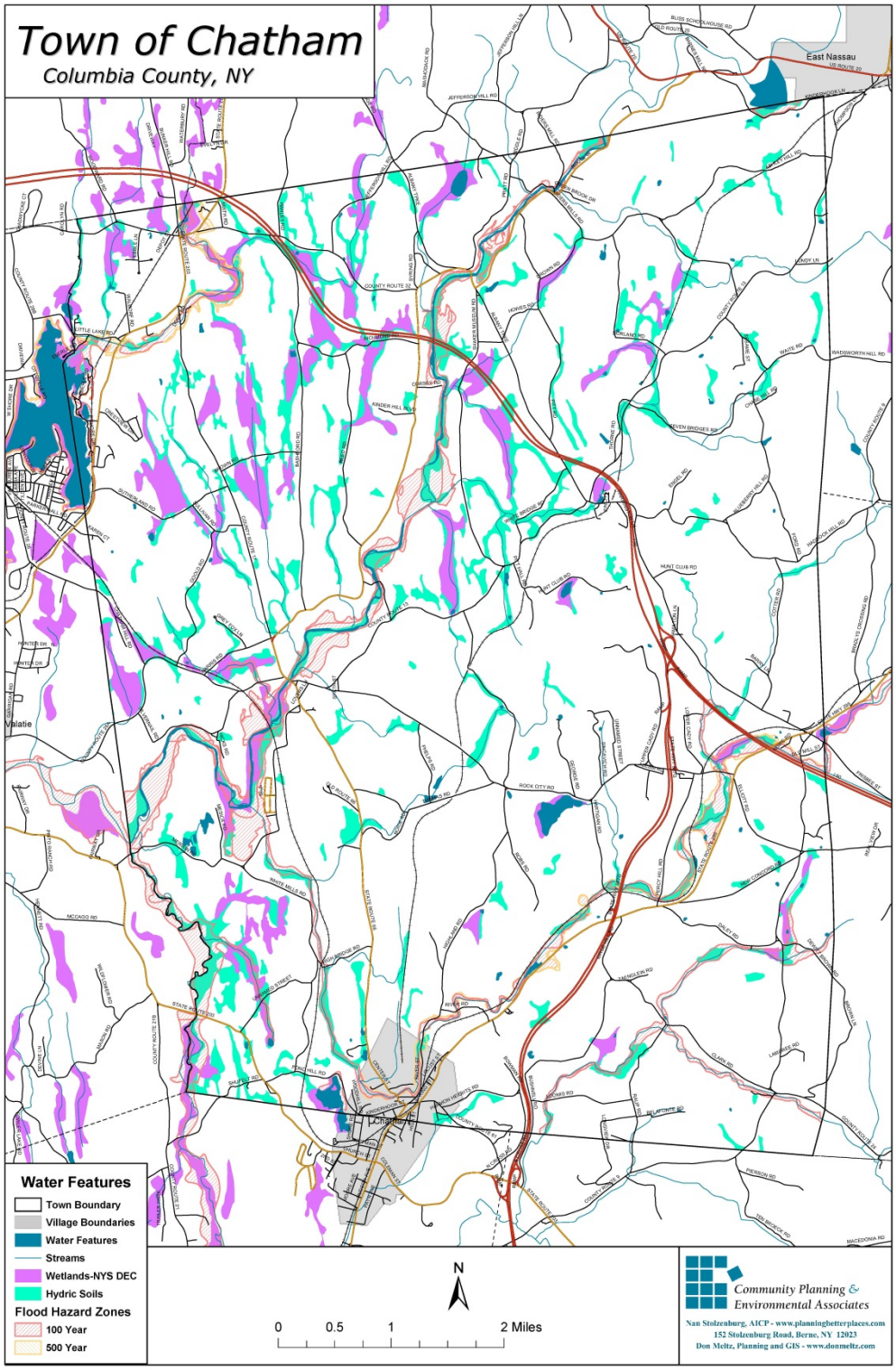


Figure 3: Bedrock and Geology Features in Town of Chatham

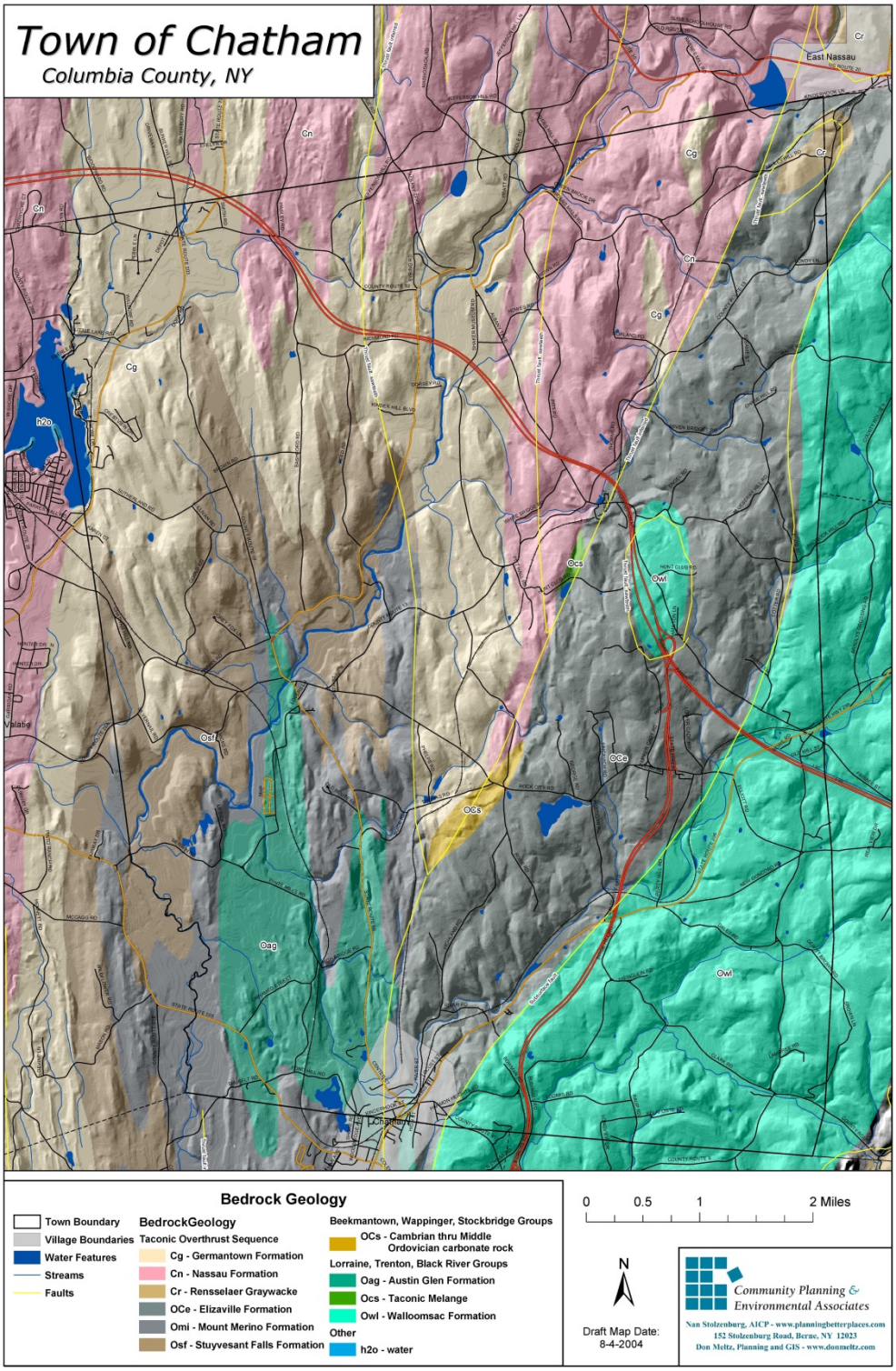


Figure 4: Property Classification for Town of Chatham

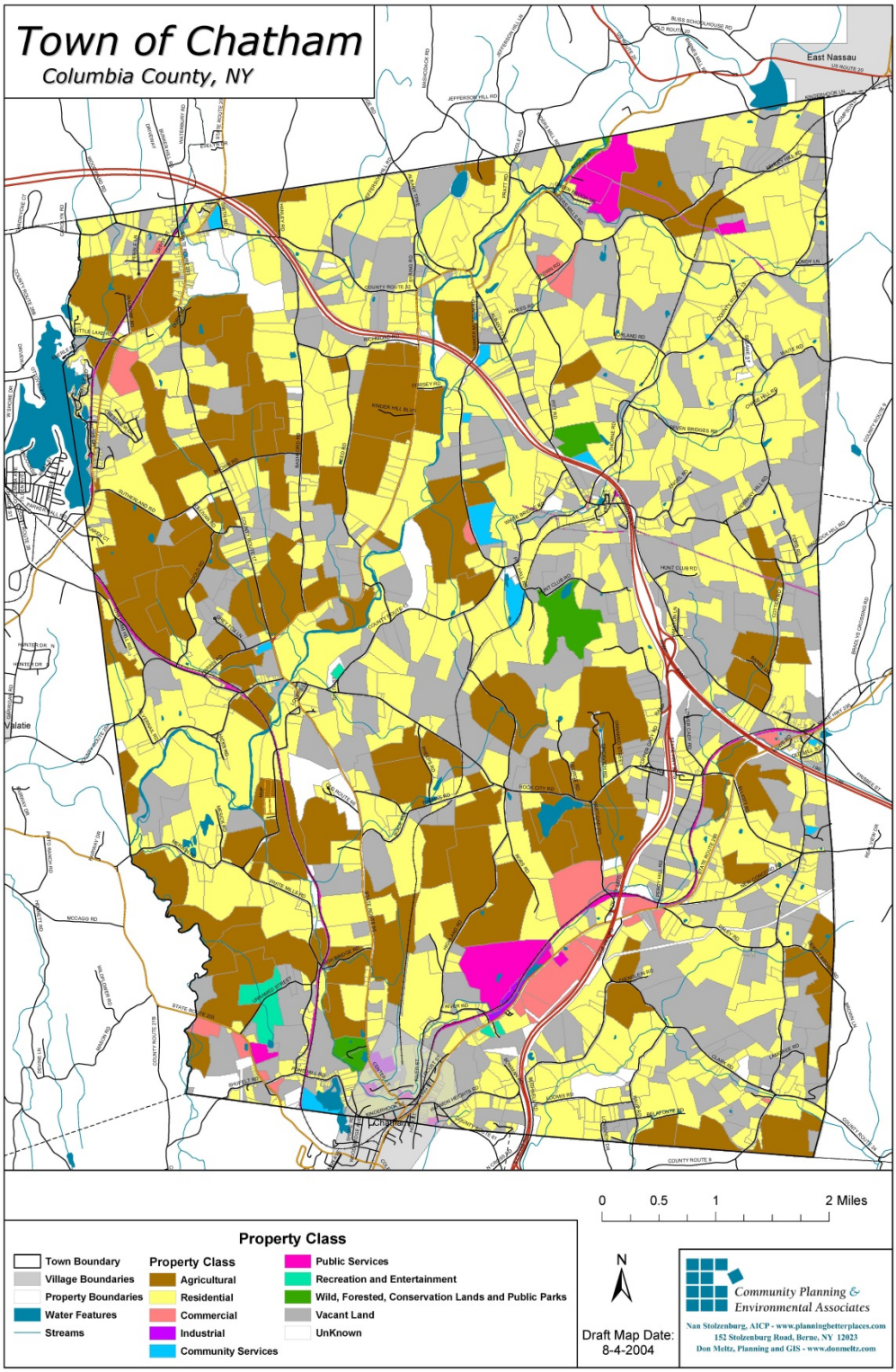


Figure 5: Farmland Property for Town of Chatham

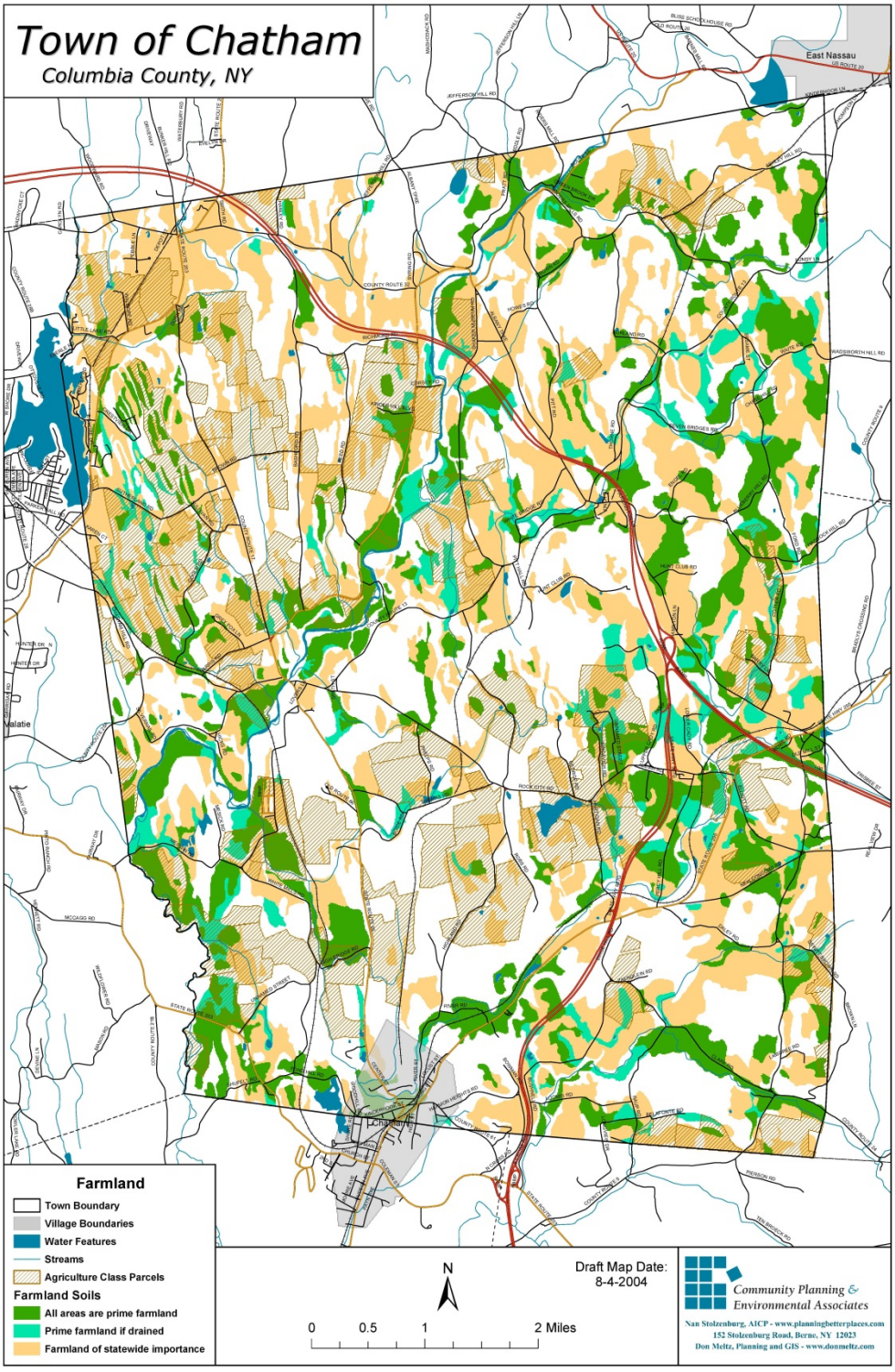


Figure 6: Historic Site in Town of Chatham

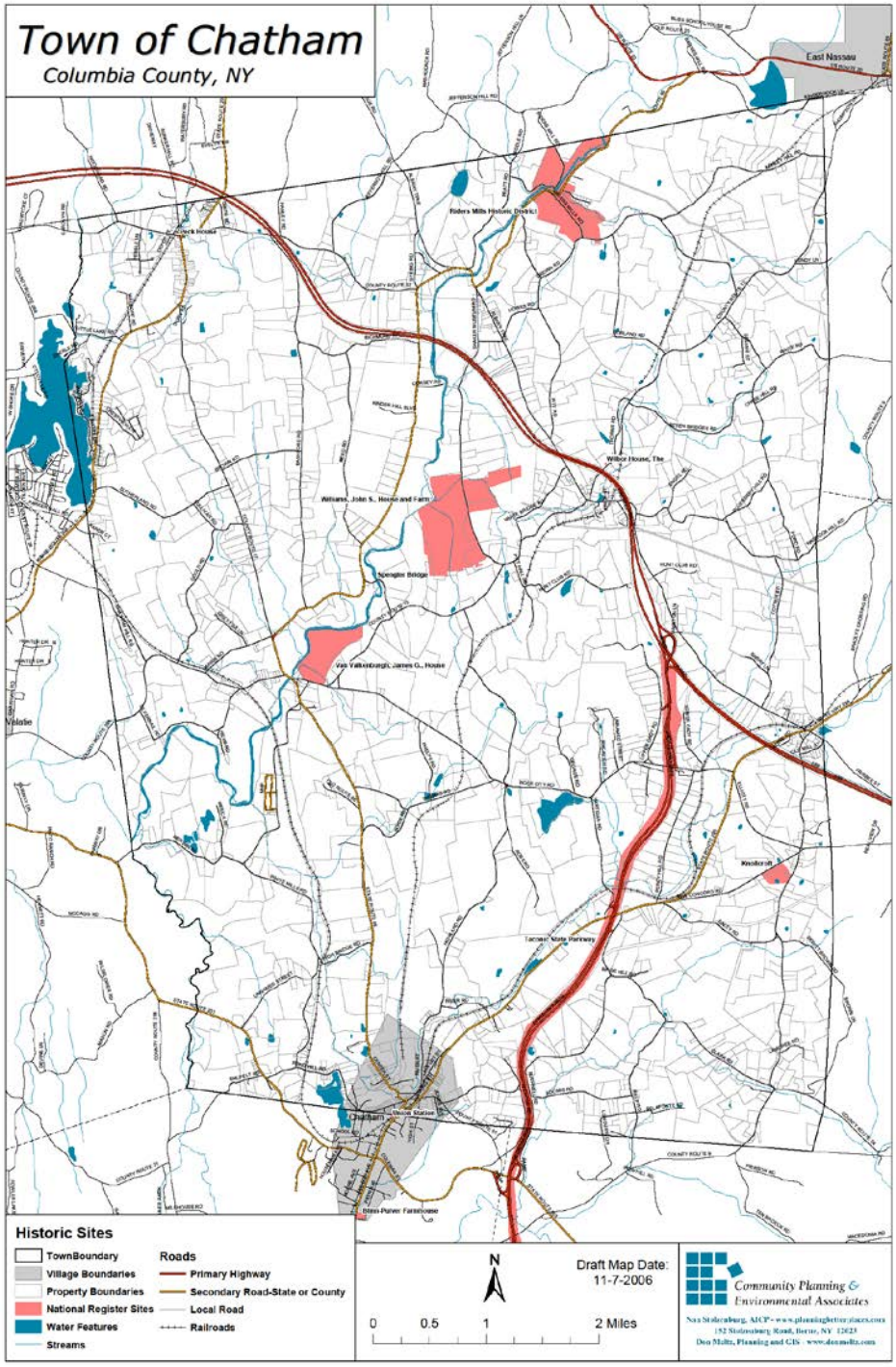
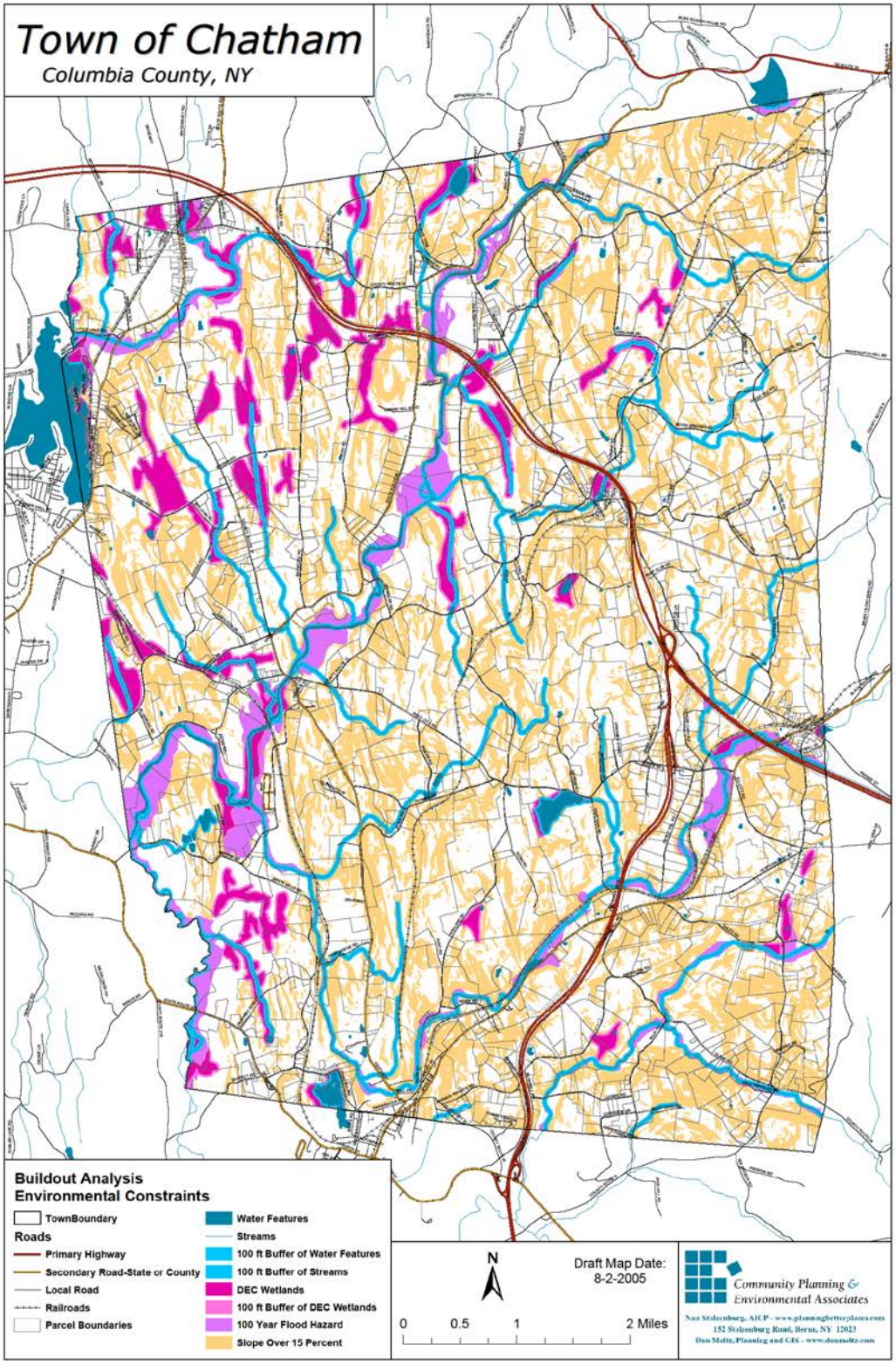


Figure 7: Build out Environmental Constraints for Town of Chatham



No known changes in land use patterns or development patterns have been identified in the Town of Chatham.

Critical Infrastructure

There are several structures considered critical to the Chatham's infrastructure including:

- USA Railroad Line;
- East Chatham Fire House;
- Chatham Town Hall located at 488 State Route 295;
- School District #1;
- Chatham Rescue Squad, Inc.;
- Taconic Telephone Company Infrastructure; and
- Chatham Library.

National Flood Insurance Program Participation

The Town of Chatham entered into the NFIP on 6/10/1977 with effective flood rate maps dated 9/15/1993. The Town maintains a Flood Damage Prevention Ordinance. The City's NFIP Program is overseen by the Zoning Enforcement Officer.

According to the NFIP data from FEMA, since 1978 there have been no repetitive loss claims.

Evacuation, Sheltering, and Housing

Coordination of evacuation operations is the responsibility of local law enforcement and will be guided by Columbia County's evacuation protocols. No jurisdiction-specific evacuation routes have been identified at this time.

Identification of sites for intermediate- and long-term housing is addressed in coordination with the County.

Capability Assessment

This section identifies the following capabilities of the local jurisdiction:

- Legal and regulatory capability;
- Administrative and technical capability; and
- Fiscal capability.

Table 4: Legal and Regulatory Capability		
Regulatory Tool	**Y/N**	**Comments**
Master Plan	Y	(Comprehensive Plan)
Zoning ordinance	Y	
Subdivision ordinance	Y	
Growth management ordinance	N	
Floodplain ordinance	Y	
Other special purpose ordinance (stormwater, steep slope, wildfire)	Y	
Building code	Y	
Fire department ISO rating	N	
Erosion or sediment control program	N	
Stormwater management program	N	
Site plan review requirements	Y	
Capital improvements plan	N	
Economic development plan	N	
Local emergency operations plan	Y	
Other special plans (i.e. flood mitigation plan)	Y	
Flood insurance study or other engineering study for streams	N	
Elevation certificates	N	
Other		

Table 5: Administrative and Technical Capability		
Regulatory Tool	**Y/N**	**Comments**
If you are a City or County jurisdiction, please describe is your government structure? (e.g. Commission, Mayor/City Council, how many members, etc.)	-	
Planner/Engineer with knowledge of land development/land management practices	Y	

Table 5: Administrative and Technical Capability		
Regulatory Tool	**Y/N**	**Comments**
Engineer/Professional trained in construction practices related to buildings and/or infrastructure	Y	
Planner/Engineer/Scientist with an understanding of natural hazards	Y	
Personnel skilled in GIS	Y	
Full time building official	Y	
Floodplain Manager	Y	Zoning Enforcement Officer
Emergency Manager	Y	
Grant writer	N	
Other personnel		
Other		

Table 6: Fiscal Capability		
Regulatory Tool	**Y/N**	**Comments**
Community Development Block Grants	N	
Capital improvements project funding	N	
Authority to levy taxes for specific purposes	N	
Fees for water, sewer, gas, or electric services	N	
Impact fees for new development	N	
Incur debt through general obligation bonds	Y	
Incur debt through special tax bonds	N	
Incur debt through private activities	N	
Withhold spending in hazard prone areas	N	
Other		

Town of Chatham Mitigation Strategies

Please refer to Chapter 5, tables 5-1 to view countywide as well as jurisdiction-specific mitigation strategies.

Table 7: Town of Chatham Mitigation Actions

Strategy	Mitigation Action	Applies to New or Existing Assets	Hazard(s) Mitigated	Objectives Met	Lead Agency	Support Agencies	Estimated Cost	Sources of Funding	Timeline
PPL-9	Clear debris in sluiceway on annual basis to improve drainage and alleviate road flooding.	Existing	All hazards	Goal 1, Objective 1 and 2; Goal 2, All Objectives, Goal 3, All Objectives	Highway Departm ent	None at this time	Moderate	Ancram Highway Department General Fund	1 year
PPL-10	Increase the culvert size on Highland Road and River Street to reduce washouts from Hunt Road to River Road.	Existing	All hazards	Goal 1, Objective 1 and 2; Goal 2, All Objectives, Goal 3, All Objectives	Highway Departm ent	None at this time	High	State/Federal grants	2 years

Status of Incorporation of Mitigation Planning Into Existing and Future Planning Mechanisms

Each jurisdiction within Columbia County intends to incorporate mitigation planning into daily municipal operations. Hazard mitigation will be an integral component of Town procedures. Planning mechanisms that have or will incorporate hazard mitigation planning include but are not limited to:

- Operating and Capital Improvement Budget;
- Building and Zoning Ordinances;
- Comprehensive Land Use Plan;
- Municipal Ordinances;
- Fire Plan;
- Local School Service Projects; and
- Economic Development Plan.

Specific actions that the community is taking or intends to pursue in the future include:

- The Town will consider establishing a line item in its municipal budget to fund pre-disaster mitigation projects to reduce its vulnerability.
- The Town will utilize the mitigation plan's risk assessment to guide emergency response planning including development of evacuation plans.
- The Town will consider development of a hazard mitigation goal in the next update of its Comprehensive Plan.

ADOPTION RESOLUTION

(Name of Jurisdiction) Town of Chatham

(Governing Body) Town Board

(Address) 488 NY-295, Chatham NY 12037

RESOLUTION

Whereas, the Town of Chatham recognizes the threat that natural hazards pose to people and property within our community; and
Whereas, undertaking hazard mitigation actions will reduce the potential for harm to people and property from future hazard occurrences; and
Whereas, the U.S. Congress passed the Disaster Mitigation Act of 2000 ("Disaster Mitigation Act") emphasizing the need for pre-disaster mitigation of potential hazards;
Whereas, the Disaster Mitigation Act made available hazard mitigation grants to state and local governments; and
Whereas, an adopted Multi-Jurisdictional Hazard Mitigation Plan is required as a condition of future funding for mitigation projects under mitigation FEMA pre- and post-disaster mitigation grant programs; and
Whereas, the Town of Chatham fully participated in the FEMA-prescribed mitigation planning process to prepare this Multi-Jurisdictional Hazard Mitigation Plan; and
Whereas, the New York Emergency Management Office and the Federal Emergency Management Agency Region II officials have reviewed the "Columbia County Multi-Jurisdictional Hazard Mitigation Plan" and approved it contingent upon this official adoption of the participating governing body; and
Whereas, the Town of Chatham desires to comply with the requirements of the Disaster Mitigation Act and to augment its emergency planning efforts by formally adopting the Columbia County Multi-Jurisdictional Hazard Mitigation Plan; and
Whereas, adoption by the governing body for the Town of Chatham the jurisdictions' commitment to fulfilling the mitigation goals and objectives outlined in the Multi-Jurisdictional Hazard Mitigation Plan.
Whereas, adoption of this legitimizes the plan and authorizes responsible agency to carry out their responsibilities under the plan;
Now, therefore, be it resolved, that the Town of Chatham adopts the "Columbia County Multi-Jurisdictional Hazard Mitigation Plan" as an official plan; and
Be it further resolved, the Town of Chatham will submit this Adoption Resolution to the New York State Office of Emergency Management and Federal Emergency Management Agency Region II officials to enable the plan's final approval.

Passed: _____

Certifying Official

TOWN OF CLAVERACK

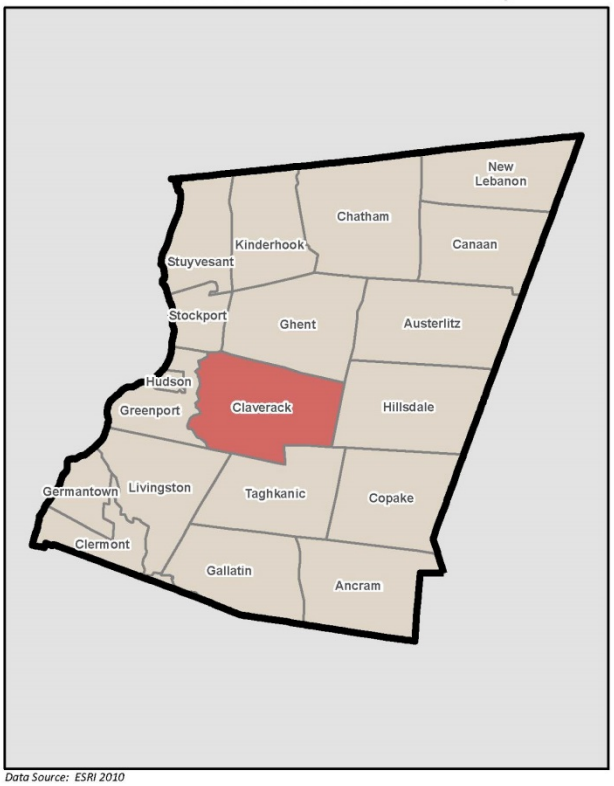
Last updated: 4/23/2018

Community Profile

Location and Geography

The Town of Claverack (Claverack) covers approximately 48 square miles in central Columbia County. It is bordered by the Town of Ghent and Stockport to the north, the Town of Greenport to the west, the Towns of Livingston and Taghkanic to the south, and the Town of Hillsdale to the east.

Town of Claverack Within Columbia County



Data Source: ESRI 2010

The principal streams are the Claverack and the Agawamuck Creeks and their tributaries. Claverack Creek runs through the township starting out in the Hamlet of Mellenville running southwest before turning north and going into Stockport Township. Taconic State Parkway passes through the town.

Climate

The climate in Claverack is similar to that of Columbia County, which experiences lows that range between 0°F and -10°F and highs of 90°F-100°F (NYS Climate Office Cornell ND).

Declared disasters include a flood in 2000 that flooded Webb Road and caused $75,000 in damages and a flood in 2005 around Claverack Creek that caused $285,000 in damages. Additional storm events include a high wind event in 2007 that caused numerous power outages in Claverack as a result of downed tree limbs and wire and additional flooding of Claverack Creek in 2005.

Population Trends and Demographics

Claverack has a total population of 6,021 people. The population of both Claverack and the Village of Philmont, which is located within the town but considered its own municipality, is approximately 9.5% of the total population in the Columbia County. The population is 93.4% White, 3.0% African-American, 0.7% Asian, and 2.9% other races, including Hispanics and Latinos and those that consider themselves to be of more than one race (U.S. Census Bureau 2010).

As shown in Table 1, the median age in the town is 46.2 years old. Approximately 21% of the population is over 65 while 5% is under 5 years old.

Table 1: Age Distribution in the Town of Claverack, 2000 to 2010

Age Group	Population	
	2000	**2010**
Under 5 years	301 (4.7%)	286 (4.8%)
65 years and older	1,224 (19.1%)	1,252 (20.8%)
Median Age	40.7	46.2

Sources: U.S. Census Bureau 2000, 2010

Governance

Due to recent redistricting, the Town of Claverack is now located within the 19th Congressional District, 43rd State Senate District, and 106th Assembly District (Columbia County Board of Elections 2012). The town has a Town Council that is made up of four elected councilmembers and a town supervisor, which oversees decisions at a local level. The Village of Philmont is separately governed and is discussed in the Village of Philmont profile.

Claverack is supported by six volunteer fire companies, including the A.B. Shaw Fire Company, Churchtown Fire Company, CraryVille Fire Company, Mellenville Fire Company, Philmont Fire Company, and the West Ghent Fire Company. Ambulance and rescue services are provided by the Greenport Rescue Squad.

Claverack has no town police, but is provided law enforcement support from the County Sheriff's Department and the State Police. The Village of Philmont also maintains a part-time police force.

Economy

Of the 6,021 people in the town, 1,379 reside within the Village of Philmont. Combined, Claverack and the Village of Philmont represent approximately 9.54% of the total population in Columbia County. The population of the two is 93.4% White, 3% African American, 0.7% Asian, and the balance is a mix of Hispanic, Native American, and those that consider themselves to be of more than one race.

Land Use

The western half of Claverack is primarily zoned for agricultural development and is a part of the District 3 Agricultural District (Town of Claverack 2013; Columbia County Planning 2005). The eastern portion of the town is primarily considered rural conservation land use. Interspersed throughout the township, are areas of hamlet residential and commercial development. A number of areas throughout the township are also zoned for mining (Town of Claverack 2013). Table 2 summarizes the types of structures found in Claverack.

Table 2: Structures in the Town of Claverack, Columbia County, New York				
Type of Structure (Occupancy Class)	**# in Community**	**$ in Community**	**No. in Hazard Area**	**$ in Hazard Area**
Residential	2,942	$586,072,000	31	$5,432,000
Commercial	157	$172,956,000	0	$2,859,000
Industrial	55	$90,533,000	0	$4,203,000
Agricultural	21	$9,214,000	0	$126,000
Religious/Non-Profit	16	$19,264,000	0	$235,000
Government	15	$1,278,000	0	$34,000
Education	3	$33,180,000	0	$233,000
Utilities	-	-	-	-
Total	**3,209**	**$912,497,000**	**31**	**$13,122,000**

No known changes in land use patterns or development patterns have been identified in the Town of Claverack.

Critical Infrastructure

Critical infrastructure within Claverack includes:

- NYS Correctional Facility;
- Mellenville Fire Company; and
- Valley Oil Company, Inc.

National Flood Insurance Program Participation

The Town of Claverack entered into the NFIP on 5/3/1974 with effective flood rate maps dated 9/6/1989. The Town maintains a Flood Damage Prevention Local Law (Section 7.2). The Town's NFIP Program is overseen by the Building Inspector.

According to the NFIP data from FEMA, since 1978 there have been no repetitive loss claims.

Evacuation, Sheltering, and Housing

Coordination of evacuation operations is the responsibility of local law enforcement and will be guided by Columbia County's evacuation protocols. No jurisdiction-specific evacuation routes have been identified at this time.

Identification of sites for intermediate- and long-term housing is addressed in coordination with the County.

Capability Assessment

This section identifies the following capabilities of the local jurisdiction:

- Legal and regulatory capability;
- Administrative and technical capability; and
- Fiscal capability.

Table 3: Legal and Regulatory Capability

Regulatory Tool	Y/N	Comments
Master Plan	Y	
Zoning ordinance	Y	
Subdivision ordinance	Y	
Growth management ordinance	Y	
Floodplain ordinance	Y	Flood Damage Prevention Local Law
Other special purpose ordinance (stormwater, steep slope, wildfire)	N	
Building code	Y	
Fire department ISO rating	Y	
Erosion or sediment control program	N	
Stormwater management program	N	
Site plan review requirements	Y	
Capital improvements plan	Y	
Economic development plan	Y	
Local emergency operations plan	Y	
Other special plans (i.e. flood mitigation plan)	N	

Table 3: Legal and Regulatory Capability		
Regulatory Tool	**Y/N**	**Comments**
Flood insurance study or other engineering study for streams	N	
Elevation certificates	N	
Other		

Table 4: Administrative and Technical Capability		
Regulatory Tool	**Y/N**	**Comments**
If you are a City or County jurisdiction, please describe is your government structure? (e.g. Commission, Mayor/City Council, how many members, etc.)	N	
Planner/Engineer with knowledge of land development/land management practices	Y	
Engineer/Professional trained in construction practices related to buildings and/or infrastructure	Y	
Planner/Engineer/Scientist with an understanding of natural hazards	Y	
Personnel skilled in GIS	Y	
Full time building official	Y	
Floodplain Manager	Y	Building Inspector
Emergency Manager	Y	
Grant writer	Y	
Other personnel		
Other		

Table 5: Fiscal Capability		
Regulatory Tool	**Y/N**	**Comments**
Community Development Block Grants	N	
Capital improvements project funding	Y	
Authority to levy taxes for specific purposes	Y	
Fees for water, sewer, gas, or electric services	Y	
Impact fees for new development	Y	
Incur debt through general obligation bonds	Y	
Incur debt through special tax bonds	N	
Incur debt through private activities	N	
Withhold spending in hazard prone areas	N	
Other		

Town of Claverack Mitigation Actions

Please refer to Chapter 5, tables 5-1 and 5-2 to view countywide as well as jurisdiction-specific mitigation strategies.

Table 7: Town of Claverack Mitigation Actions

Strategy	Mitigation Action	Applies to New or Existing Assets	Hazard(s) Mitigated	Objectives Met	Lead Agency	Support Agencies	Estimated Cost	Sources of Funding	Timeline
PPL-14	Develop and implement a program to annually inspect and repair the Philmont Reservoir Dam using local resources and inspectors.	Existing	All hazards	Goal 1, Objective 1 and 2; Goal 2, All Objectives, Goal 3, All Objectives	Highway Department	None at this time	Moderate	Town of Claverack and NRCS	5 years
PPL-15	Elevate water/wastewater treatment plant.	Existing	All hazards	Goal 1, Objective 1 and 2; Goal 2, All Objectives, Goal 3, All Objectives	Highway Department	None at this time	Low	General Fund	5 years

Status of Incorporation of Mitigation Planning Into Existing and Future Planning Mechanisms

Each jurisdiction within Columbia County intends to incorporate mitigation planning into daily municipal operations. Hazard mitigation will be an integral component of Town procedures. Planning mechanisms that have or will incorporate hazard mitigation planning include but are not limited to:

- Operating and Capital Improvement Budget;
- Building and Zoning Ordinances;
- Comprehensive Land Use Plan;
- Municipal Ordinances;
- Fire Plan;
- Local School Service Projects; and
- Economic Development Plan.

Specific actions that the community is taking or intends to pursue in the future include:

- The Town will consider establishing a line item in its municipal budget to fund pre-disaster mitigation projects to reduce its vulnerability.
- The Town will utilize the mitigation plan's risk assessment to guide emergency response planning including development of evacuation plans.
- The Town will consider development of a hazard mitigation goal in the next update of its Comprehensive Plan.

ADOPTION RESOLUTION

(Name of Jurisdiction) Town of Claverack

(Governing Body) Town Board

(Address) 836 Highway 217, Box 823, Philmont NY 12565

RESOLUTION

Whereas, the Town of Claverack recognizes the threat that natural hazards pose to people and property within our community; and
Whereas, undertaking hazard mitigation actions will reduce the potential for harm to people and property from future hazard occurrences; and
Whereas, the U.S. Congress passed the Disaster Mitigation Act of 2000 ("Disaster Mitigation Act") emphasizing the need for pre-disaster mitigation of potential hazards;
Whereas, the Disaster Mitigation Act made available hazard mitigation grants to state and local governments; and
Whereas, an adopted Multi-Jurisdictional Hazard Mitigation Plan is required as a condition of future funding for mitigation projects under mitigation FEMA pre- and post-disaster mitigation grant programs; and
Whereas, the Town of Claverack fully participated in the FEMA-prescribed mitigation planning process to prepare this Multi-Jurisdictional Hazard Mitigation Plan; and
Whereas, the New York Emergency Management Office and the Federal Emergency Management Agency Region II officials have reviewed the "Columbia County Multi-Jurisdictional Hazard Mitigation Plan" and approved it contingent upon this official adoption of the participating governing body; and
Whereas, the Town of Claverack desires to comply with the requirements of the Disaster Mitigation Act and to augment its emergency planning efforts by formally adopting the Columbia County Multi-Jurisdictional Hazard Mitigation Plan; and
Whereas, adoption by the governing body for the Town of Claverack the jurisdictions' commitment to fulfilling the mitigation goals and objectives outlined in the Multi-Jurisdictional Hazard Mitigation Plan.
Whereas, adoption of this legitimizes the plan and authorizes responsible agency to carry out their responsibilities under the plan;
Now, therefore, be it resolved, that the Town of Claverack adopts the "Columbia County Multi-Jurisdictional Hazard Mitigation Plan" as an official plan; and
Be it further resolved, the Town of Claverack will submit this Adoption Resolution to the New York State Office of Emergency Management and Federal Emergency Management Agency Region II officials to enable the plan's final approval.

Passed: _____

Certifying Official

TOWN OF CLERMONT

Last updated: 4/23/2018

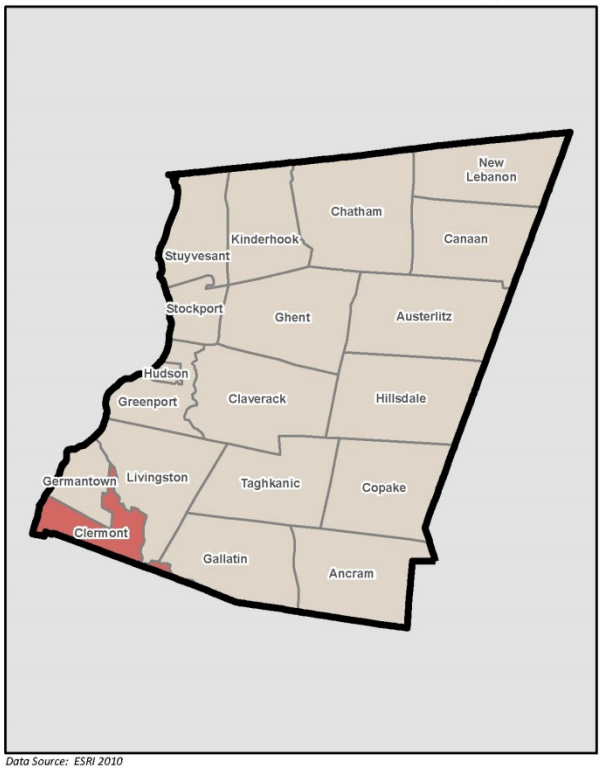
Community Profile

Location and Geography

The Town of Clermont (Clermont) is located in the southwestern corner of Columbia County covering 19.2 sq. miles. It is bordered by Germantown and Livingston to the north, Gallatin to the east, Ulster County, New York to the west and Duchess County, New York to the south.

Roeliff Jansen Kill, a Hudson River tributary, provides a natural border between the Town of Clermont and the Town of Livingston while the Hudson River separates the town from Ulster County, New York.

Town of Clermont Within Columbia County



Data Source: ESRI 2010

Climate

The climate in Clermont is similar to that of Columbia County, which experiences lows that range between 0°F and -10°F and highs of 90°F-100°F (NYS Climate Office Cornell ND).

Several severe weather storms have affected Columbia County and the greater Hudson Valley region over the last two decades. However, based on storm data collected by NOAA, summaries of regional storms only specifically noted damage to the Town of Clermont following a 2001 thunderstorm with winds between 60 and 70 mph. The storm destroyed a 4,200 square-foot-shed and ripped roofs off two barns. The storm caused $10,000 in damages and flooded other areas within the county (NOAA 2013).

Population and Demographics

The population of Clermont is 1,965, which is approximately 3.11% of the population of Columbia County. The population is 94.4% White, 0.8% African-American, 1.2% Asian, and 3.6% are a mix of Hispanic or Latino, Pacific Islander, or consider themselves to be of more than one race (U.S. Census Bureau 2010).

As shown in Table 1, the median age in the Town of Clermont is 43.8 years old, which is a steady increase from the median age reported in 2000. Approximately 14% of the population is over 65 while just over 5% is under 5 years of age (U.S. Census Bureau 2010).

Table 1: Age Distribution Town of Clermont, New York, 1990 to 2010

Age Group	Population		
	1990	**2000**	**2010**
Under 5 years	Not available	105 (6.1%)	102 (5.2%)
65 years and older	192 (13.2%)	203 (11.8%)	273 (13.9%)
Median Age	Not available	36.2	43.8

Sources: U.S. Census Bureau 1990, 2000, 2010

Although Clermont has a relatively youthful population for the region, the area has a tremendous sector of its population beginning to retire. This will affect overall employment, as discussed below in the discussion of Clermont's economy.

Governance

Clermont is located within the 19th Congressional District, 43rd State Senate District, and 106th Assembly District (Columbia County Board of Elections 2012). A Town Council, made up of four elected councilmembers and a town supervisor, oversees decisions at a local level.

The Clermont Fire District provides emergency fire protection services with support from the Clermont Volunteer Fire Company. Small sections of Clermont are also protected by Livingston and Milan Fire Companies.

Clermont does not have a police department dedicated to the town, but is provided law enforcement support from the County Sheriff's Department and resident Sheriff's deputy, and the State Police.

Economy

Based on U.S. Census Bureau statistics, 72% of the total population in Clermont is considered part of the labor force. Of the 72%, approximately 4.9% of the population is unemployed (U.S. Census Bureau 2010).

Over one third of the population (39%) is employed in management, business, science, and arts occupations. Service occupations provide jobs to 19% of the population; natural resource, construction and maintenance occupations make up 18% of the jobs; and sales and office occupations make up about 17% of the jobs. Educational services, health care and social assistance are the highest grossing industries within the county (U.S. Census Bureau 2010).

Land Use

Land use and development within Clermont has remained relatively consistent and rural throughout the township with most of the development occurring along primary road infrastructure such as Route 9. The hamlet of Clermont, on Route 9, is the most prominent residential settlement in which the town's municipal offices and a few businesses are located. Nevis, south on Route 9, and Elizaville, to the east, are the other two residential hamlets (Town of Clermont 2002).

The majority of the town is located on agricultural land that is located within Agricultural District 4. However, while agriculture remains a critical component of the local economy, mostly through field crop production, its role in supporting local property taxes has been greatly reduced. Also important is the lack of contribution of nonresidential land uses. While many communities enjoy at least some significant contribution from commercial tax "ratables", the Town of Clermont does not have any commercial land use classes contributing at least $1 million in total assessed value. The only exceptions are gas transmission lines and storage warehouses (Town of Clermont 2002). Table 2 summarizes the types of structures found in Clermont.

Table 2: Structures in the Town of Clermont, Columbia County, New York

Type of Structure (Occupancy Class)	# in Community	$ in Community	No. in Hazard Area	$ in Hazard Area
Residential	877	$139,309,000	2	$719,000
Commercial	41	$20,713,000	0	$403,000
Industrial	24	$11,438,000	0	$130,000
Agricultural	16	$9,014,000	0	$223,000
Religious/Non-Profit	4	$9,252,000	0	$0
Government	1	$832,000	0	$0
Education	0	$0	0	$0
Utilities	0	$0	0	$0
Total	**963**	**$190,558,000**	**2**	**$1,475,000**

National Flood Insurance Program Participation

The Town of Clermont entered into the NFIP on 11/8/1974 with effective flood rate maps dated 9/5/1984. The Town maintains a Flood Area Overzone Local Law (Section 4.17). The Town's NFIP Program is overseen by the Town Code Enforcement Officer.

According to the NFIP data from FEMA, since 1978 there have been no repetitive loss claims.

Evacuation, Sheltering, and Housing

Coordination of evacuation operations is the responsibility of local law enforcement and will be guided by Columbia County's evacuation protocols. No jurisdiction-specific evacuation routes have been identified at this time.

Identification of sites for intermediate- and long-term housing is addressed in coordination with the County.

Capability Assessment

This section identifies the following capabilities of the local jurisdiction:

- Legal and regulatory capability;
- Administrative and technical capability; and
- Fiscal capability.

Table 3: Legal and Regulatory Capability

Regulatory Tool	Y/N	Comments
Master Plan	Y	
Zoning ordinance	Y	
Subdivision ordinance	Y	
Growth management ordinance	N	
Floodplain ordinance	Y	Flood Area Overzone Local Law
Other special purpose ordinance (stormwater, steep slope, wildfire)	N	
Building code	Y	
Fire department ISO rating	-	
Erosion or sediment control program	Y	Overseen by Town CEO
Stormwater management program	N	
Site plan review requirements	Y	
Capital improvements plan	Y	

Table 3: Legal and Regulatory Capability		
Regulatory Tool	**Y/N**	**Comments**
Economic development plan	Y	
Local emergency operations plan	Y	
Other special plans (i.e. flood mitigation plan)	N	
Flood insurance study or other engineering study for streams	N	
Elevation certificates	N	
Other	Y	Town Emergency Management Plan

Table 4: Administrative and Technical Capability		
Regulatory Tool	**Y/N**	**Comments**
If you are a City or County jurisdiction, please describe is your government structure? (e.g. Commission, Mayor/City Council, how many members, etc.)	N/A	
Planner/Engineer with knowledge of land development/land management practices	Y	Morris Assoc./Contract
Engineer/Professional trained in construction practices related to buildings and/or infrastructure	Y	
Planner/Engineer/Scientist with an understanding of natural hazards	Y	Morris Assoc./Contract
Personnel skilled in GIS	N	
Full time building official	N	Part-time
Floodplain Manager	Y	Code Enforcement Officer
Emergency Manager	Y	
Grant writer	Y	Town Board Members
Other personnel		
Other		

Table 5: Fiscal Capability		
Regulatory Tool	**Y/N**	**Comments**
Community Development Block Grants	-	
Capital improvements project funding	-	
Authority to levy taxes for specific purposes	Y	Fire District
Fees for water, sewer, gas, or electric services	-	
Impact fees for new development	-	
Incur debt through general obligation bonds	N	
Incur debt through special tax bonds	N	
Incur debt through private activities	N	
Withhold spending in hazard prone areas	N	
Other		

Town of Clermont Mitigation Actions

Please refer to Chapter 5, tables 5-1 and 5-2 to view countywide as well as jurisdiction-specific mitigation strategies.

Table 6: Town of Clermont Mitigation Actions

Strategy	Mitigation Action	Applies to New or Existing Assets	Hazard(s) Mitigated	Objectives Met	Lead Agency	Support Agencies	Estimated Cost	Sources of Funding	Timeline
PES-18	Removal of power lines, trees, and brush for the implementation of national grid.	Both	All Hazards	Goal 1, Objective 1 and 2; Goal 2, All Objectives, Goal 3, All Objectives	CCEMO/ Highway Dept.	None at this time	Low	County/Highway Fund	1 year
PES-19	Evaluate and manage debris along all town roads, culvert replacement, and road ditching.	Both	Flooding	Goal 1, Objective 1 and 2; Goal 2, All Objectives, Goal 3, All Objectives	Town Administration	NYSDEC	Medium	Town Budget	Ongoing

Status of Incorporation of Mitigation Planning Into Existing and Future Planning Mechanisms

Each jurisdiction within Columbia County intends to incorporate mitigation planning into daily municipal operations. Hazard mitigation will be an integral component of Town procedures. Planning mechanisms that have or will incorporate hazard mitigation planning include but are not limited to:

- Operating and Capital Improvement Budget;
- Building and Zoning Ordinances;
- Comprehensive Land Use Plan;
- Municipal Ordinances;
- Fire Plan;
- Local School Service Projects; and
- Economic Development Plan.

Specific actions that the community is taking or intends to pursue in the future include:

- The Town will consider establishing a line item in its municipal budget to fund pre-disaster mitigation projects to reduce its vulnerability.
- The Town will utilize the mitigation plan's risk assessment to guide emergency response planning including development of evacuation plans.
- The Town will consider development of a hazard mitigation goal in the next update of its Comprehensive Plan.

ADOPTION RESOLUTION

(Name of Jurisdiction) Town of Clermont

(Governing Body) Town Board

(Address) 1795 NYS Bicycle Route 9, Germantown NY 12536

RESOLUTION

Whereas, the Town of Clermont recognizes the threat that natural hazards pose to people and property within our community; and
Whereas, undertaking hazard mitigation actions will reduce the potential for harm to people and property from future hazard occurrences; and
Whereas, the U.S. Congress passed the Disaster Mitigation Act of 2000 ("Disaster Mitigation Act") emphasizing the need for pre-disaster mitigation of potential hazards;
Whereas, the Disaster Mitigation Act made available hazard mitigation grants to state and local governments; and
Whereas, an adopted Multi-Jurisdictional Hazard Mitigation Plan is required as a condition of future funding for mitigation projects under mitigation FEMA pre- and post-disaster mitigation grant programs; and
Whereas, the Town of Clermont fully participated in the FEMA-prescribed mitigation planning process to prepare this Multi-Jurisdictional Hazard Mitigation Plan; and
Whereas, the New York Emergency Management Office and the Federal Emergency Management Agency Region II officials have reviewed the "Columbia County Multi-Jurisdictional Hazard Mitigation Plan" and approved it contingent upon this official adoption of the participating governing body; and
Whereas, the Town of Clermont desires to comply with the requirements of the Disaster Mitigation Act and to augment its emergency planning efforts by formally adopting the Columbia County Multi-Jurisdictional Hazard Mitigation Plan; and
Whereas, adoption by the governing body for the Town of Clermont demonstrates the jurisdictions' commitment to fulfilling the mitigation goals and objectives outlined in the Multi-Jurisdictional Hazard Mitigation Plan.
Whereas, adoption of this legitimizes the plan and authorizes responsible agency to carry out their responsibilities under the plan;
Now, therefore, be it resolved, that the Town of Clermont adopts the "Columbia County Multi-Jurisdictional Hazard Mitigation Plan" as an official plan; and
Be it further resolved, the Town of Clermont will submit this Adoption Resolution to the New York State Office of Emergency Management and Federal Emergency Management Agency Region II officials to enable the plan's final approval.

Passed: _____

Certifying Official

TOWN OF COPAKE

Last updated: 4/23/2018

Community Profile

Location and Geography

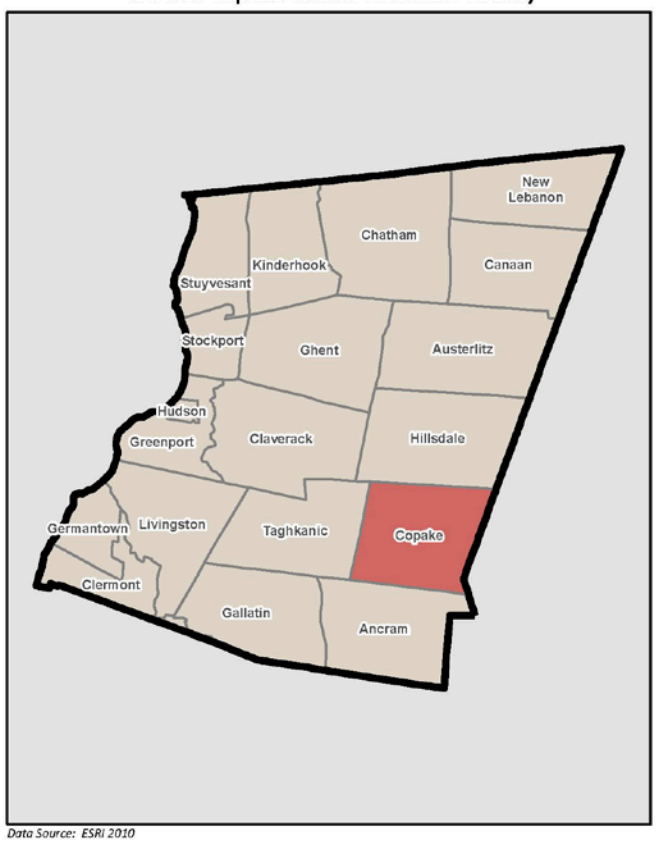
The Town of Copake (Copake) covers 42.1 square miles and is bounded by the towns of Hillsdale to the north, Ancram to the south and Taghkanic to the west. The eastern town line is bordered by the town of Mount Washington, Berkshire County, Massachusetts and the Taconic State Park. Its average elevation is 550 feet above sea level.

Climate

The climate in Copake is similar to that of Columbia County which experiences lows that range between 0°F and -10°F and highs of 90°F-100°F (NYS Climate Office Cornell ND).

In 2000, a declared flood disaster caused $1,500,000 in damages and closed Lackawanna, Trout Brook and Twin Bridges Roads in Copake. Additional storm events that affected Copake include a freeze in 2005 that ended the growing season early when temperatures fell below 32 degrees; three winter storms in 1997, 2002 and 2004 which caused 11 inches, 6.7 inches, and 11.3 inches of snowfall respectively; and high wind events in 1996 and 2006 that caused $89,000 collectively in damages due to downed power line and trees.

Town of Copake Within Columbia County



Data Source: ESRI 2010

Population and Demographics

The population of Copake is 3,615, which is approximately 5.73% of the population in Columbia County. The population is 96% White, 0.9% African American, 0.7% Asian, 2.4% Hispanic/Latino, American Indian and those that are a combination of one or more races (U.S. Census Bureau 2010).

As shown in Table 1, the median age in Copake is 45.8 years old. Approximately 17.9% of the population is over 65 while 4.3% is under 5 years old (U.S. Census Bureau 2010).

Table 1: Age Distribution Town of Copake, New York, 2000 to 2010

Age Group	Population	
	2000	**2010**
Under 5 years	139 (4.2%)	156 (4.3%)
65 years and older	599 (18.3%)	648 (19.7%)
Median Age	41.7	45.8

Sources: U.S. Census Bureau 2000, 2010

Governance

Copake is located within the 19th Congressional District, 43rd State Senate District, and 106th Assembly District (Columbia County Board of Elections 2012). A Town Council, made up of four elected councilmembers and a town supervisor, oversees decisions at a local level.

The Copake Fire Company provides fire protection and emergency services to the town. Services include fire suppression, auto extrication, rescue services, hazardous conditions response, fire education, and mutual aid to surrounding fire districts, including those in Massachusetts and Connecticut (Town of Copake 2009).

In the 2011 elections the town voted to dissolve its police force. However, law enforcement support is provided to the town from the County Sheriff's Department and the New York State Police.

Economy

Based on U.S. Census Bureau statistics, 62.5% of the total population in Copake is considered part of the labor force, of which, 4.9% is unemployed.

Copake residents work in a wide variety of sectors with over one third of the population (35.2%) employed in management, business, science, and arts occupations. Service occupations provide jobs to 24% of the population; sales and office occupations make up about 19.2%; production, transportation, and material moving occupations make up 13.9%; and natural resource, construction and maintenance occupations make up 7.8% of the jobs (U.S. Census Bureau 2010). The educational, health care and social assistance services industries are of the highest grossing industries within the county.

The largest employers within the town include the Taconic School District, Camphill Village, the Rescue Squad, town government and High Voltage, Inc. (Town of Copake 2009).

Land Use

Copake is a rural community comprised mostly of dispersed residential uses and farms on country roads. Commercial uses are generally focused in the hamlets, particularly those of Copake and Copake Falls. Multi-family homes occupy 27.5% of the land area, agricultural uses cover 28.5%, vacant lands make up an additional 25%, forested lands make up 14%, and additional uses such as commercial development make up the balance of the 25,429 acres or 5% (Town of Copake 2011). According to Copake's 2011 comprehensive plan, the town imagines a future land use pattern largely unchanged from today. However, continued population growth will result in competition for rural land.

As shown in Table 3, the majority of structures within the town are residential followed by commercial and industrial uses.

Table 2: Structures in the Town of Copake

Type of Structure (Occupancy Class)	Number of Structures			Value of Structures		
	# in Community	# in Hazard Area	% in Hazard Area	$ in Community	$ in Hazard Area	% in Hazard Area
Residential	2814	186	6.6	$425,400,193	$4,055,822	1
Commercial	63	19	30.2	$14,291,761	$6,737,623	47.1
Industrial	2	0	0	$496,000	$0	0
Agricultural	25	0	0	$13,391,524	$0	0
Religious/Non-Profit	51	0	0	$67,811,214	$0	0
Government	13	0	0	$7,681,800	$0	0
Education	3	0	0	$42,317,300	$0	0
Utilities	0	0	0	$0	$0	0
Total	**2971**	**205**	**7.2**	**$585,681,553**	**$10,793,445**	**2**

No known changes in land use patterns or development patterns have been identified in the Town of Copake.

Critical Infrastructure

Critical infrastructure in Copake is shown in Table 3 below.

Table 3: Critical Infrastructure and Cost Value in the Town of Copake

Structure	Type	Location	Cost (in Thousands)
Copake Fire House	Fire	County Route 7A	$1,518,200
Craryville Fire House	Fire	County Route 7	$746,800
Taconic Hills C.S.D.	School	73 County Route 11A	$39,863,200
Community Rescue Squad Facilities	Building	Mountain View Rd	$452,400
CMH Rapid Care	Building	Mt. View Road	1,000,000
Church Museum	Building	Miles Road	$900,000
Copake Town Hall	Building	230 Mt. View Rd	$1,305,200
Copake Memorial Park	Building	305 Mt. View Road	$900,000
Copake Highway Department	Buildings	47 School Road	$1,000,000
Col. County Highway Outpost	Buildings	County Route 7	$336,300
Camphill Village	Buildings	Camphill Road	$8,840,800
-Newman Veteran's Home	Buildings	Route 22	$303,900
C.O.A.R.C.	Buildings	County Route 7	$1,033,200
Roe Jan Library	Library	State Route 22	$775,000
Camp Waubeeka Campground	Campground	Farm Road	$1,370,400
Camp Pontiac Children Camp	Campground	Hastings Road	$3,112,000
Copake KOA Campground	Campground	County Road 7	$694,000

Table 3: Critical Infrastructure and Cost Value in the Town of Copake

Structure	Type	Location	Cost (in Thousands)
Fairmont Telephone Office	Building	County Route 7A	$6,737,623

National Flood Insurance Program Participation

The Town of Copake entered into the NFIP on 5/24/1974 with effective flood rate maps dated 6/19/1985. The Town's NFIP Program is overseen by the Code Enforcement Officer. The Town maintains a Flood Damage Prevention regulation in Chapter 135 of the Town Code, and additional flood district regulations.

According to the NFIP data from FEMA, since 1978 there have been 6 repetitive loss claims resulting in $70,879 in payments. The latest claim was in 2011. These claims were spread between 3 properties as follows:

- Single Family Residences – 3
- Other Residences – 0
- Non-Residences – 0

Evacuation, Sheltering, and Housing

Coordination of evacuation operations is the responsibility of local law enforcement and will be guided by Columbia County's evacuation protocols. No jurisdiction-specific evacuation routes have been identified at this time.

Identification of sites for intermediate- and long-term housing is addressed in coordination with the County.

Capability Assessment

This section identifies the following capabilities of the local jurisdiction:

- Legal and regulatory capability;
- Administrative and technical capability; and
- Fiscal capability.

Table 4: Legal and Regulatory Capability

Regulatory Tool	Y/N	Comments
Master Plan	Y	
Zoning ordinance	Y	
Subdivision ordinance	Y	

Table 4: Legal and Regulatory Capability		
Regulatory Tool	**Y/N**	**Comments**
Growth management ordinance	N	
Floodplain ordinance	Y	Flood Damage Prevention regulation in Chapter 135 of the Town Code
Other special purpose ordinance (stormwater, steep slope, wildfire)	N	
Building code	Y	Version: 2010 Uniform Building & Fire Codes of N.Y.S.
Fire department ISO rating	Y	Rating:9
Erosion or sediment control program	Y	
Stormwater management program	Y	
Site plan review requirements	Y	
Capital improvements plan	Y	
Economic development plan	Y	
Local emergency operations plan	Y	
Other special plans (i.e. flood mitigation plan)	N	
Flood insurance study or other engineering study for streams	N	
Elevation certificates	N	
Inter-Municipal Agreement	Y	Agreement with surrounding Towns, County & School District
Other		

Table 5: Administrative and Technical Capability		
Regulatory Tool	**Y/N**	**Comments**
If you are a City or County jurisdiction, please describe is your government structure? (e.g. Commission, Mayor/City Council, how many members, etc.)	-	

Table 5: Administrative and Technical Capability		
Regulatory Tool	**Y/N**	**Comments**
Planner/Engineer with knowledge of land development/land management practices	Y	Town Engineer
Engineer/Professional trained in construction practices related to buildings and/or infrastructure	Y	Town Engineer
Planner/Engineer/Scientist with an understanding of natural hazards	Y	Town Engineer
Personnel skilled in GIS	Y	Councilperson
Full time building official	N	CEO & Building Dept. Part time
Floodplain Manager	Y	Flood Enforcement Officer
Emergency Manager	N	
Grant writer	N	
Other personnel	-	
Other		

Table 6: Fiscal Capability		
Regulatory Tool	**Y/N**	**Comments**
Community Development Block Grants	N	
Capital improvements project funding	N	
Authority to levy taxes for specific purposes	Y	
Fees for water, sewer, gas, or electric services	N	
Impact fees for new development	N	
Incur debt through general obligation bonds	Y	
Incur debt through special tax bonds	Y	
Incur debt through private activities	N	
Withhold spending in hazard prone areas	N	

Table 6: Fiscal Capability		
Regulatory Tool	**Y/N**	**Comments**
Other		

Town of Copake Mitigation Actions

Please refer to Chapter 5, tables 5-1 and 5-2 to view countywide as well as jurisdiction-specific mitigation strategies.

Table 7: Town of Copake Mitigation Actions

Strategy	Mitigation Action	Applies to New or Existing Assets	Hazard(s) Mitigated	Objectives Met	Lead Agency	Support Agencies	Estimated Cost	Sources of Funding	Timeline
EP-5	Review Comprehensive Plan to bring lessons learned from mitigation planning process into other planning processes.	Existing	All Hazards	Goal 1, Objective 1 and 2; Goal 2, All Objectives, Goal 3, All Objectives	Town Board	None at this time	Low	General Budget	1 year
PES-13	Annual update to the Town's Snow and Ice Policy and Emergency Management Plan to mitigate winter storm related risks.	Existing	Winter storms	Goal 1, Objective 1 and 2; Goal 2, All Objectives, Goal 3, All Objectives	Highway Dept. & E.M.T.	None at this time	Low	State/Federal grants	1 year
PES-14	Annual tree and limb maintenance program to reduce risk of power outages.	Both	All Hazards	Goal 1, Objective 1 and 2; Goal 2, All Objectives, Goal 3, All Objectives	Town Highway Dept.	None at this time	Low	Highway Budget	1 year
PPL-25	Installation of 1,750' snow fence to protect roads during snowstorms.	New	Winter storms	Goal 1, Objective 1 and 2; Goal 2, All Objectives, Goal 3, All Objectives	Town Highway Dept.	None at this time	Low	Highway Budget	1 year
PPL-26	Annual inspections and cleaning of culverts and ditches town wide	Existing	Flooding	Goal 1, Objective 1 and 2; Goal 2, All Objectives, Goal 3, All Objectives	Town Highway Dept.	None at this time	Low	Highway Budget	1 year

PPL-27	Sunset Road Project maintenance prevents hazardous road conditions by strengthening roadway.	New	All Hazards	Goal 1, Objective 1 and 2; Goal 2, All Objectives, Goal 3, All Objectives	Town Highway Dept.	None at this time	Medi um	FEMA & Highway Budget	5 years

Status of Incorporation of Mitigation Planning Into Existing and Future Planning Mechanisms

Each jurisdiction within Columbia County intends to incorporate mitigation planning into daily municipal operations. Hazard mitigation will be an integral component of Town procedures. Planning mechanisms that have or will incorporate hazard mitigation planning include but are not limited to:

- Operating and Capital Improvement Budget;
- Building and Zoning Ordinances;
- Comprehensive Land Use Plan;
- Municipal Ordinances;
- Fire Plan;
- Local School Service Projects; and
- Economic Development Plan.

Specific actions that the community is taking or intends to pursue in the future include:

- The Town will consider establishing a line item in its municipal budget to fund pre-disaster mitigation projects to reduce its vulnerability.
- The Town will utilize the mitigation plan's risk assessment to guide emergency response planning including development of evacuation plans.
- The Town will consider development of a hazard mitigation goal in the next update of its Comprehensive Plan.

ADOPTION RESOLUTION

(Name of Jurisdiction) Town of Copake

(Governing Body) Town Board

(Address) 1795 NYS Bicycle Route 9, Germantown NY 12536

RESOLUTION

Whereas, the Town of Copake recognizes the threat that natural hazards pose to people and property within our community; and
Whereas, undertaking hazard mitigation actions will reduce the potential for harm to people and property from future hazard occurrences; and
Whereas, the U.S. Congress passed the Disaster Mitigation Act of 2000 ("Disaster Mitigation Act") emphasizing the need for pre-disaster mitigation of potential hazards;
Whereas, the Disaster Mitigation Act made available hazard mitigation grants to state and local governments; and
Whereas, an adopted Multi-Jurisdictional Hazard Mitigation Plan is required as a condition of future funding for mitigation projects under mitigation FEMA pre- and post-disaster mitigation grant programs; and
Whereas, the Town of Copake fully participated in the FEMA-prescribed mitigation planning process to prepare this Multi-Jurisdictional Hazard Mitigation Plan; and
Whereas, the New York Emergency Management Office and the Federal Emergency Management Agency Region II officials have reviewed the "Columbia County Multi-Jurisdictional Hazard Mitigation Plan" and approved it contingent upon this official adoption of the participating governing body; and
Whereas, the Town of Copake desires to comply with the requirements of the Disaster Mitigation Act and to augment its emergency planning efforts by formally adopting the Columbia County Multi-Jurisdictional Hazard Mitigation Plan; and
Whereas, adoption by the governing body for the Town of Copake demonstrates the jurisdictions' commitment to fulfilling the mitigation goals and objectives outlined in the Multi-Jurisdictional Hazard Mitigation Plan.
Whereas, adoption of this legitimizes the plan and authorizes responsible agency to carry out their responsibilities under the plan;
Now, therefore, be it resolved, that the Town of Copake adopts the "Columbia County Multi-Jurisdictional Hazard Mitigation Plan" as an official plan; and
Be it further resolved, the Town of Copake will submit this Adoption Resolution to the New York State Office of Emergency Management and Federal Emergency Management Agency Region II officials to enable the plan's final approval.

Passed: _____

Certifying Official

TOWN OF GALLATIN

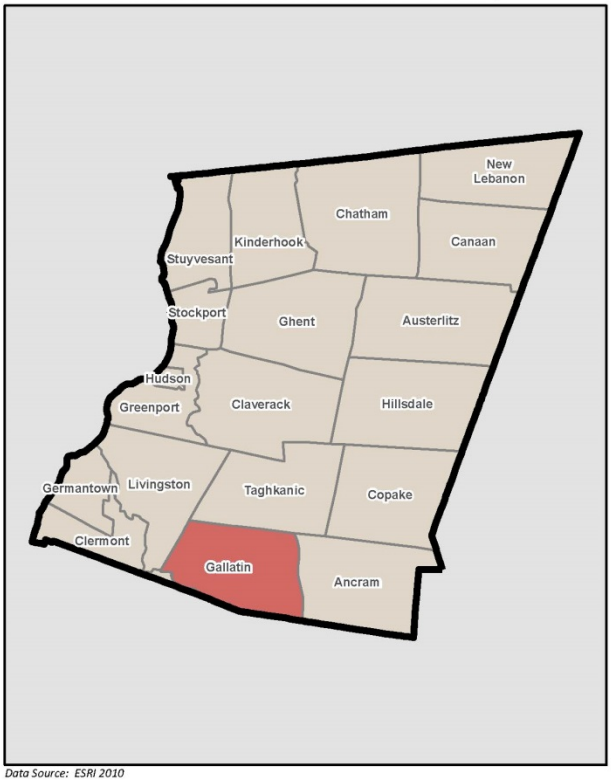
Last updated: 4/23/2018

Community Profile

Location and Geography

The Town of Gallatin (Gallatin) is located along the southern border of Columbia County, New York covering approximately 19.6 square miles. It is bordered by the Town of Taghkanic to the north, the Towns of Livingston and Clermont to the west, the town of Ancram to the east and Dutchess County, New York to the south.

Town of Gallatin Within Columbia County



Data Source: ESRI 2010

Climate

The climate in Gallatin is consistent with that of Columbia County, which experiences lows that range between 0°F and -10°F and highs of 90°F-100°F (NYS Climate Office Cornell ND).

Population Trends and Demographics

The population of Gallatin is 1668, which represents 2.64% of the population in Columbia County. The population is 97.2% White, 0.7% African American, 0.4% Asian, and 1.7% Hispanic/Latino or more than one race (U.S. Census Bureau 2010).

As shown in Table 1, the median age is 46.1 years old. Approximately 17% of the population is over 65 while 5% is under 5 years old (U.S. Census Bureau 2010).

Table 1: Age Distribution Town of Gallatin, New York, 2000 to 2010

Age Group	Population	
	2000	**2010**
Under 5 years	65 (4.3%)	83 (5%)
65 years and older	231 (15.4%)	282 (16.9%)
Median Age	41.6	46.1

Sources: U.S. Census Bureau 2000, 2010

Governance

Gallatin is located within the 19th Congressional District, 43rd State Senate District, and 106th Assembly District (Columbia County Board of Elections 2012). A Town Board, made up of four elected board members and one elected supervisor, oversees decisions at a local level (Town of Gallatin 2013).

The town contracts with several fire and emergency services departments including the Milan Fire and Ambulance Department, Pine Plains Fire and Ambulance Department, Ancram Fire Department, Livingston Fire Department, Copake Community Rescue, Northern Dutchess Paramedics, and the Tagghkanic Fire Department. All of the services listed within Columbia County services Columbia County are staffed by volunteers.

Gallatin has no municipal police department, but is provided law enforcement support from the County Sheriff's Department and the State Police. Lake Taghkanic State Park has park police to handle enforcement of park regulations (Town of Gallatin 2007).

Economy

Based on U.S. Census Bureau statistics, 73.5% of the total population in Gallatin is considered part of the labor force. Of the 73.5%, approximately 5.8% is unemployed (U.S. Census Bureau 2010).

Over one third of the population (37.6%) is employed in management, business, science, and arts occupations. Service occupations provide jobs to 20.8% of the population; natural resource, construction and maintenance occupations make up 18.6% of the jobs; sales and office occupations make up about 17.6%; production, transportation, and material moving occupations make up 5.4%. The educational, health care and social assistance services industries are of the highest grossing industries within the county followed by construction and retail trade respectively (U.S. Census Bureau 2010).

Land Use

The most prevalent land uses found in Gallatin are residential (42%); wild, forested, and/or conservation land (17%); and agriculture (13%). The local tax assessor has classified over 22% of the land area as vacant. Table 2 shows a breakdown of land uses within the township.

Table 2: Land Uses Within the Town of Gallatin

Property Class	Acres	Percent of Town Area	Number of Parcels
Agricultural	3,353	13.2	39
Residential	10,611	41.8	877
Commercial	56	0.22	4
Vacant Land	5,769	22.7	322

Table 2: Land Uses Within the Town of Gallatin

Property Class	Acres	Percent of Town Area	Number of Parcels
Wild, Forested Conservation Land and public parks	4,387	17.3	113
Community Services	25	0.1	11
Public Services	53	0.2	6
Road Rights of Way	808	3.2	(NA)
Unclassified	312	1.2	71
Total	**25,374**	--	**1,400**

Source: Town of Gallatin 2007

Agricultural uses are limited in Gallatin by the topography, soils, and the many wetlands and other water constraints found in the town. The 41 parcels that are classified as agricultural are all within Agricultural District 4 (Columbia County Planning 2005). These parcels are primarily located within the northwest and southeast corners of the township.

As shown in Table 3, the majority of structures within the town are residential followed by commercial and then industrial uses.

Table 3: Structures in the Town of Gallatin

Type of Structure (Occupancy Class)	Number of Structures			Value of Structures		
	# in Community	# in Hazard Area	% in Hazard Area	$ in Community	$ in Hazard Area	% in Hazard Area
Residential	877	156	17.8	$164,899,477	$28,032,911	17
Commercial	1	0	0	$355,000	$0	0
Industrial	1	0	0	$1,957,900	$0	0
Agricultural	39	39	100	$22,721,577	$22,721,577	100
Religious/Non-Profit	3	0	0	$365,000	$0	0
Government	4	0	0	$1,300,000	$0	0
Education	0	0	0	$0	$0	0
Utilities	2	2	100	$3,628,783	$3,628,783	100
Total	**927**	**197**	**20.3**	**$195,227,737**	**$54,383,271**	**27.9**

No known changes in land use patterns or development patterns have been identified in the Town of Gallatin.

Critical Infrastructure

Critical infrastructure within the Town of Gallatin, including the cost value of the infrastructure, when available, is included in Table 4.

Table 4: Critical Infrastructure and Cost Value in the Town of Gallatin

Name or Description of Asset	Sources of Information	Size of Building (sq. ft.)	Replacement Value ($)	Contents Value ($)	Function Use or Value ($)	Displacement Cost ($ per day)	Occupancy or Capacity (#)
Flat Brook Bridge	Public Works	50 ft. long	$250,000	$0	$31,750	$12,000	0
Sewage treatment Plant	Public Works	75,000	$2,500,000	$2,500,000	$30,000,000	$200,000	10
STP Out Building	Public Works	10,000	$1,000,000	$30,000	$250,000	$5,000	2
STP Out Building	Public Works	7,500	$75,000	$25,000	$500,000	$1,000	1
Water Treatment Plant	Public Works	3,000	$250,000	$1,250,000	$1,000,000	$2,000	5
Canaan General Hospital	Hospital	45,000	$2,500,000	$3,750,000	$750,000	$2,500	100
Police/Fire Station	Police Department	10,000	$2,000,000	$1,500,000	$350,000	$2,000	150
Flat Brook Covered Bridge	Covered Bridge Society	60 ft. long	$250,000	$0	$500,000	$250	0

National Flood Insurance Program Participation

The Town of Gallatin entered into the NFIP on 10/25/1974 with effective flood rate maps dated 10/16/1984. The Town's NFIP Program is overseen by the Town Zoning Enforcement Officer. Conservation and Watercourse Protection Overlay Districts restrict construction and development within mapped floodplains.

According to the NFIP data from FEMA, since 1978 there have been no repetitive loss claims.

Evacuation, Sheltering, and Housing

Coordination of evacuation operations is the responsibility of local law enforcement and will be guided by Columbia County's evacuation protocols. No jurisdiction-specific evacuation routes have been identified at this time.

Identification of sites for intermediate- and long-term housing is addressed in coordination with the County.

Capability Assessment

This section identifies the following capabilities of the local jurisdiction:

- Legal and regulatory capability;
- Administrative and technical capability; and
- Fiscal capability.

Table 5: Legal and Regulatory Capability

Regulatory Tool	Y/N	Comments
Master Plan	Y	2010 Comp plan
Zoning ordinance	Y	
Subdivision ordinance	Y	
Growth management ordinance	N	
Floodplain ordinance	Y	Part of zoning
Other special purpose ordinance (stormwater, steep slope, wildfire)	Y	Zoning Law Storm water, steep slope)
Building code	Y	NYS Building Cod
Fire department ISO rating		
Erosion or sediment control program	Y	DEC regulations
Stormwater management program	Y	DEC Regulations
Site plan review requirements	Y	Zoning Law
Capital improvements plan	N	
Economic development plan	N	
Local emergency operations plan	Y	Columbia County Plan
Other special plans (i.e. flood mitigation plan)	N	
Flood insurance study or other engineering study for streams	N	
Elevation certificates	N	
Other	N	

Table 6: Administrative and Technical Capability		
Regulatory Tool	**Y/N**	**Comments**
If you are a City or County jurisdiction, please describe is your government structure? (e.g. Commission, Mayor/City Council, how many members, etc.)	N	4 councilman, 1 supervisor
Planner/Engineer with knowledge of land development/land management practices	Y	contracted
Engineer/Professional trained in construction practices related to buildings and/or infrastructure	Y	contracted
Planner/Engineer/Scientist with an understanding of natural hazards	Y	contracted
Personnel skilled in GIS	N	
Full time building official	N	
Floodplain Manager	Y	Zoning Enforcement Officer
Emergency Manager	Y	town supervisor
Grant writer	N	
Other personnel	Y	4 highway workers
Other	Y	town clerk

Table 7: Fiscal Capability		
Regulatory Tool	**Y/N**	**Comments**
Community Development Block Grants	N	
Capital improvements project funding	N	
Authority to levy taxes for specific purposes	Y	
Fees for water, sewer, gas, or electric services	N	
Impact fees for new development	N	

Table 7: Fiscal Capability		
Regulatory Tool	**Y/N**	**Comments**
Incur debt through general obligation bonds	Y	
Incur debt through special tax bonds	Y	
Incur debt through private activities	N	
Withhold spending in hazard prone areas	Y	
Other		

Town of Gallatin Mitigation Actions

Please refer to Chapter 5, tables 5-1 and 5-2 to view countywide as well as jurisdiction-specific mitigation strategies.

Table 7: Town of Gallatin Mitigation Actions

Strategy	Mitigation Action	Applies to New or Existing Assets	Hazard(s) Mitigated	Objectives Met	Lead Agency	Support Agencies	Estimated Cost	Sources of Funding	Timeline
PES-7	Develop and implement a transportation study to identify and improve roads most vulnerable to flood hazards.								
PES-8	Develop and implement a transportation study to identify and improve roads most vulnerable to flood hazards.	Both	Flooding	Goal 1, Objective 1 and 2; Goal 2, All Objectives, Goal 3, All Objectives	Highway Department	None at this time	Mode rate	TBD	1 year
PES-20	Purchase backup generator for Gallatin Highway Garage.	New	All Hazards	Goal 1, Objective 1 and 2; Goal 2, All Objectives, Goal 3, All Objectives	Highway Department	None at this time	Low	HMGP – DR 1857	1 year
PPL-32	Replace Elsohn Road Culvert to address damage caused by DR 1857.	Existing	Flooding	Goal 1, Objective 1 and 2; Goal 2, All Objectives, Goal 3, All Objectives	Highway Department	None at this time	High	HMGP – DR 1857	1 year
PPL-33	Replace Kosowski Road Culvert.	Existing	Flooding	Goal 1, Objective 1 and 2; Goal 2, All Objectives, Goal 3, All Objectives	Highway Department	None at this time	High	HMGP – DR 1857	1 year

Status of Incorporation of Mitigation Planning Into Existing and Future Planning Mechanisms

Each jurisdiction within Columbia County intends to incorporate mitigation planning into daily municipal operations. Hazard mitigation will be an integral component of Town procedures. Planning mechanisms that have or will incorporate hazard mitigation planning include but are not limited to:

- Operating and Capital Improvement Budget;
- Building and Zoning Ordinances;
- Comprehensive Land Use Plan;
- Municipal Ordinances;
- Fire Plan;
- Local School Service Projects; and
- Economic Development Plan.

Specific actions that the community is taking or intends to pursue in the future include:

- The Town will consider establishing a line item in its municipal budget to fund pre-disaster mitigation projects to reduce its vulnerability.
- The Town will utilize the mitigation plan's risk assessment to guide emergency response planning including development of evacuation plans.
- The Town will consider development of a hazard mitigation goal in the next update of its Comprehensive Plan.

ADOPTION RESOLUTION

(Name of Jurisdiction) Town of Gallatin

(Governing Body) Town Board

(Address) 667 County Route 7, Gallatin NY 12567

RESOLUTION

Whereas, the Town of Gallatin recognizes the threat that natural hazards pose to people and property within our community; and
Whereas, undertaking hazard mitigation actions will reduce the potential for harm to people and property from future hazard occurrences; and
Whereas, the U.S. Congress passed the Disaster Mitigation Act of 2000 ("Disaster Mitigation Act") emphasizing the need for pre-disaster mitigation of potential hazards;
Whereas, the Disaster Mitigation Act made available hazard mitigation grants to state and local governments; and
Whereas, an adopted Multi-Jurisdictional Hazard Mitigation Plan is required as a condition of future funding for mitigation projects under mitigation FEMA pre- and post-disaster mitigation grant programs; and
Whereas, the Town of Gallatin fully participated in the FEMA-prescribed mitigation planning process to prepare this Multi-Jurisdictional Hazard Mitigation Plan; and
Whereas, the New York Emergency Management Office and the Federal Emergency Management Agency Region II officials have reviewed the "Columbia County Multi-Jurisdictional Hazard Mitigation Plan" and approved it contingent upon this official adoption of the participating governing body; and
Whereas, the Town of Gallatin desires to comply with the requirements of the Disaster Mitigation Act and to augment its emergency planning efforts by formally adopting the Columbia County Multi-Jurisdictional Hazard Mitigation Plan; and
Whereas, adoption by the governing body for the Town of Gallatin demonstrates the jurisdictions' commitment to fulfilling the mitigation goals and objectives outlined in the Multi-Jurisdictional Hazard Mitigation Plan.
Whereas, adoption of this legitimizes the plan and authorizes responsible agency to carry out their responsibilities under the plan;
Now, therefore, be it resolved, that the Town of Gallatin adopts the "Columbia County Multi-Jurisdictional Hazard Mitigation Plan" as an official plan; and
Be it further resolved, the Town of Gallatin will submit this Adoption Resolution to the New York State Office of Emergency Management and Federal Emergency Management Agency Region II officials to enable the plan's final approval.

Passed: _____

Certifying Official

TOWN OF GERMANTOWN

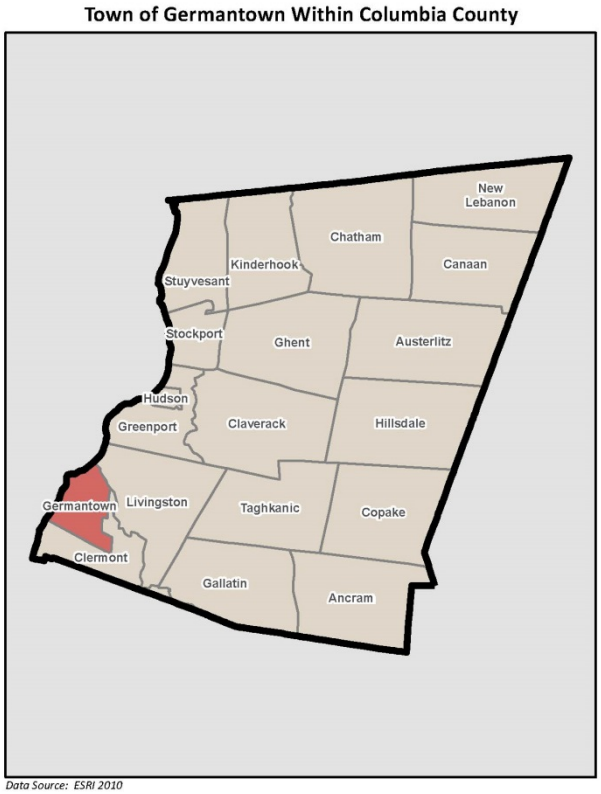
Last updated: 4/23/2018

Community Profile

Location and Geography

The Town of Germantown (Germantown) covers approximately 13.9 square miles, the second smallest town in Columbia County, New York. It is located in southwestern Columbia County and is surrounded by the Town of Livingston to the northeast and the Town of Clermont to the east and south. The Hudson River provides a natural border along the west between the town and Greene and Ulster Counties, New York.

Roeliff Jansen Creek, which splits off forming Klein Kill Creek, also provides a natural border between Germantown and Livingston.



Centered in the historic and scenic Hudson Valley, Germantown commands beautiful views of the northern Catskill Mountains range to its west.

Climate

The climate in Germantown is similar to that of Columbia County, which experiences lows that range between 0°F and -10°F and highs of 90°F-100°F (NYS Climate Office Cornell ND).

In 2000, a state of emergency was declared in Germantown and Canaan due to countywide flooding. The storm caused about $100,000 in damages and one death. In 2010, high winds caused downed trees throughout Germantown. While additional county and region-wide forms have affected Germantown, no other specific narrative has been provided by NOAA for the town over the last couple of decades.

The Town has hosted a three-town forum on Climate Change.

Population Trends and Demographics

The population of Germantown is 1,954, which represents 3.10% of the total population in Columbia County. The population is 95.8% white, 0.8% African American, 1.2% Asian, and 2.2% Hispanic/Latino or are of more than one race (U.S. Census Bureau 2010).

As shown in Table 1, the median age in Germantown is 46.1 years old. Over 20% of the population is over the age of 65 while just over 4% is under the age of 5 years old (U.S. Census Bureau 2010).

Table 1: Age Distribution Town of Germantown, New York: 2000 to 2010

Age Group	Population	
	2000	**2010**
Under 5 years	90 (4.5%)	82 (4.2%)
65 years and older	365 (18.1%)	404 (20.7%)
Median Age	41.8	46.1

Sources: U.S. Census Bureau 2000, 2010

Governance

Germantown is located within the 19th Congressional District, 43rd State Senate District, and 106th Assembly District (Columbia County Board of Elections 2012). A Town Council made up of four councilmembers and a town supervisor provides local governance.

The Germantown Hose Company is a centrally located volunteer fire fighting company that provides emergency services, including firefighting and rescue support to Germantown. This company also provides mutual aid assistance to several neighboring companies. It operates two engines, one engine/tanker, one heavy rescue truck, one light rescue/brush vehicle, an EMS van, an ice rescue van and a rescue boat for rescues on the Hudson River.

Germantown has no municipal police department, but is provided law enforcement support from the County Sheriff's department and the State Police.

Economy

Based on U.S. Census Bureau statistics, 61% of the total population in Germantown is considered part of the labor force. Of the 61%, approximately 3.8% is unemployed (U.S. Census Bureau 2010).

Over one third of the population (33.9%) is employed in management, business, science, and arts occupations. Sales and office occupations make up about 23.8%; service occupations provide jobs to 20.1% of the population; natural resource, construction and maintenance occupations make up 11.6% of the jobs; and production, transportation, and material moving occupations make up 10.6%. The educational, health care and social assistance services industries are of the highest grossing industries within the county followed by retail trade and professional, scientific, and management services (U.S. Census Bureau).

Increasing commercial and business activities in the Albany region are creating housing needs that could turn towns like Germantown into commuter residences. To the south, gentrification of rural communities, rapid first- and second-home residential expansion and unregulated commercial sprawl already seen in some parts of Dutchess County will likely become part of a growing trend that may affect Germantown in the future unless steps are taken to control it.

Land Use

Although the town exceeds New York State's definition of rural, which is defined as encompassing 150 residents or less per square mile, the town is characterized by large open fields and woods surrounded by scattered homes. With working farms and no large apartment or condominium developments, it has maintained a rural existence. Significant farmland is primarily found in the east and southeast areas of the county, where lands are enrolled in Agricultural District 4, which also extends into the Towns of Clermont and Livingston. As of 2004, approximately 15% of the agricultural land in Germantown was used for farming, representing a steady decline since the late 1980s when over 32% of the agricultural land was used for farming (Town of Germantown Comprehensive Plan). Hay and pasture account for the largest uses, followed by corn, and fruit, primarily apples and pears. However, much of the farmland has given way to rural residential uses. There are also several parcels noted in the town with recently abandoned orchards and fields formerly used for hay, pasture and vegetable crops.

As shown in Table 2, the majority of structures within the town are residential followed by commercial and industrial.

Table 2: Structures in the Town of Germantown, Columbia County, New York

Type of Structure (Occupancy Class)	# in Community	$ in Community	No. in Hazard Area	$ in Hazard Area
Residential	1024	$207,703,000	1	$773,000
Commercial	41	$18,175,000	0	$71,000
Industrial	14	$28,063,000	0	$605,000
Agricultural	10	$4,656,000	0	$0
Religious/Non-Profit	2	$3,464,000	0	$0
Government	7	$0	0	$0
Education	0	$22,990,000	0	$687,000

Table 2: Structures in the Town of Germantown, Columbia County, New York				
Type of Structure (Occupancy Class)	**# in Community**	**$ in Community**	**No. in Hazard Area**	**$ in Hazard Area**
Utilities	0	$0	0	$0
Total	**1098**	**$285,051,000**	**1**	**$2,136,000**

National Flood Insurance Program Participation

The Town of Germantown entered into the NFIP on 11/15/1974 with effective flood rate maps dated 5/11/1979. The Town maintains a Flood Damage Prevention Local Law (Local Law #1 of 1987). The Town's NFIP Program is overseen by the Code Enforcement Officer.

According to the NFIP data from FEMA, since 1978 there have been no repetitive loss claims.

Evacuation, Sheltering, and Housing

Coordination of evacuation operations is the responsibility of local law enforcement and will be guided by Columbia County's evacuation protocols. No jurisdiction-specific evacuation routes have been identified at this time.

Identification of sites for intermediate- and long-term housing is addressed in coordination with the County.

Capability Assessment

This section identifies the following capabilities of the local jurisdiction:

- Legal and regulatory capability;
- Administrative and technical capability; and
- Fiscal capability.

Table 3: Legal and Regulatory Capability		
Regulatory Tool	**Y/N**	**Comments**
Master Plan	Y	
Zoning ordinance	Y	
Subdivision ordinance	Y	
Growth management ordinance	N	
Floodplain ordinance	Y	Flood Damage Prevention Local Law (Local Law #1 of 1987).

Table 3: Legal and Regulatory Capability		
Regulatory Tool	**Y/N**	**Comments**
Other special purpose ordinance (stormwater, steep slope, wildfire)	N	
Building code	Y	
Fire department ISO rating	-	
Erosion or sediment control program	N	
Stormwater management program	N	
Site plan review requirements	Y	
Capital improvements plan	N	
Economic development plan	N	
Local emergency operations plan	Y	
Other special plans (i.e. flood mitigation plan)	N	
Flood insurance study or other engineering study for streams	N	
Elevation certificates	N	
Other		

Table 4: Administrative and Technical Capability		
Regulatory Tool	**Y/N**	**Comments**
If you are a City or County jurisdiction, please describe is your government structure? (e.g. Commission, Mayor/City Council, how many members, etc.)	-	
Planner/Engineer with knowledge of land development/land management practices	Y	Town Engineer
Engineer/Professional trained in construction practices related to buildings and/or infrastructure	Y	Code Enforcement Officer
Planner/Engineer/Scientist with an understanding of natural hazards	N	

Table 4: Administrative and Technical Capability		
Regulatory Tool	**Y/N**	**Comments**
Personnel skilled in GIS	N	
Full time building official	N	
Floodplain Manager	Y	Code Enforcement Officer
Emergency Manager	N	
Grant writer	N	
Other personnel	N	
Other		

Table 5: Fiscal Capability		
Regulatory Tool	**Y/N**	**Comments**
Community Development Block Grants	Y	
Capital improvements project funding	Y	Sidewalk project, WWTP upgrade
Authority to levy taxes for specific purposes	Y	
Fees for water, sewer, gas, or electric services	Y	Sewer and lighting
Impact fees for new development	Y	
Incur debt through general obligation bonds	Y	
Incur debt through special tax bonds	Y	
Incur debt through private activities	Y	
Withhold spending in hazard prone areas	N	
Other		

Town of Germantown Mitigation Actions

Please refer to Chapter 5, tables 5-1 and 5-2 to view countywide as well as jurisdiction-specific mitigation strategies.

Table 6: Town of Germantown Mitigation Actions

Strategy	Mitigation Action	Applies to New or Existing Assets	Hazard(s) Mitigated	Objectives Met	Lead Agency	Support Agencies	Estimated Cost	Sources of Funding	Timeline
IPA-4	Generate a cost-effective option for improving drainage systems through an initial study of appropriate systems.	Existing	Flooding	Goal 1, Objective 1 and 2; Goal 2, All Objectives, Goal 3, All Objectives	Town Supervisor	None at this time	Mod erate	State/Federal grants	2 years
IPA-5	Generate a cost-effective option for improving drainage systems through an initial study of appropriate systems.	Existing	Flooding	Goal 1, Objective 1 and 2; Goal 2, All Objectives, Goal 3, All Objectives	Town Supervisor	None at this time	Mod erate	State NFIP, NRCS, FEMA, and Town of Germantown	1 year
PES-10	Develop an Emergency Preparedness Plan in conjunction with the town and fire departments.	Existing	All Hazards	Goal 1, Objective 1 and 2; Goal 2, All Objectives, Goal 3, All Objectives	Town Supervisor	None at this time	Low	State/Federal grants	1 year
PES-11	Develop an inventory and map of structures that are vulnerable to damage during severe weather.	Existing	All Hazards	Goal 1, Objective 1 and 2; Goal 2, All Objectives, Goal 3, All Objectives	Town Supervisor	None at this time	Mod erate	State/Federal grants	5 years
PPL-18	Powder Mill Spring Dam Restoration Project designed to improve the structural integrity of the dam and improve flood controls.	Both	All Hazards	Goal 1, Objective 1 and 2; Goal 2, All Objectives, Goal 3, All Objectives	Town Supervisor	None at this time	Mod erate	State NFIP, FEMA, and Town of Germantown	5 years

Status of Incorporation of Mitigation Planning Into Existing and Future Planning Mechanisms

Each jurisdiction within Columbia County intends to incorporate mitigation planning into daily municipal operations. Hazard mitigation will be an integral component of Town procedures. Planning mechanisms that have or will incorporate hazard mitigation planning include but are not limited to:

- Operating and Capital Improvement Budget;
- Building and Zoning Ordinances;
- Comprehensive Land Use Plan;
- Municipal Ordinances;
- Fire Plan;
- Local School Service Projects; and
- Economic Development Plan.

Specific actions that the community is taking or intends to pursue in the future include:

- The Town will utilize the mitigation plan's risk assessment to guide emergency response planning including development of evacuation plans.
- The Town will consider development of a hazard mitigation goal in the next update of its Comprehensive Plan.
- The Town is forming a committee to review the Comprehensive Plan.
- The Town has received funding for a Local Waterfront Redevelopment Plan.
- The Town participated in a Habitat, Water Resources and Climate Resilience Study by NYSDEC Hudson River estuary Program.

ADOPTION RESOLUTION

(Name of Jurisdiction) Town of Germantown

(Governing Body) Town Board

(Address) 50 Palatine Park Road, Germantown NY 12526

RESOLUTION

Whereas, the Town of Germantown recognizes the threat that natural hazards pose to people and property within our community; and
Whereas, undertaking hazard mitigation actions will reduce the potential for harm to people and property from future hazard occurrences; and
Whereas, the U.S. Congress passed the Disaster Mitigation Act of 2000 ("Disaster Mitigation Act") emphasizing the need for pre-disaster mitigation of potential hazards;
Whereas, the Disaster Mitigation Act made available hazard mitigation grants to state and local governments; and
Whereas, an adopted Multi-Jurisdictional Hazard Mitigation Plan is required as a condition of future funding for mitigation projects under mitigation FEMA pre- and post-disaster mitigation grant programs; and
Whereas, the Town of Germantown fully participated in the FEMA-prescribed mitigation planning process to prepare this Multi-Jurisdictional Hazard Mitigation Plan; and
Whereas, the New York Emergency Management Office and the Federal Emergency Management Agency Region II officials have reviewed the "Columbia County Multi-Jurisdictional Hazard Mitigation Plan" and approved it contingent upon this official adoption of the participating governing body; and
Whereas, the Town of Germantown desires to comply with the requirements of the Disaster Mitigation Act and to augment its emergency planning efforts by formally adopting the Columbia County Multi-Jurisdictional Hazard Mitigation Plan; and
Whereas, adoption by the governing body for the Town of Germantown demonstrates the jurisdictions' commitment to fulfilling the mitigation goals and objectives outlined in the Multi-Jurisdictional Hazard Mitigation Plan.
Whereas, adoption of this legitimizes the plan and authorizes responsible agency to carry out their responsibilities under the plan;
Now, therefore, be it resolved, that the Town of Germantown adopts the "Columbia County Multi-Jurisdictional Hazard Mitigation Plan" as an official plan; and
Be it further resolved, the Town of Germantown will submit this Adoption Resolution to the New York State Office of Emergency Management and Federal Emergency Management Agency Region II officials to enable the plan's final approval.
Passed: _____

Certifying Official

TOWN OF GHENT

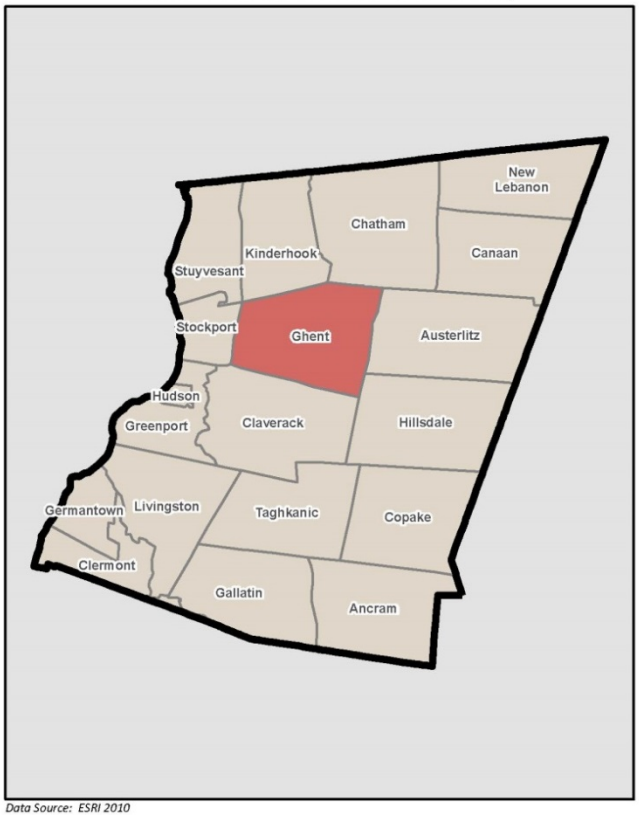
Last updated: 4/23/2018

Community Profile

Location and Geography

The Town of Ghent (Ghent) covers approximately 45.4 square miles. It is centrally located in Columbia County, New York and shares a border with the Towns of Chatham and Kinderhook to the north, the Town of Stockport to the west, the Town of Claverack to the south, and the Towns of Hillsdale and Austerlitz to the east.

Town of Ghent Within Columbia County



Data Source: ESRI 2010

Approximately three quarters of the town contains moderate to steep slopes. Two relatively level valleys run north to south west of State Route 9 and west of County Route 9H.

Streams within the town include Kline Kill, Widows Creek, Fitting Creek, North Creek, Mud Creek, Agawamuck Creek, and a small portion of Claverack Creek among others, which flow into the Hudson River.

Climate

The climate in Ghent is similar to that of Columbia County, which experiences lows that range between 0°F and -10°F and highs of 90°F-100°F (NYS Climate Office Cornell ND).

In 2000, a declared flood disaster caused the Kline Kill to rise rapidly causing $1,500,000 in damages countywide, including damage to a house along Route 9 in Ghent, which was picked up by the raging river. Other extreme weather events in Ghent noted over the last two decades have included a region-wide winter storm in 1997, which caused 8 inches of snowfall within the township; a flash flood in 1998 which closed Highway 66 in West Ghent and flooded numerous basements causing $50,000 in damages; and a high wind event in 2006 that caused trees and wires to be blown down countywide. Table 1 displays storms over the last 5 years in Ghent.

Table 1: Significant Storm events in the Town of Ghent, 2008-2011

Event	Location	Date	Cost of Damages
Storm "Irene"	Ghent	8/26/2011-9/5/2011	$15,319.50
Snow Storm	Ghent	12/26/2010-12/27/2010	$41,901.66
Ice Storm	Ghent	12/11/2008-12/31/2008	$194,144

Population Trends and Demographics

The population of Ghent is 5,402, which represents approximately 8.56% of the total population in Columbia County. The population is 94.5% White, 1.6% African American, 0.9% Asian, and 3% Hispanic/Latino or are of more than one race (U.S. Census Bureau 2010).

As shown in Table 2, the median age is 46.4 years old. Approximately 19.5% of the population is over the age of 65 while approximately 5% is under the age of 5 years old (U.S. Census Bureau 2010).

Table 2: Age Distribution Town of Ghent, New York, 2000 to 2010

Age Group	Population	
	2000	**2010**
Under 5 years	297 (5.6%)	263 (4.9%)
65 years and older	906 (17.2%)	1,055 (19.5%)
Median Age	40.8	46.4

Sources: U.S. Census Bureau 2000, 2010

Governance

Ghent is located within the 19th Congressional District, 43rd State Senate District, and 106th Assembly District (Columbia County Board of Elections 2012). A Town Board made up of five elected officials, including four board members and a town supervisor, provide local governance.

The Chatham Fire Department coverage area includes about 80% of Ghent. The Ghent Volunteer Fire Company, made up of 20 volunteers, provides firefighting services for the town. The West Ghent Fire Company also provides fire services to portions of the town and the Town of Claverack. There is also a rescue squad, which provides emergency services to the Towns of Chatham, Ghent, Austerlitz, and Canaan.

Ghent does not have a police department located within the municipality, but law enforcement support is provided by the County Sheriff's Department and the State Police.

Economy

Based on U.S. Census Bureau statistics, 60.8% of the total population in Ghent is considered part of the labor force. Of the 60.8%, approximately 5.7% is unemployed (U.S. Census Bureau 2010).

A little less than half of the population (46.9%) is employed in management, business, science, and arts occupations. Sales and office occupations make up about 24.3%; service occupations provide jobs to 14.9% of the population; production, transportation, and material moving occupations make up 7.4%; and natural resource, construction and maintenance occupations make up 6.4% of the jobs. The educational, health care and social assistance services industries are of the highest grossing industries within the county followed by retail trade. Ghent also has a larger industry focused on arts, entertainment, and recreation than neighboring towns (U.S. Census Bureau).

Land Use

More than two-thirds of the town consists of shallow, steep or stony land, constraining development. Even in areas where large plots of fertile soils occur, there are pockets of poor soils, making the amount of soils adequate for agricultural use limited. However, portions of Agricultural Districts 3, 4 and 10 are found within the town and contain prime agricultural land. Today, Ghent is still predominantly rural in nature and agriculture is one of the largest land uses in the town. However, Ghent's proximity to Kinderhook and the Capital District exposes it to suburban pressures and agricultural land is gradually being converted to residential uses. Currently most of the development is concentrated along state highways and corridors in the hamlets of Ghent and West Ghent but a number of open areas within the town have been slated for suburban development.

Other types of land uses seen within the town include commercial, industrial, public and semi-public, institutional, recreational, and water resource lands.

As shown in Table 3, the majority of structures within the town are residential followed by commercial and industrial.

Table 3: Structures in the Town of Ghent, Columbia County, New York				
Type of Structure (Occupancy Class)	**# in Community**	**$ in Community**	**No. in Hazard Area**	**$ in Hazard Area**
Residential	2335	$475,208,000	1	$891,000
Commercial	139	$94,696,000	0	$190,000
Industrial	57	$42,258,000	0	$82,000
Agricultural	21	$8,078,000	0	$7,000
Religious/Non-Profit	9	$12,490,000	0	$0
Government	3	$7,182,000	0	$0
Education	3	$1,928,000	0	$0
Utilities	0	$0	0	$0
Total	**2567**	**$641,840,000**	**1**	**$1,170,000**

National Flood Insurance Program Participation

The Town of Ghent entered into the NFIP on 10/18/1974 with effective flood rate maps dated 1/1/1988. The Town's NFIP Program is overseen by the Code Enforcement Officer. Chapter 99 of the Town Code regulates Flood Damage Prevention.

According to the NFIP data from FEMA, since 1978 there have been no repetitive loss claims.

Evacuation, Sheltering, and Housing

Coordination of evacuation operations is the responsibility of local law enforcement and will be guided by Columbia County's evacuation protocols. No jurisdiction-specific evacuation routes have been identified at this time.

Identification of sites for intermediate- and long-term housing is addressed in coordination with the County.

Critical Infrastructure

Critical infrastructure within Ghent includes:

- The Ghent Volunteer Fire Company;
- West Ghent Volunteer Fire Company;
- Hudson Valley Care Center; and
- Ghent Town Hall.

Capability Assessment

This section identifies the following capabilities of the local jurisdiction:

- Legal and regulatory capability;
- Administrative and technical capability; and
- Fiscal capability.

Table 4: Legal and Regulatory Capability

Regulatory Tool	Y/N	Comments
Master Plan	Y	
Zoning ordinance	Y	
Subdivision ordinance	Y	
Growth management ordinance	N	
Floodplain ordinance	Y	Flood Damage Prevention 87-88
Other special purpose ordinance (stormwater, steep slope, wildfire)	N	
Building code	Y	Version:
Fire department ISO rating	Y	Rating: 05/57 – 8B
Erosion or sediment control program	N	
Stormwater management program	N	
Site plan review requirements	Y	
Capital improvements plan	Y	
Economic development plan	Y	
Local emergency operations plan	Y	
Other special plans (i.e. flood mitigation plan)	N	
Flood insurance study or other engineering study for streams	Y	Code 99-4B{28}
Elevation certificates	N	

Table 4: Legal and Regulatory Capability		
Regulatory Tool	**Y/N**	**Comments**
Other		

Table 5: Administrative and Technical Capability		
Regulatory Tool	**Y/N**	**Comments**
If you are a City or County jurisdiction, please describe is your government structure? (e.g. Commission, Mayor/City Council, how many members, etc.)	N/A	
Planner/Engineer with knowledge of land development/land management practices	N	
Engineer/Professional trained in construction practices related to buildings and/or infrastructure	N	
Planner/Engineer/Scientist with an understanding of natural hazards	N	
Personnel skilled in GIS	N	
Full time building official	N	
Floodplain Manager	Y	Code Enforcement Officer
Emergency Manager	N	
Grant writer	N	
Other personnel	N	
Other	N	

Table 6: Fiscal Capability		
Regulatory Tool	**Y/N**	**Comments**
Community Development Block Grants	N	
Capital improvements project funding	N	
Authority to levy taxes for specific purposes	Y	
Fees for water, sewer, gas, or electric	N	

Table 6: Fiscal Capability		
Regulatory Tool	**Y/N**	**Comments**
services		
Impact fees for new development	N	
Incur debt through general obligation bonds	N	
Incur debt through special tax bonds	N	
Incur debt through private activities	N	
Withhold spending in hazard prone areas	N	
Other	N	

Town of Ghent Mitigation Actions

Please refer to Chapter 5, tables 5-1 and 5-2 to view countywide as well as jurisdiction-specific mitigation strategies.

Table 7: Town of Ghent Mitigation Strategy

Strategy	Mitigation Action	Applies to New or Existing Assets	Hazard(s) Mitigated	Objectives Met	Lead Agency	Support Agencies	Estimated Cost	Sources of Funding	Timeline
PPL-36	An H&H study will be completed to determine the appropriate culvert size and ensure that the project will not create negative impacts upstream or downstream. After determining the best project design, the Town will secure all appropriate permits will be obtained; order materials; and stage materials at the project site. Existing culverts will be removed and disposed of. New culvert will be installed, surrounding area will be filled, and pavement installed.	New	Flood	Goal 1, Objective 1 and 2; Goal 2, All Objectives, Goal 3, All Objectives	Highway Department	None at this time	Low	State/Federal Grants	1 year

Table 7: Town of Ghent Mitigation Strategy

Strategy	Mitigation Action	Applies to New or Existing Assets	Hazard(s) Mitigated	Objectives Met	Lead Agency	Support Agencies	Estimated Cost	Sources of Funding	Timeline
PPL-37	Work will be performed by the Town DPW. All appropriate permits will be obtained, and materials ordered/staged at project site. Existing driveway culverts will be removed and disposed of. New culverts will be installed, and concrete ditching and rip-rap placed as bulking of driveway culverts as appropriate. Intermediate weirs will be installed in ditches.	New	Flood	Goal 1, Objective 1 and 2; Goal 2, All Objectives, Goal 3, All Objectives	Highway Departme nt	None at this time	Low		1 year

Table 7: Town of Ghent Mitigation Strategy

Strategy	Mitigation Action	Applies to New or Existing Assets	Hazard(s) Mitigated	Objectives Met	Lead Agency	Support Agencies	Estimated Cost	Sources of Funding	Timeline
PPL-38	Conduct an H&H study to develop detailed engineering analysis. Work will be performed by Town DPW and contractor(s) after the study has been completed. Ghent Town DPW will work with NYSDEC and (if needed) USACE to secure permitting application(s) and address site preparation. DPW/contractor(s) will then obtain permits, order project materials, and stage them at the project site. Exact details of the stream alignment work to be completed will be determined by the engineering results.	New	Flood	Goal 1, Objective 1 and 2; Goal 2, All Objectives, Goal 3, All Objectives	Highway Departme nt	None at this time	Low		1 year

Status of Incorporation of Mitigation Planning Into Existing and Future Planning Mechanisms

Each jurisdiction within Columbia County intends to incorporate mitigation planning into daily municipal operations. Hazard mitigation will be an integral component of Town procedures. Planning mechanisms that have or will incorporate hazard mitigation planning include but are not limited to:

- Operating and Capital Improvement Budget;
- Building and Zoning Ordinances;
- Comprehensive Land Use Plan;
- Municipal Ordinances;
- Fire Plan;
- Local School Service Projects; and
- Economic Development Plan.

Specific actions that the community is taking or intends to pursue in the future include:

- The Town will consider establishing a line item in its municipal budget to fund pre-disaster mitigation projects to reduce its vulnerability.
- The Town will utilize the mitigation plan's risk assessment to guide emergency response planning including development of evacuation plans.
- The Town will consider development of a hazard mitigation goal in the next update of its Comprehensive Plan.

ADOPTION RESOLUTION

(Name of Jurisdiction) Town of Ghent

(Governing Body) Town Board

(Address) 2306 NY-66, Ghent NY 12075

RESOLUTION

Whereas, the Town of Ghent recognizes the threat that natural hazards pose to people and property within our community; and
Whereas, undertaking hazard mitigation actions will reduce the potential for harm to people and property from future hazard occurrences; and
Whereas, the U.S. Congress passed the Disaster Mitigation Act of 2000 ("Disaster Mitigation Act") emphasizing the need for pre-disaster mitigation of potential hazards;
Whereas, the Disaster Mitigation Act made available hazard mitigation grants to state and local governments; and
Whereas, an adopted Multi-Jurisdictional Hazard Mitigation Plan is required as a condition of future funding for mitigation projects under mitigation FEMA pre- and post-disaster mitigation grant programs; and
Whereas, the Town of Ghent fully participated in the FEMA-prescribed mitigation planning process to prepare this Multi-Jurisdictional Hazard Mitigation Plan; and
Whereas, the New York Emergency Management Office and the Federal Emergency Management Agency Region II officials have reviewed the "Columbia County Multi-Jurisdictional Hazard Mitigation Plan" and approved it contingent upon this official adoption of the participating governing body; and
Whereas, the Town of Ghent desires to comply with the requirements of the Disaster Mitigation Act and to augment its emergency planning efforts by formally adopting the Columbia County Multi-Jurisdictional Hazard Mitigation Plan; and
Whereas, adoption by the governing body for the Town of Ghent demonstrates the jurisdictions' commitment to fulfilling the mitigation goals and objectives outlined in the Multi-Jurisdictional Hazard Mitigation Plan.
Whereas, adoption of this legitimizes the plan and authorizes responsible agency to carry out their responsibilities under the plan;
Now, therefore, be it resolved, that the Town of Ghent adopts the "Columbia County Multi-Jurisdictional Hazard Mitigation Plan" as an official plan; and
Be it further resolved, the Town of Ghent will submit this Adoption Resolution to the New York State Emergency Management Office and Federal Emergency Management Agency Region II officials to enable the plan's final approval.

Passed: _____

_____
Certifying Official

TOWN OF GREENPORT

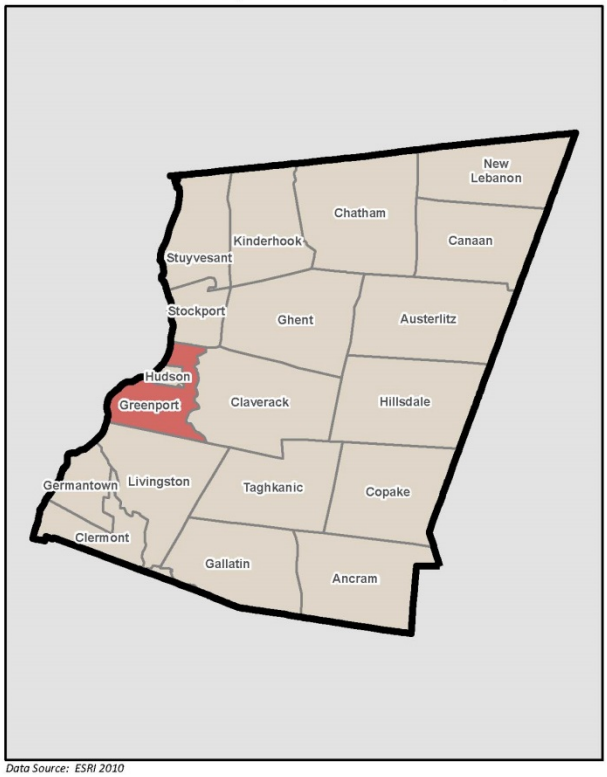
Last updated: 4/23/2018

Community Profile

Location and Geography

The Town of Greenport (Greenport) covers 20.5 square miles and is centrally located along the western border of Columbia County. The Hudson River provides significant waterfront areas along the Town's western edge and creates a natural border between the Town of Greenport and Greene County, New York. It is surrounded by the Town of Stockport to the north, the Town of Livingston to the south, and the Town of Claverack to the east. It also surrounds the northern, southern and eastern borders of the City of Hudson.

Town of Greenport Within Columbia County



Data Source: ESRI 2010

Climate

The climate in Greenport is similar to that of Columbia County, which experiences lows that range between 0°F and -10°F and highs of 90°F-100°F (NYS Climate Office Cornell ND).

Two disaster declarations have been reported by NOAA in the last two decades that specifically affected Greenport. The two disasters include a flood in 1996 that caused $4,000,000 in damages and a flood in 2000 that closed roads countywide, including Spook Rock Road in Greenport, causing over $75,000 in damages.

Other extreme weather events reported by NOAA included: flash floods in 1998 and 2011, the former of which caused $50,000 in damages across the northwestern portion of Columbia County and closed roads in Greenport; a flood in 2006 that caused a 60-foot embankment to slide into Claverack Creek causing waters to rise upstream; and a high wind event in 2003 that tore siding off a house in Greenport and caused a total of $275,000 in damages.

Population Trends and Demographics

The population of Greenport is 4,165, which represents 6.6% of the total population in Columbia County. The population is 86.1% White, 7.4% African American, 1.9% Asian, and 4.4%

Hispanic/Latino and less than one percent of the population is a combination of one or more races (U.S. Census Bureau 2010).

As shown in Table 1, the median age is 46.6 years old. About 22% of the population is over the age of 65 while approximately 5% is under 5 years of age (U.S. Census Bureau 2010).

Table 1: Age Distribution Town of Greenport, New York, 2000 to 2010

Age Group	Population	
	2000	**2010**
Under 5 years	233 (5.3%)	206 (4.9%)
65 years and older	861 (20.6%)	909 (21.8%)
Median Age	42.2	46.6

Sources: U.S. Census Bureau 2000, 2010

Governance

Greenport is located within the 19th Congressional District, 43rd State Senate District, and 106th Assembly District (Columbia County Board of Elections 2012). A Town Council made up of five elected officials, including four councilmembers a town supervisor, provide local governance.

The Greenport Fire Department provides fire protection services to Greenport. There are three companies, including the Greenport Pumper Company No. 1, Becraft Pumper Company Number 2, and the Greenport Pumper Company Number 3. The department has 88 active volunteer members.

Greenport Police Department has fifteen sworn personnel and one civilian member. These officers serve and protect the Greenport community year round including approximately 600 different types of business, from retail to commercial and agricultural. The Department also serves Columbia-Greene Community College, which has about 2000 students enrolled annually. Additional law enforcement support is provided by the County Sheriff's department and the State Police (Town of Greenport 2011).

Economy

Based on U.S. Census Bureau statistics, 59.1% of the total population in Greenport is considered part of the labor force, and from that 59.1% approximately 3.7% is unemployed (U.S. Census Bureau 2010).

Over one-third of town residents in the labor force (35%) are employed in sales and office occupations. Management, business, science, and art occupations make up 28.7%; service occupations provide jobs to 19.7% of the population; production, transportation, and material

moving occupations make up 10%; and natural resource, construction and maintenance occupations make up 6.6% of the jobs. The educational, health care and social assistance services industries are of the highest grossing industries within the county followed by retail trade and the public trade industries respectively (U.S. Census Bureau 2010).

Land Use

As shown in Table 2, the majority of structures within the town are residential followed by commercial and industrial.

Table 2 Structures in the Town of Greenport and their uses

Type of Structure (Occupancy Class)	Number of Structures			Value of Structures		
	# in Community	# in Hazard Area	% in Hazard Area	$ in Community	$ in Hazard Area	% in Hazard Area
Residential	1761	2	0.1	$350,335,000	$2,754,000	0.8%
Commercial	137	0	0	$162,346,000	$1,157,000	0.7%
Industrial	25	0	0	$37,887,000	$329,000	0.9%
Agricultural	12	0	0	$6,012,000	$46,000	0.8%
Religious/Non-Profit	11	0	0	$14,944,000	$163,000	1.1%
Government	5	0	0	$32,034,000	$0	0.0%
Education	4	0	0	$10,263,000	$717,000	7.0%
Utilities	0	0	0	$0		0.0%
Total	**1955**	**2**	**0.1**	**$613,821,000**	**$5,166,000**	**0.8%**

Source: Town of Greenport 2013

No known changes in land use patterns or development patterns have been identified in the Town of Greenport.

Critical Infrastructure

Critical infrastructure within the Town of Greenport includes:

- Greenport Fire District;
- Greenport Fire Squad;
- Greenport Town Hall;
- Greenport Water Works; and
- Greenport Water Wells.

National Flood Insurance Program Participation

The Town of Greenport entered into the NFIP on 11/1/1974 with effective flood rate maps dated 11/15/1989. The Town's NFIP Program is overseen by the Building Inspector. A Flood Damage Prevention Ordinance regulates all construction and development within mapped floodplains.

According to the NFIP data from FEMA, since 1978 there have been no repetitive loss claims.

Evacuation, Sheltering, and Housing

Coordination of evacuation operations is the responsibility of local law enforcement and will be guided by Columbia County's evacuation protocols. No jurisdiction-specific evacuation routes have been identified at this time.

Identification of sites for intermediate- and long-term housing is addressed in coordination with the County.

Capability Assessment

This section identifies the following capabilities of the local jurisdiction:

- Legal and regulatory capability;
- Administrative and technical capability; and
- Fiscal capability.

Table 3: Legal and Regulatory Capability

Regulatory Tool	Y/N	Comments
Master Plan	N	
Zoning ordinance	N	
Subdivision ordinance	Y	
Growth management ordinance	N	
Floodplain ordinance	Y	Chapter 69 of The Code of the Town of Greenport. 08-02-1989 by Local Law 5-1989
Other special purpose ordinance (stormwater, steep slope, wildfire)	N	
Building code	Y	Version: NYS Building Code 2010
Fire department ISO rating		
Erosion or sediment control program	Y	per NYS DEC Stormwater Regulations
Stormwater management program	Y	per NYS DEC Stormwater Regulations

Table 3: Legal and Regulatory Capability		
Regulatory Tool	**Y/N**	**Comments**
Site plan review requirements	Y	Through Chapter 101 of The Code of the Town of Greenport
Capital improvements plan	Y	
Economic development plan	N	
Local emergency operations plan	Y	
Other special plans (i.e. flood mitigation plan)	N	
Flood insurance study or other engineering study for streams	N	
Elevation certificates	N	
Other		

Table 4: Administrative and Technical Capability		
Regulatory Tool	**Y/N**	**Comments**
If you are a City or County jurisdiction, please describe is your government structure? (e.g. Commission, Mayor/City Council, how many members, etc.)	Y	Town Board elected officials: Supervisor & 4 Board Members
Planner/Engineer with knowledge of land development/land management practices	N	Contract: Service performed as-needed by a hired Town Engineer
Engineer/Professional trained in construction practices related to buildings and/or infrastructure	Y	Building Department/Building Inspector
Planner/Engineer/Scientist with an understanding of natural hazards	N	Contract: Service performed as-needed by a hired Town Engineer
Personnel skilled in GIS	N	Contract: Service performed as-needed by a hired Town Engineer
Full time building official	N	The Town of Greenport has a Building Department and a Building Inspector.

Table 4: Administrative and Technical Capability		
Regulatory Tool	**Y/N**	**Comments**
		That position is not full time.
Floodplain Manager	Y	The Building Inspector is the local administrator to administer and implement Chapter 68 (Flood Damage Prevention) per the Code of the Town of Greenport
Emergency Manager	N	Emergency management is handled through the County
Grant writer	N	Contract: Service performed as-needed by a hired Town Engineer
Other personnel		
Other		

Table 5: Fiscal Capability		
Regulatory Tool	**Y/N**	**Comments**
Community Development Block Grants	Y	
Capital improvements project funding	Y	
Authority to levy taxes for specific purposes	Y	
Fees for water, sewer, gas, or electric services	Y	
Impact fees for new development	Y	
Incur debt through general obligation bonds	Y	
Incur debt through special tax bonds	Y	
Incur debt through private activities		
Withhold spending in hazard prone areas		
Other		

Town of Greenport Mitigation Actions

Please refer to Chapter 5, tables 5-1 and 5-2 to view countywide as well as jurisdiction-specific mitigation strategies.

Table 7: Town of Greenport Mitigation Strategy

Strategy	Mitigation Action	Applies to New or Existing Assets	Hazard(s) Mitigated	Objectives Met	Lead Agency	Support Agencies	Estimated Cost	Sources of Funding	Timeline
PES-9	Improve access to town wells.	Existing	Flooding	Goal 1, Objective 1 and 2; Goal 2, All Objectives, Goal 3, All Objectives	Town of Greenport	None at this time	Moderate	Town of Greenport and General Fund	5 years
PPL-16	Replace or retrofit the Finger Road bridge over Mud Creek to reduce scouring risk.	Existing	All Hazards	Goal 1, Objective 1 and 2; Goal 2, All Objectives, Goal 3, All Objectives	Town of Greenport	None at this time	Moderate	Greenport Highway Department General Fund	5 years

Status of Incorporation of Mitigation Planning Into Existing and Future Planning Mechanisms

Each jurisdiction within Columbia County intends to incorporate mitigation planning into daily municipal operations. Hazard mitigation will be an integral component of Town procedures. Planning mechanisms that have or will incorporate hazard mitigation planning include but are not limited to:

- Operating and Capital Improvement Budget;
- Building and Zoning Ordinances;
- Comprehensive Land Use Plan;
- Municipal Ordinances;
- Fire Plan;
- Local School Service Projects; and
- Economic Development Plan.

Specific actions that the community is taking or intends to pursue in the future include:

- The Town will consider establishing a line item in its municipal budget to fund pre-disaster mitigation projects to reduce its vulnerability.
- The Town will utilize the mitigation plan's risk assessment to guide emergency response planning including development of evacuation plans.
- The Town will consider development of a hazard mitigation goal in the next update of its Comprehensive Plan.

ADOPTION RESOLUTION

(Name of Jurisdiction) Town of Greenport

(Governing Body) Town Board

(Address) 600 Town Hall Drive, Hudson NY 12534

RESOLUTION

Whereas, the Town of Greenport recognizes the threat that natural hazards pose to people and property within our community; and
Whereas, undertaking hazard mitigation actions will reduce the potential for harm to people and property from future hazard occurrences; and
Whereas, the U.S. Congress passed the Disaster Mitigation Act of 2000 ("Disaster Mitigation Act") emphasizing the need for pre-disaster mitigation of potential hazards;
Whereas, the Disaster Mitigation Act made available hazard mitigation grants to state and local governments; and
Whereas, an adopted Multi-Jurisdictional Hazard Mitigation Plan is required as a condition of future funding for mitigation projects under mitigation FEMA pre- and post-disaster mitigation grant programs; and
Whereas, the Town of Greenport fully participated in the FEMA-prescribed mitigation planning process to prepare this Multi-Jurisdictional Hazard Mitigation Plan; and
Whereas, the New York Emergency Management Office and the Federal Emergency Management Agency Region II officials have reviewed the "Columbia County Multi-Jurisdictional Hazard Mitigation Plan" and approved it contingent upon this official adoption of the participating governing body; and
Whereas, the Town of Greenport desires to comply with the requirements of the Disaster Mitigation Act and to augment its emergency planning efforts by formally adopting the Columbia County Multi-Jurisdictional Hazard Mitigation Plan; and
Whereas, adoption by the governing body for the Town of Greenport demonstrates the jurisdictions' commitment to fulfilling the mitigation goals and objectives outlined in the Multi-Jurisdictional Hazard Mitigation Plan.
Whereas, adoption of this legitimizes the plan and authorizes responsible agency to carry out their responsibilities under the plan;
Now, therefore, be it resolved, that the Town of Greenport adopts the "Columbia County Multi-Jurisdictional Hazard Mitigation Plan" as an official plan; and
Be it further resolved, the Town of Greenport will submit this Adoption Resolution to the New York State Office of Emergency Management Office Federal Emergency Management Agency Region II officials to enable the plan's final approval.

Passed: _____

Certifying Official

TOWN OF HILLSDALE

Last updated: 4/23/2018

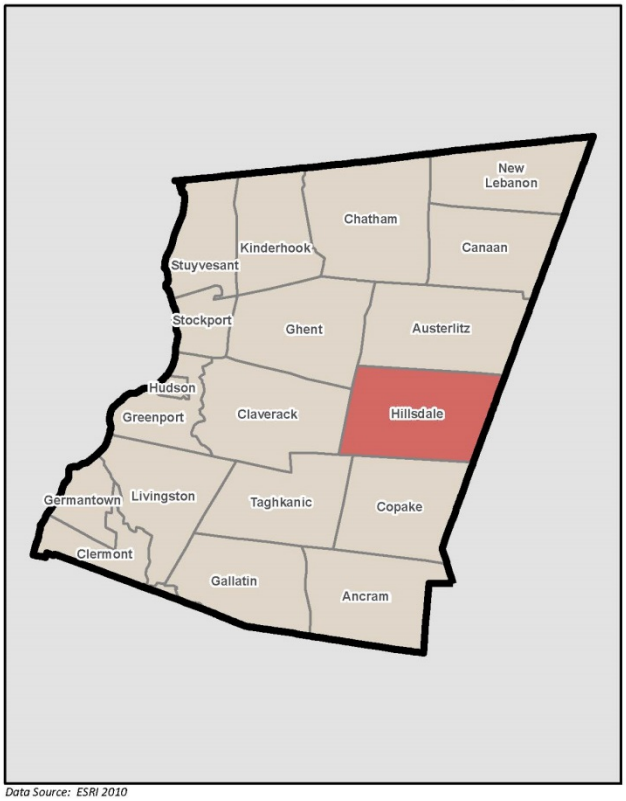
Community Profile

Location and Geography

The Town of Hillsdale (Hillsdale) is located along the eastern border of Columbia County covering 47.8 square miles. It is bordered by the Town of Austerlitz to the north, the Towns of Ghent and Claverack to the west, the Towns of Taghkanic and Copake to the south. The Taconic Range provides a natural border between Hillsdale and Massachusetts to the east.

There are several streams that run through Hillsdale, including the Green River, Taghkanic Creek, and Roeliff Jansen Kill. Other water bodies include Herrington's Pond, and almost 50 other ponds ranging from a half acre to twenty acres in size (Town of Hillsdale 1998).

Town of Hillsdale Within Columbia County



Data Source: ESRI 2010

Climate

The climate in Hillsdale is similar to that of Columbia County, which experiences lows that range between 0°F and -10°F and highs of 90°F-100°F (NYS Climate Office Cornell ND).

Population Trends and Demographics

The population of Hillsdale is 1,927, which represents approximately 3% of the population in Columbia County. The population is 96.7% White, 1.1% African American, 0.6% Asian, and 1.6% Hispanic/Latino, American Indian, and those that are a combination of one or more races (U.S. Census Bureau 2010).

As shown in Table 1, the median age is 49.4 years old. Over 22% of the population is over the age of 65 while just over 4% is under 5 years of age (U.S. Census Bureau 2010).

Table 1: Age Distribution Town of Hillsdale, New York, 2000 to 2010

Age Group	Population	
	2000	2010
Under 5 years	95 (5.4%)	82 (4.3%)
65 years and older	296 (17.0%)	427 (22.2%)
Median Age	42.7	49.4

Sources: U.S. Census Bureau 2000; 2010

Governance

Hillsdale is located within the 19th Congressional District, 43rd State Senate District, and 107th Assembly District (Columbia County Board of Elections 2012). A Town Board, made up of five elected representatives, including four board members and a town supervisor, represents the town at a local level.

The Hillsdale Fire Company provides volunteer firefighting services to the town. All fire equipment and vehicles owned by the Hillsdale Fire District is housed in a firehouse owned by the Hillsdale Fire Company.

Hillsdale has no town police, but is provided law enforcement support from the County Sheriff's department and the State Police. There is a substation in the old Town Hall building, which is leased by the municipality to the County Sheriff's Department.

Economy

Based on U.S. Census Bureau statistics, 64.8% of the total population in Hillsdale is considered part of the labor force. Of the 64.8%, approximately 5.6% is unemployed (U.S. Census Bureau 2010).

A little over one-third of the total town residents in the labor force (35.7%) are employed in management, business, science, and art occupations; sales and office occupations make up 25.1%; service occupations provide jobs to 17.5% of the population; production, transportation, and material moving occupations make up 12.2% of the jobs; and natural resource, construction and maintenance occupations make up 9.6%. The educational, health care and social assistance services industries are the highest grossing industries within the county followed by the retail trade and manufacturing industries respectively (U.S. Census Bureau 2010).

The location of the town within the regional transportation network is an economic resource. The intersection of New York State Highway Route 23 with Route 22 in the town has resulted in both increased commercial through-traffic and tourist traffic. This intersection is a crossroads for tourism in the town as well as surrounding areas.

The largest economic resource other than forests (which cover 70% of the town) is agricultural land, which is vital to Hillsdale's economy. Agricultural products throughout Hillsdale include dairy, livestock, field crops, and fruit (Town of Hillsdale 1998).

Land Use

The Town is sparsely populated except in areas where settlement is more concentrated- the hamlets of Hillsdale, North Hillsdale, Harlemville, and Green River. There are several hills and valleys prominent throughout the town. As previously mentioned, forests cover 70% of the town. Agricultural land covers 20% of the town. In addition to several rivers and water bodies, there are twenty-five wetlands scattered throughout the town (Town of Hillsdale 1998).

As shown in Table 2, the majority of structures within the town are residential followed by commercial and then industrial uses.

Table 2: Structures in the Town of Hillsdale

Type of Structure (Occupancy Class)	Number of Structures			Value of Structures		
	# in Community	# in Hazard Area	% in Hazard Area	$ in Community	$ in Hazard Area	% in Hazard Area
Residential	1361	7	0.5%	$252,672,000	$1,844,000	0.7%
Commercial	56	0	0.0%	$28,551,000	$269,000	0.9%
Industrial	18	0	0.0%	$8,147,000	$0	0.0%
Agricultural	11	0	0.0%	$4,112,000	$1,000	0.0%
Religious/Non-Profit	5	0	0.0%	$4,312,000	$134,000	3.1%
Government	1	0	0.0%	$6,858,000	$3,000	0.0%
Education	3	0	0.0%	$278,000	$0	0.0%
Utilities	0	0	0.0%	$0	$0	0.0%
Total	1455	7	0.5%	$304,930,000	$2,251,000	0.7%

No known changes in land use patterns or development patterns have been identified in the Town of Hillsdale.

Critical Infrastructure

Critical infrastructure within Hillsdale and economic values, where available, are included in Table 3.

Table 3 Critical Structures in Town of Hillsdale		
Name or Description of Asset	Replacement Value ($)	Contents Value ($)
Town Hall	$656,000	$39,000
Highway Department	$786,000	$50,000.00
Highway Department Equipment & Vehicles		$1,372,000
Old Town Hall Building – Leased to County Sheriff	$386,000	$35,000
Firehouse – Hillsdale Fire Company	$1,915,000	$300,000
Hillsdale Fire District Equipment & Vehicles		$1,111,700
Sewer District Tools & Storage		$40,000

National Flood Insurance Program Participation

The Town of Hillsdale entered into the NFIP on 1/3/1975 with effective flood rate maps dated 5/15/1985. The Town's NFIP Program is overseen by the Town Planning Board. Construction and development are restricted within these mapped Floodplain Overlay Districts. A mitigation strategy within this plan is the development of a county-led flood hazard education and outreach program.

Additionally, the Town enforces a Wetland and Watercourse Protection ordinance (Section 8.4), which requires permits for development that may impact the health and function of natural ecosystems, or may cause flooding and erosion.

According to the NFIP data from FEMA, since 1978 there have been 3 repetitive loss claims resulting in $11,259 in payments. The latest claim was in 1996. These claims were from 1 property as follows:

- Single Family Residences – 1
- Other Residences – 0
- Non-Residences – 0

Evacuation, Sheltering, and Housing

Coordination of evacuation operations is the responsibility of local law enforcement and will be guided by Columbia County's evacuation protocols. No jurisdiction-specific evacuation routes have been identified at this time.

Identification of sites for intermediate- and long-term housing is addressed in coordination with the County.

Capability Assessment

This section identifies the following capabilities of the local jurisdiction:

- Legal and regulatory capability;
- Administrative and technical capability; and
- Fiscal capability.

Table 4: Legal and Regulatory Capability

Regulatory Tool	Y/N	Comments
Master Plan	Y	
Zoning ordinance	Y	
Subdivision ordinance	Y	
Growth management ordinance	Y	
Floodplain ordinance	N	Floodplain Overlay District and Wetland and Watercourse Protection ordinance (Section 8.4)
Other special purpose ordinance (stormwater, steep slope, wildfire)	Y	Wastewater, Steep Slope/Ridgeline, Aquifer
Building code	Y	
Fire department ISO rating	Y	
Erosion or sediment control program	N	
Stormwater management program	N	
Site plan review requirements	Y	
Capital improvements plan	Y	
Economic development plan	Y	
Local emergency operations plan	Y	
Other special plans (i.e. flood mitigation plan)	N	
Flood insurance study or other engineering study for streams	Y	
Elevation certificates	?	
Other		

Table 5: Administrative and Technical Capability		
Regulatory Tool	**Y/N**	**Comments**
If you are a City or County jurisdiction, please describe is your government structure? (e.g. Commission, Mayor/City Council, how many members, etc.)	Y	Town Board - 5 members: 4 Councilpersons and 1 Supervisor.
Planner/Engineer with knowledge of land development/land management practices	Y	
Engineer/Professional trained in construction practices related to buildings and/or infrastructure	Y	
Planner/Engineer/Scientist with an understanding of natural hazards	Y	Member of the CAC
Personnel skilled in GIS	Y	Outside Contractor
Full time building official	Y	
Floodplain Manager	Y	Town Planning Board
Emergency Manager	Y	
Grant writer	Y	Outside Contractor
Other personnel		
Other		

Table 6: Fiscal Capability		
Regulatory Tool	**Y/N**	**Comments**
Community Development Block Grants	Y	
Capital improvements project funding	Y	
Authority to levy taxes for specific purposes		
Fees for water, sewer, gas, or electric services	Y	Sewer District in the Hamlet of Hillsdale
Impact fees for new development		

Table 6: Fiscal Capability		
Regulatory Tool	**Y/N**	**Comments**
Incur debt through general obligation bonds	Y	Highway Truck, Upcoming Sidewalk Installation
Incur debt through special tax bonds		
Incur debt through private activities		
Withhold spending in hazard prone areas		
Other		

Town of Hillsdale Mitigation Strategies

Please refer to Chapter 5, tables 5-1 and 5-2 to view countywide as well as jurisdiction-specific mitigation strategies.

Table 7: Town of Hillsdale Mitigation Strategy

Strategy	Mitigation Action	Applies to New or Existing Assets	Hazard(s) Mitigated	Objectives Met	Lead Agency	Support Agencies	Estimated Cost	Sources of Funding	Timeline
PES-22	The firehouse serves as the town Emergency Operations Center (EOC) and emergency shelter that serves a local population of 1,600 people. There are many documented instances of the town losing power during natural hazard events, including wind, lightning, hail, and downed trees. The town needs a generator that can power firehouse operations, including the garages, kitchen, toilets etc., as well as the EOC and emergency shelter, should the facility lose power from regular utility resources.	New	Multiple Hazards	Goal 1, Objective 1 and 2; Goal 2, All Objectives, Goal 3, All Objectives	Hillsdale Fire Company and Town Board	None at this time	Moderate	FEMA HMGP or PDM, Town Bond issue or Reserve Fund	6 months to 1 year
PPL-28	Paving and resurfacing Wolf Hill Road with prevent hazardous road conditions for the Town of Hillsdale.	Existing	All Hazards	Goal 1, Objective 1 and 2; Goal 2, All Objectives, Goal 3, All Objectives	Hillsdale Highway Dept.	None at this time	Moderate	State/Federal grants	1 year

Table 7: Town of Hillsdale Mitigation Strategy

Strategy	Mitigation Action	Applies to New or Existing Assets	Hazard(s) Mitigated	Objectives Met	Lead Agency	Support Agencies	Estimated Cost	Sources of Funding	Timeline
PPL-39	Larger culverts in North Hillsdale & Harlemville will alleviate flooding on the town roads. The town will commission a Phase 1 study to identify topographical issues creating flood conditions, and the level of storm protection needed for the project to be effective.	Existing	Flooding	Goal 1, Objective 1 and 2; Goal 2, All Objectives, Goal 3, All Objectives	Hillsdale Highway Dept.	None at this time	Moderate	FEMA HMGP and PDM	1-3 years

Status of Incorporation of Mitigation Planning Into Existing and Future Planning Mechanisms

Each jurisdiction within Columbia County intends to incorporate mitigation planning into daily municipal operations. Hazard mitigation will be an integral component of Town procedures. Planning mechanisms that have or will incorporate hazard mitigation planning include but are not limited to:

- Operating and Capital Improvement Budget;
- Building and Zoning Ordinances;
- Comprehensive Land Use Plan;
- Municipal Ordinances;
- Fire Plan;
- Local School Service Projects; and
- Economic Development Plan.

Specific actions that the community is taking or intends to pursue in the future include:

- The Town will consider establishing a line item in its municipal budget to fund pre-disaster mitigation projects to reduce its vulnerability.
- The Town will utilize the mitigation plan's risk assessment to guide emergency response planning including development of evacuation plans.
- The Town will consider development of a hazard mitigation goal in the next update of its Comprehensive Plan.

ADOPTION RESOLUTION

(Name of Jurisdiction) Town of Hillsdale

(Governing Body) Town Board

(Address) P.O. BOX 305, Hillsdale NY 12529

RESOLUTION

Whereas, the Town of Hillsdale recognizes the threat that natural hazards pose to people and property within our community; and
Whereas, undertaking hazard mitigation actions will reduce the potential for harm to people and property from future hazard occurrences; and
Whereas, the U.S. Congress passed the Disaster Mitigation Act of 2000 ("Disaster Mitigation Act") emphasizing the need for pre-disaster mitigation of potential hazards;
Whereas, the Disaster Mitigation Act made available hazard mitigation grants to state and local governments; and
Whereas, an adopted Multi-Jurisdictional Hazard Mitigation Plan is required as a condition of future funding for mitigation projects under mitigation FEMA pre- and post-disaster mitigation grant programs; and
Whereas, the Town of Hillsdale fully participated in the FEMA-prescribed mitigation planning process to prepare this Multi-Jurisdictional Hazard Mitigation Plan; and
Whereas, the New York Emergency Management Office and the Federal Emergency Management Agency Region II officials have reviewed the "Columbia County Multi-Jurisdictional Hazard Mitigation Plan" and approved it contingent upon this official adoption of the participating governing body; and
Whereas, the Town of Hillsdale desires to comply with the requirements of the Disaster Mitigation Act and to augment its emergency planning efforts by formally adopting the Columbia County Multi-Jurisdictional Hazard Mitigation Plan; and
Whereas, adoption by the governing body for the Town of Hillsdale demonstrates the jurisdictions' commitment to fulfilling the mitigation goals and objectives outlined in the Multi-Jurisdictional Hazard Mitigation Plan.
Whereas, adoption of this legitimizes the plan and authorizes responsible agency to carry out their responsibilities under the plan;
Now, therefore, be it resolved, that the Town of Hillsdale adopts the "Columbia County Multi-Jurisdictional Hazard Mitigation Plan" as an official plan; and
Be it further resolved, the Town of Hillsdale will submit this Adoption Resolution to the New York State Office of Emergency Management and Federal Emergency Management Agency Region II officials to enable the plan's final approval.

Passed: _____

Certifying Official

TOWN OF KINDERHOOK

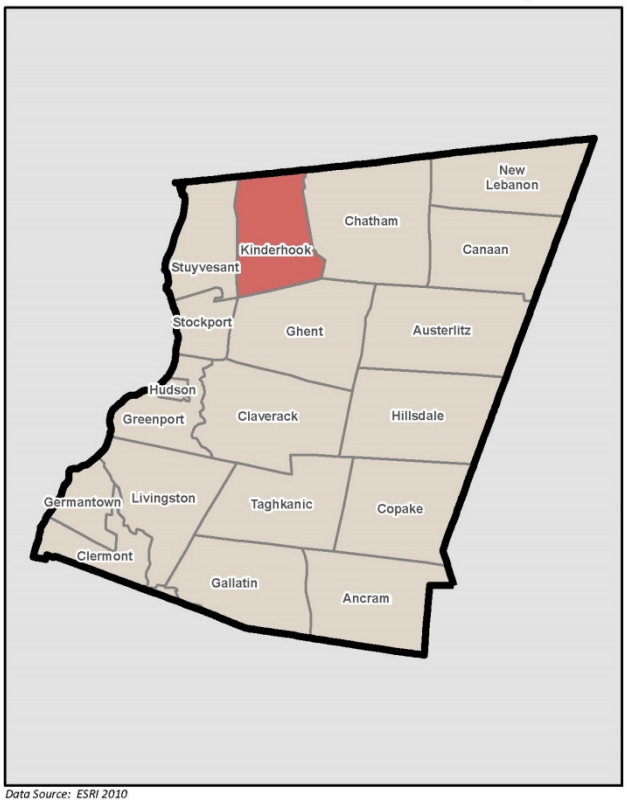
Last updated: 4/23/2018

Community Profile

Location and Geography

The Town of Kinderhook (Kinderhook) is located within the northeastern Columbia County. Kinderhook is bordered by Rensselaer County to the north, the Town of Stuyvesant to the west, the Town of Ghent to the south and the Town of Stockport to the southwest, and the Town of Chatham to the east. There are three major waterways in town: Kinderhook Creek, Kline Kill, and Valatie Kill.

Town of Kinderhook Within Columbia County



Data Source: ESRI 2010

Climate

The climate in Kinderhook is similar to that of Columbia County, which experiences lows that range between 0°F and -10°F and highs of 90°F-100°F (NYS Climate Office Cornell ND).

Population Trends and Demographics

The population of Kinderhook is 8,498. There are two villages located within the town boundaries, including Kinderhook Village with a population of 1,211, and Valatie Village, with a population of 1,819. All three of these municipalities combined represent approximately 13.47% of the total population in Columbia County. The population is 96.7% White, 1.1% African American, 0.6% Asian, and 1.6% Hispanic or Latino, American Indian, and those that are a combination of one or more races.

As shown in Table 1, the median age is 45.2 years old. Approximately 18% of the population is over the age of 65 while less than 5% of the population is under 5 years of age (U.S. Census Bureau 2010).

Table 1: Age Distribution Town of Kinderhook, New York, 2000 to 2010		
Age Group	**Population**	
	2000	**2010**
Under 5 years	431 (5.2%)	396 (4.7%)
65 years and older	1,287 (15.5%)	1,538 (18.1%)
Median Age	40.7	45.2

Sources: U.S. Census Bureau 2000, 2010

Governance

Kinderhook is located within the 19th Congressional District, 43rd State Senate District, and 107th Assembly District (Columbia County Board of Elections 2012). A Town Board, made up of four elected representatives, including three board members and a town supervisor, represents the town at a local level.

Fire protection in the Town of Kinderhook is provided by five volunteer departments. The Village of Kinderhook and Valatie Departments cover their own villages and portions of the town outside the villages. The Niverville Fire Department covers the majority of the remaining area in Kinderhook. The Chatham Village and Stuyvesant Falls Departments also support Kinderhook when needed. Emergency medical services are provided to the town and villages by the Valatie Rescue Squad.

There are no town police within Kinderhook, but law enforcement is provided by the County Sheriff's department and the State Police.

Economy

Based on U.S. Census Bureau statistics, 64.3% of the total population in Kinderhook is considered part of the labor force. Of the 64.3%, approximately 4.7% is unemployed (U.S. Census Bureau 2010).

Almost 44% of the total population in Kinderhook is employed in management, business, science, and arts occupations; sales and office occupations make up 26.4%; service occupations provide jobs to 12.3% of the population; natural resource, construction and maintenance occupations make up 10.4%; and production, transportation, and material moving occupations make up 7.2% of the jobs. The educational, health care and social assistance services industries are the highest grossing industries within the county (U.S. Census Bureau 2010).

Land Use

Agricultural Districts 2 and 10 cover the majority of the area within the town. According to the Town of Kinderhook Comprehensive Plan prepared in 2013, Kinderhook imagines that future land use will be largely unchanged from today though it recognizes that continued population growth will result in competition for rural land and higher service demands. The town expects to encourage modest commercial growth and clustered residential development.

As shown in Table 2, the majority of structures within the town are residential followed by commercial and industrial.

Table 2: Structures in the Town of Kinderhook, Columbia County, New York

Type of Structure (Occupancy Class)	# in Community	$ in Community	No. in Hazard Area	$ in Hazard Area
Residential	3657	$910,004,000	33	$6,832,000
Commercial	177	$172,389,000	0	$4,274,000
Industrial	50	$27,083,000	0	$1,022,000
Agricultural	20	$15,110,000	0	$374,000
Religious/Non-Profit	13	$22,090,000	0	$452,000
Government	9	$29,814,000	0	$412,000
Education	13	$16,731,000	0	$37,000
Utilities	0	$0	0	$0
Total	3939	$1,193,221,000	33	$13,403,000

National Flood Insurance Program Participation

The Town of Kinderhook entered into the NFIP on 10/25/1974 with effective flood rate maps dated 12/1/1982. The Town maintains a Flood Damage Prevention Ordinance (Chapter 134). The Town's NFIP Program is overseen by the Building Official. All new construction and development is subject to a site plan review, which measures present flood hazards and flood insurance regulations. A mitigation strategy within this plan is the development of a county-led flood hazard education and outreach program.

According to the NFIP data from FEMA, since 1978 there have been 4 repetitive loss claims resulting in $368,286 in payments. The latest claim was in 2009. These claims were spread between 2 properties as follows:

- Single Family Residences – 0
- Other Residences – 0
- Non-Residences – 2

Evacuation, Sheltering, and Housing

Coordination of evacuation operations is the responsibility of local law enforcement and will be guided by Columbia County's evacuation protocols. No jurisdiction-specific evacuation routes have been identified at this time.

Identification of sites for intermediate- and long-term housing is addressed in coordination with the County.

Capability Assessment

This section identifies the following capabilities of the local jurisdiction:

- Legal and regulatory capability;
- Administrative and technical capability; and
- Fiscal capability.

Table 3: Legal and Regulatory Capability

Regulatory Tool	Y/N	Comments
Master Plan	Y	
Zoning ordinance	Y	
Subdivision ordinance	Y	
Growth management ordinance	N	
Floodplain ordinance	Y	Flood Damage Prevention Ordinance (Chapter 134)
Other special purpose ordinance (stormwater, steep slope, wildfire)	Y	
Building code	Y	
Fire department ISO rating	Y	Rating: 6
Erosion or sediment control program	Y	
Stormwater management program	Y	

Table 3: Legal and Regulatory Capability		
Regulatory Tool	**Y/N**	**Comments**
Site plan review requirements	Y	
Capital improvements plan	Y	
Economic development plan	N	
Local emergency operations plan	Y	
Other special plans (i.e. flood mitigation plan)	N	
Flood insurance study or other engineering study for streams	N	
Elevation certificates	N	
Other		

Table 4: Administrative and Technical Capability		
Regulatory Tool	**Y/N**	**Comments**
If you are a City or County jurisdiction, please describe is your government structure? (e.g. Commission, Mayor/City Council, how many members, etc.)	Y	Board Supervisor
Planner/Engineer with knowledge of land development/land management practices	Y	
Engineer/Professional trained in construction practices related to buildings and/or infrastructure	Y	
Planner/Engineer/Scientist with an understanding of natural hazards	Y	
Personnel skilled in GIS	N	
Full time building official	N	
Floodplain Manager	Y	Building Official
Emergency Manager	N	
Grant writer	N	

Table 4: Administrative and Technical Capability		
Regulatory Tool	**Y/N**	**Comments**
Other personnel	N	
Other		

Table 5: Fiscal Capability		
Regulatory Tool	**Y/N**	**Comments**
Community Development Block Grants	N	
Capital improvements project funding	Y	
Authority to levy taxes for specific purposes	Y	
Fees for water, sewer, gas, or electric services	N	
Impact fees for new development	N	
Incur debt through general obligation bonds	Y	
Incur debt through special tax bonds	N	
Incur debt through private activities	N	
Withhold spending in hazard prone areas	N	
Other		

Town of Kinderhook Mitigation Actions

Please refer to Chapter 5, tables 5-1 and 5-2 to view countywide as well as jurisdiction-specific mitigation strategies.

Table 7: Town of Kinderhook Mitigation Strategy

Strategy	Mitigation Action	Applies to New or Existing Assets	Hazard(s) Mitigated	Objectives Met	Lead Agency	Support Agencies	Estimated Cost	Sources of Funding	Timeline
PES-15	Purchase generator for Highway Department	Existing	All Hazards	Goal 1, Objective 1 and 2; Goal 2, All Objectives, Goal 3, All Objectives	Kinderhook Highway Dept.	None at this time	Moderate	State/Federal grants	1 year

Table 7: Town of Kinderhook Mitigation Strategy

Strategy	Mitigation Action	Applies to New or Existing Assets	Hazard(s) Mitigated	Objectives Met	Lead Agency	Support Agencies	Estimated Cost	Sources of Funding	Timeline
PES-23	Purchase a generator for the Martin H. Glynn Municipal Center, which houses operations for the Town of Kinderhook, the Village of Valatie, and a substation for Columbia County Sheriff's Office. A generator would ensure continuity of operations for all three entities in disasters. Consider cost-sharing among the three government entities. This action would include the following steps: • Discuss with the Building Inspector the work required to have a generator installed. • Discuss project with the Sheriff's Office and Village of Valatie. Explore possibility of sharing project-related expenses. • Present recommendation to the Town Board for its consideration and approval. • Secure bids for the generator and installation. • Install generator. • Invite media coverage showing the project and extolling its implications for continuity of operations and enhanced public safety. Highlight the joint effort between governmental entities.	Existing	All Hazards	Goal 1, Objective 1 and 2; Goal 2, All Objectives, Goal 3, All Objectives	Kinderhook Highway Dept.	None at this time	Moderate	Town budget, FEMA HMGP	1 year

Table 7: Town of Kinderhook Mitigation Strategy

Strategy	Mitigation Action	Applies to New or Existing Assets	Hazard(s) Mitigated	Objectives Met	Lead Agency	Support Agencies	Estimated Cost	Sources of Funding	Timeline
PPL-40	Create a program for review of floodplain zoning ordinances. The review will take place bi-annually and after a major storm or flood. Ensure that current ordinances governing floodplain zoning and floodplain management are adequate for community needs. Recent shifts in the frequency and severity of local flooding show that early review of flood lines and proximity of water to nearby assets (homes businesses, infrastructure) will enable the Town of Kinderhook and its collocated villages to identify potentially critical situations sooner rather than after assets are affected.	Existing	Flooding	Goal 1, Objective 1 and 2; Goal 2, All Objectives, Goal 3, All Objectives	Building Inspector	Town Supervisor	Moderate	Town budget, FEMA HMGP	1 year

Status of Incorporation of Mitigation Planning Into Existing and Future Planning Mechanisms

Each jurisdiction within Columbia County intends to incorporate mitigation planning into daily municipal operations. Hazard mitigation will be an integral component of Town procedures. Planning mechanisms that have or will incorporate hazard mitigation planning include but are not limited to:

- Operating and Capital Improvement Budget;
- Building and Zoning Ordinances;
- Comprehensive Land Use Plan;
- Municipal Ordinances;
- Fire Plan;
- Local School Service Projects; and
- Economic Development Plan.

Specific actions that the community is taking or intends to pursue in the future include:

- The Town will consider establishing a line item in its municipal budget to fund pre-disaster mitigation projects to reduce its vulnerability.
- The Town will utilize the mitigation plan's risk assessment to guide emergency response planning including development of evacuation plans.
- The Town will consider development of a hazard mitigation goal in the next update of its Comprehensive Plan.

ADOPTION RESOLUTION

(Name of Jurisdiction) Town of Kinderhook

(Governing Body) Town Board

(Address) 3211 Church Street, Valatie NY 12184

RESOLUTION

Whereas, the Town of Kinderhook recognizes the threat that natural hazards pose to people and property within our community; and
Whereas, undertaking hazard mitigation actions will reduce the potential for harm to people and property from future hazard occurrences; and
Whereas, the U.S. Congress passed the Disaster Mitigation Act of 2000 ("Disaster Mitigation Act") emphasizing the need for pre-disaster mitigation of potential hazards;
Whereas, the Disaster Mitigation Act made available hazard mitigation grants to state and local governments; and
Whereas, an adopted Multi-Jurisdictional Hazard Mitigation Plan is required as a condition of future funding for mitigation projects under mitigation FEMA pre- and post-disaster mitigation grant programs; and
Whereas, the Town of Kinderhook fully participated in the FEMA-prescribed mitigation planning process to prepare this Multi-Jurisdictional Hazard Mitigation Plan; and
Whereas, the New York Emergency Management Office and the Federal Emergency Management Agency Region II officials have reviewed the "Columbia County Multi-Jurisdictional Hazard Mitigation Plan" and approved it contingent upon this official adoption of the participating governing body; and
Whereas, the Town of Kinderhook desires to comply with the requirements of the Disaster Mitigation Act and to augment its emergency planning efforts by formally adopting the Columbia County Multi-Jurisdictional Hazard Mitigation Plan; and
Whereas, adoption by the governing body for the Town of Kinderhook demonstrates the jurisdictions' commitment to fulfilling the mitigation goals and objectives outlined in the Multi-Jurisdictional Hazard Mitigation Plan.
Whereas, adoption of this legitimizes the plan and authorizes responsible agency to carry out their responsibilities under the plan;
Now, therefore, be it resolved, that the Town of Kinderhook adopts the "Columbia County Multi-Jurisdictional Hazard Mitigation Plan" as an official plan; and
Be it further resolved, the Town of Kinderhook will submit this Adoption Resolution to the New York State Office of Emergency Management and Federal Emergency Management Agency Region II officials to enable the plan's final approval.

Passed: _____

Certifying Official

TOWN OF LIVINGSTON

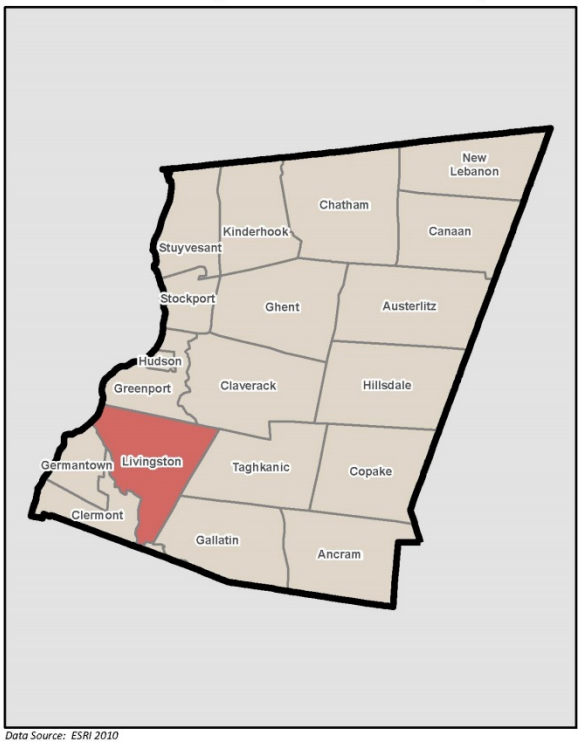
Last updated: 4/23/2018

Community Profile

Location and Geography

The Town of Livingston (Livingston) is located in southwestern Columbia County, New York and covers approximately 38.9 square miles. It is bordered by the Towns of Greenport and Claverack to the north, and the Towns of Taghkanic and Gallatin to the east. The Roeliff Jansen Kill provides a natural border between Livingston and the Towns of Germantown and Clermont to the west and southwest, respectively. A small area in the northwestern corner of the town borders the Hudson River waterfront.

Town of Livingston Within Columbia County



Data Source: ESRI 2010

Climate

The climate in Livingston is similar to that of Columbia County, which experiences lows that range between 0°F and -10°F and highs of 90°F-100°F (NYS Climate Office Cornell ND).

Table 1 summarizes historical storm and costs of damages within Livingston.

Table 1: Significant Storm Events in the Town of Livingston

Event	Damage	Date	Cost of Damages
Flood	Minor road flooding and various power outages	10/30/2012	N/A
Hail Storm	Damage to fruit orchard	2012	N/A
Flood	Hurricane Irene damage to roads, culverts, and bridges	8/2011	$325,000
Flood	Tropical Storm Lee minor road flooding	09/2011	N/A
Snow Storm	2 day storm with many roads closed and power outages	12/2010	$60,000
Ice Storm	Severe ice downed	12/8/2008	$72,166

Table 1: Significant Storm Events in the Town of Livingston

Event	Damage	Date	Cost of Damages
	trees and caused power outages		

Population Trends and Demographics

The population of Livingston is 3,646, which represents approximately 5.78% of the total population in Columbia County. The population is 95% White, 1.8% African American, 0.9% Asian, and 2.3% is a mix of Hispanic or Latino, American Indian, and those that are a combination of one or more races (U.S. Census Bureau 2010).

As shown in Table 2, the median age in Livingston is 45.1 years old. Almost 6% of the population is over the age of 65 while just less than 5% of the population is under 5 years old (U.S. Census Bureau 2010).

Table 2: Age Distribution Town of Livingston, New York, 2000 to 2010

Age Group	Population	
	2000	**2010**
Under 5 years	165 (4.8%)	175 (4.8%)
65 years and older	722 (21.1%)	213 (5.8%)
Median Age	42.4	45.1

Sources: U.S. Census Bureau 2000, 2010

Governance

Livingston is located within the 19th Congressional District, 43rd State Senate District, and 106th Assembly District (Columbia County Board of Elections 2012). A Town Council is made up of five elected officials, including four councilmembers and a town supervisor.

Economy

Based on U.S. Census Bureau statistics, 66.4% of the total population in Livingston is considered part of the labor force. Of this, approximately 5.2% is unemployed (U.S. Census Bureau 2010).

Just over 30% of the labor force in Livingston is employed in sales and office occupations; management, business, science, and art occupations make up 22.1%; production, transportation, and material moving occupations make up 22.1%; natural resource, construction and maintenance occupations make up 18.4%; and service occupations provide jobs for 7.3% of the population. The educational, health care and social assistance services industries are the highest

grossing industries within the county followed by agricultural/forestry/fishing/mining industry and the retail trade industry, respectively (U.S. Census Bureau 2010).

Land Use

As shown in Table 3, the majority of structures within the town are residential followed by commercial and industrial.

Table 3: Structures in the Town of Livingston

Type of Structure (Occupancy Class)	Number of Structures			Value of Structures		
	# in Community	# in Hazard Area	% in Hazard Area	$ in Community	$ in Hazard Area	% in Hazard Area
Residential	1990	1	0.1%	$324,894,000	$2,366,000	0.7%
Commercial	79	0	0.0%	$56,163,000	$599,000	1.1%
Industrial	22	0	0.0%	$8,904,000	$109,000	1.2%
Agricultural	17	0	0.0%	$14,942,000	$283,000	1.9%
Religious/Non-Profit	3	0	0.0%	$2,436,000	$36,000	1.5%
Government	4	0	0.0%	$7,169,000	$0	0.0%
Education	1	0	0.0%	$302,000	$0	0.0%
Utilities	0	0	0.0%	$0	$0	0.0%
Total	**2,116**	**1**	0.0%	**$414,810,000**	$3,393,000	0.8%

No known changes in land use patterns or development patterns have been identified in the Town of Livingston.

Critical Infrastructure

Critical infrastructure within Livingston, including the cost value of the infrastructure, where available, is presented in Table 4.

Table 4: Critical Structures in Town of Livingston

Structure	Cost
Town of Livingston Town Hall	N/A
Highway Garage	$1,200,000
Livingston Fire House	$750,000
Elizaville Fire House	$369,000

National Flood Insurance Program Participation

The Town of Livingston entered into the NFIP on 5/24/1974 with effective flood rate maps dated 5/11/1979. The City's NFIP Program is overseen by the Code Enforcement Officer. The Town performs active maintenance on creek drainage systems to minimize flood risks.

According to the NFIP data from FEMA, since 1978 there have been 2 repetitive loss claims resulting in $12,860 in payments. The latest claim was in 2011. These claims were from 1 property as follows:

- Single Family Residences – 1
- Other Residences – 0
- Non-Residences – 0

Evacuation, Sheltering, and Housing

Coordination of evacuation operations is the responsibility of local law enforcement and will be guided by Columbia County's evacuation protocols. No jurisdiction-specific evacuation routes have been identified at this time.

Identification of sites for intermediate- and long-term housing is addressed in coordination with the County.

Capability Assessment

This section identifies the following capabilities of the local jurisdiction:

- Legal and regulatory capability;
- Administrative and technical capability; and
- Fiscal capability.

Table 5: Legal and Regulatory Capability

Regulatory Tool	Y/N	Comments
Master Plan	Y	Comprehensive Plan
Zoning ordinance	Y	
Subdivision ordinance	Y	
Growth management ordinance	N	
Floodplain ordinance	Y	
Other special purpose ordinance (stormwater, steep slope, wildfire)	N	
Building code	Y	

Table 5: Legal and Regulatory Capability		
Regulatory Tool	**Y/N**	**Comments**
Fire department ISO rating	-	
Erosion or sediment control program	Y	Gabion stone and seed
Stormwater management program	Y	Ditching and culvert cleaning
Site plan review requirements	Y	
Capital improvements plan	Y	
Economic development plan	Y	
Local emergency operations plan	Y	
Other special plans (i.e. flood mitigation plan)	N	
Flood insurance study or other engineering study for streams	N	
Elevation certificates	N	
Other		

Table 6: Administrative and Technical Capability		
Regulatory Tool	**Y/N**	**Comments**
If you are a City or County jurisdiction, please describe is your government structure? (e.g. Commission, Mayor/City Council, how many members, etc.)	-	
Planner/Engineer with knowledge of land development/land management practices	Y	
Engineer/Professional trained in construction practices related to buildings and/or infrastructure	Y	
Planner/Engineer/Scientist with an understanding of natural hazards	Y	
Personnel skilled in GIS	N	
Full time building official	N	

Table 6: Administrative and Technical Capability		
Regulatory Tool	**Y/N**	**Comments**
Floodplain Manager	Y	Code Enforcement Officer
Emergency Manager	N	
Grant writer	N	
Other personnel	N	
Other		

Table 7: Fiscal Capability		
Regulatory Tool	**Y/N**	**Comments**
Community Development Block Grants	N	
Capital improvements project funding	Y	CHIPS
Authority to levy taxes for specific purposes	-	
Fees for water, sewer, gas, or electric services	N	
Impact fees for new development	Y	Subdivision fees
Incur debt through general obligation bonds	N	
Incur debt through special tax bonds	N	
Incur debt through private activities	N	
Withhold spending in hazard prone areas	N	
Other		

Town of Livingston Mitigation Actions

Please refer to Chapter 5, tables 5-1 and 5-2 to view countywide as well as jurisdiction-specific mitigation strategies.

Table 8: Town of Livingston Mitigation Strategy

Strategy	Mitigation Action	Applies to New or Existing Assets	Hazard(s) Mitigated	Objectives Met	Lead Agency	Support Agencies	Estimated Cost	Sources of Funding	Timeline
PPL-29	Repair sluiceway/culvert on Roe-Jan Creek at Rt. 9 and Buckwheat.	Existing	All Hazards	Goal 1, Objective 1 and 2; Goal 2, All Objectives, Goal 3, All Objectives	Livingston Highway Dept.	None at this time	Moderate	State/Federal grants	1 year

Status of Incorporation of Mitigation Planning Into Existing and Future Planning Mechanisms

Each jurisdiction within Columbia County intends to incorporate mitigation planning into daily municipal operations. Hazard mitigation will be an integral component of Town procedures. Planning mechanisms that have or will incorporate hazard mitigation planning include but are not limited to:

- Operating and Capital Improvement Budget;
- Building and Zoning Ordinances;
- Comprehensive Land Use Plan;
- Municipal Ordinances;
- Fire Plan;
- Local School Service Projects; and
- Economic Development Plan.

Specific actions that the community is taking or intends to pursue in the future include:

- The Town will consider establishing a line item in its municipal budget to fund pre-disaster mitigation projects to reduce its vulnerability.
- The Town will utilize the mitigation plan's risk assessment to guide emergency response planning including development of evacuation plans.
- The Town will consider development of a hazard mitigation goal in the next update of its Comprehensive Plan.

ADOPTION RESOLUTION

(Name of Jurisdiction) Town of Livingston

(Governing Body) Town Board

(Address) County Route 19, Livingston NY 12541

RESOLUTION

Whereas, the Town of Livingston recognizes the threat that natural hazards pose to people and property within our community; and
Whereas, undertaking hazard mitigation actions will reduce the potential for harm to people and property from future hazard occurrences; and
Whereas, the U.S. Congress passed the Disaster Mitigation Act of 2000 ("Disaster Mitigation Act") emphasizing the need for pre-disaster mitigation of potential hazards;
Whereas, the Disaster Mitigation Act made available hazard mitigation grants to state and local governments; and
Whereas, an adopted Multi-Jurisdictional Hazard Mitigation Plan is required as a condition of future funding for mitigation projects under mitigation FEMA pre- and post-disaster mitigation grant programs; and
Whereas, the Town of Livingston fully participated in the FEMA-prescribed mitigation planning process to prepare this Multi-Jurisdictional Hazard Mitigation Plan; and
Whereas, the New York Emergency Management Office and the Federal Emergency Management Agency Region II officials have reviewed the "Columbia County Multi-Jurisdictional Hazard Mitigation Plan" and approved it contingent upon this official adoption of the participating governing body; and
Whereas, the Town of Livingston desires to comply with the requirements of the Disaster Mitigation Act and to augment its emergency planning efforts by formally adopting the Columbia County Multi-Hazard Mitigation Plan; and
Whereas, adoption by the governing body for the Town of Livingston demonstrates the jurisdictions' commitment to fulfilling the mitigation goals and objectives outlined in the Multi-Jurisdictional Hazard Mitigation Plan.
Whereas, adoption of this legitimizes the plan and authorizes responsible agency to carry out their responsibilities under the plan;
Now, therefore, be it resolved, that the Town of Livingston adopts the "Columbia County Multi-Jurisdictional Hazard Mitigation Plan" as an official plan; and
Be it further resolved, the Town of Livingston will submit this Adoption Resolution to the New York State Office of Emergency Management and Federal Emergency Management Agency Region II officials to enable the plan's final approval.

Passed: _____

Certifying Official

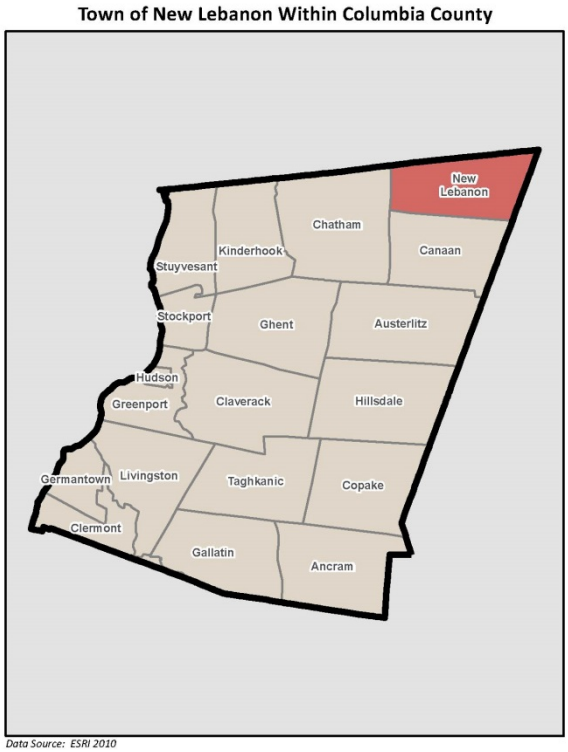
TOWN OF NEW LEBANON

Last updated: 4/23/2018

Community Profile

Location and Geography

The Town of New Lebanon (New Lebanon) is located in the easternmost corridor of New York State, covering a total area of 36 square miles. It is bordered by the Town of Chatham to the west, the Town of Canaan to the south, Rensselaer County, New York to the north and Massachusetts to the east across the Taconic Range.



Climate

The climate in New Lebanon is similar to that of Columbia County, which experiences lows that range between 0°F and -10°F and highs of 90°F-100°F (NYS Climate Office Cornell ND).

Population Trends and Demographics

The population of New Lebanon is 2,304, which represents 3.65% of the total population of Columbia County. The population is 96.4% White, 1.3% African-American, 1.0% Asian, and 1.3% is a mix of Latino, American Indian, and people that consider themselves to be of more than one race (U.S. Census Bureau 2010).

As shown in Table 1, the median age in New Lebanon is 46.8 years old. Just less than 17% of the population are over 65 while approximately 3% are under 5 years old (U.S. Census Bureau 2010).

Table 1: Age Distribution in the Town of New Lebanon, 2000 to 2010

Age Group	Population	
	2000	**2010**
Under 5 years	129 (5.3%)	66 (2.9%)
65 years and older	316 (12.9%)	386 (16.7%)
Median Age	39.8	46.8

Sources: U.S. Census Bureau 2000 and 2010

Governance

The Town of New Lebanon is located within the 19th Congressional District, 43rd State Senate District, and 107th Assembly District (Columbia County Board of Elections 2012).

Economy

Based on U.S. Census Bureau statistics, 73.2% of the total population in New Lebanon is considered part of the labor force. Of the 73.2%, approximately 2.2% is unemployed (U.S. Census Bureau 2010).

Over one third of the working population is in management, business, science, and art occupations; service occupations provide jobs to 23.6% of the population; 18.6% is employed in sales and office occupations; production, transportation, and material moving occupations make up 14.2%; and natural resource, construction and maintenance occupations make up 9.1%. The educational, health care and social assistance services industries are the highest grossing industries within the county followed by the arts and entertainment industry and the retail trade industry, respectively (U.S. Census Bureau 2010).

Land Use

As shown in Table 3, the majority of structures within the town are residential followed by commercial and public service.

Table 2: Structures in the Town of New Lebanon, Columbia County, New York

Type of Structure (Occupancy Class)	# in Community	$ in Community	No. in Hazard Area	$ in Hazard Area
Residential	928	$708,938,299	11	$8,403,363
Commercial	87	$20,762,600	8	$1,909,205
Industrial	5	$1,904,600	0	$0
Recreation & Entertainment	4	$1,152,500	1	$765,000
Agricultural	5	$1,099,200	0	$0
Public Service	34	$20,242,924	0	$0
Police/Fire	2	$382,000	0	$0
Religious/Non-Profit	6	$2,048,600	0	$0

Table 2: Structures in the Town of New Lebanon, Columbia County, New York

Type of Structure (Occupancy Class)	# in Community	$ in Community	No. in Hazard Area	$ in Hazard Area
Government	2	$1,032,500	0	$0
Vacant Land w/ improvements	30	$453,101	0	$0
Education	7	$18,319,000	1	$68,000
Total	1110	$776,335,324	21	$11,145,568

No known changes in land use patterns or development patterns have been identified in the Town of New Lebanon.

Critical Infrastructure

Critical Infrastructure within New Lebanon that may be affected by disaster includes:

- Lebanon Valley Campground;
- Lebanon Valley Speedway;
- W.B Elementary School; and
- New Lebanon School Bus Garage.

The Lebanon Valley Speedway is one of five repetitive loss properties within New Lebanon, meaning that two or more claims of greater than $1,000 have been have been made within any rolling ten-year period.

National Flood Insurance Program Participation

The Town of New Lebanon entered into the NFIP on 4/12/1974 with effective flood rate maps dated 6/5/1985. The Town's NFIP Program is overseen by the Code Enforcement/Zoning Enforcement Officer as the Floodplain Administrator. Construction within floodplains requires a permit and is regulated by a Flood Damage Prevention Ordinance (Chapter 113). The Town's Zoning Code also requires special permitting for all work that involves disturbing streambanks and streambeds. A mitigation strategy within this plan is the development of a county-led flood hazard education and outreach program.

According to the NFIP data from FEMA, since 1978 there have been 64 repetitive loss claims resulting in $918,071 in payments. The latest claim was in August of 2011. These claims were spread between 5 properties as follows:

- Single Family Residences – 2
- Other Residences – 0
- Non-Residences – 3

As mentioned above, the Lebanon Valley Speedway has been subject to repetitive flooding, and ongoing studies and maintenance is performed to reduce future flood risks.

Evacuation, Sheltering, and Housing

Coordination of evacuation operations is the responsibility of local law enforcement and will be guided by Columbia County's evacuation protocols. No jurisdiction-specific evacuation routes have been identified at this time.

Identification of sites for intermediate- and long-term housing is addressed in coordination with the County. There are three facilities that can be used for sheltering in the Town of New Lebanon. These are the Walter B. Howard Elementary School, the New Lebanon Central High School, and the Lebanon Valley Protective Association's New Lebanon Fire House.

Capability Assessment

This section identifies the following capabilities of the local jurisdiction:

- Legal and regulatory capability;
- Administrative and technical capability; and
- Fiscal capability.

Table 3: Legal and Regulatory Capability

Regulatory Tool	Y/N	Comments
Master Plan	Y	
Zoning ordinance	Y	
Subdivision ordinance	Y	Includes recommendations/preferences for "cluster housing" to minimize the amount of land cleared and the impact on erosion
Growth management ordinance	N	
Floodplain ordinance	Y	Flood Damage Prevention Ordinance, 1988

Table 3: Legal and Regulatory Capability		
Regulatory Tool	**Y/N**	**Comments**
Other special purpose ordinance (stormwater, steep slope, wildfire)	N	
Building code	Y	NYS Building Code 2012
Fire department ISO rating	Y	Rated 9
Erosion or sediment control program	Y	Not a standalone program but considered as part of subdivision regulations and Site Plan Review Process
Stormwater management program	Y	Not a standalone program but considered as part of subdivision regulations and Site Plan Review Process
Site plan review requirements	Y	
Capital improvements plan	Y	
Economic development plan	Y	Behan Consultants
Local emergency operations plan	Y	
Other special plans (i.e. flood mitigation plan)	Y	
Flood insurance study or other engineering study for streams	N	Historically, studies were completed in the 1960s & 1970s but none currently
Elevation certificates	Y	Required for subdivisions and site plan review
Other	N	

Table 4: Administrative and Technical Capability		
Regulatory Tool	**Y/N**	**Comments**
If you are a City or County jurisdiction, please describe is your government structure? (e.g. Commission, Mayor/City Council, how many members, etc.)	YES	Supervisor / 4 board members
Planner/Engineer with knowledge of land development/land management practices	Yes	Crawford & Assc.; 551 Warren St. Hudson NY 12534
Engineer/Professional trained in	Yes	Crawford & Assc.; 551 Warren St.

Table 4: Administrative and Technical Capability		
Regulatory Tool	**Y/N**	**Comments**
construction practices related to buildings and/or infrastructure		Hudson NY 12534
Planner/Engineer/Scientist with an understanding of natural hazards	No	
Personnel skilled in GIS	No	
Full time building official	No	
Floodplain Manager	Yes	Floodplain Administrator
Emergency Manager	Yes	Emergency Management Director
Grant writer	No	
Other personnel		
Other		

Table 5: Fiscal Capability		
Regulatory Tool	**Y/N**	**Comments**
Community Development Block Grants	Y	
Capital improvements project funding	Y	
Authority to levy taxes for specific purposes	Y	
Fees for water, sewer, gas, or electric services	N	
Impact fees for new development	N	
Incur debt through general obligation bonds	Y	
Incur debt through special tax bonds	N	
Incur debt through private activities	N	
Withhold spending in hazard prone areas	N	
Other		

Town of New Lebanon Mitigation Actions

Please refer to Chapter 5, tables 5-1 and 5-2 to view countywide as well as jurisdiction-specific mitigation strategies.

Table 6: Town of New Lebanon Mitigation Strategy

Strategy	Mitigation Action	Applies to New or Existing Assets	Hazard(s) Mitigated	Objectives Met	Lead Agency	Support Agencies	Estimated Cost	Sources of Funding	Timeline
PPL-11	Install flood control (concrete beds) on Wyomanock Creek.	Existing	Flooding	Goal 1, Objective 1 and 2; Goal 2, All Objectives, Goal 3, All Objectives	Town of New Lebanon	None at this time	High	State/Federal grants	2 years
PPL-12	Install flood control (concrete beds) on Kinderhook Creek.	Existing	Flooding	Goal 1, Objective 1 and 2; Goal 2, All Objectives, Goal 3, All Objectives	Town of New Lebanon	None at this time	High	State/federal grants	2 years

Status of Incorporation of Mitigation Planning Into Existing and Future Planning Mechanisms

Each jurisdiction within Columbia County intends to incorporate mitigation planning into daily municipal operations. Hazard mitigation will be an integral component of Town procedures. Planning mechanisms that have or will incorporate hazard mitigation planning include but are not limited to:

- Operating and Capital Improvement Budget;
- Building and Zoning Ordinances;
- Comprehensive Land Use Plan;
- Municipal Ordinances;
- Fire Plan;
- Local School Service Projects; and
- Economic Development Plan.

Specific actions that the community is taking or intends to pursue in the future include:

- The Town will consider establishing a line item in its municipal budget to fund pre-disaster mitigation projects to reduce its vulnerability.
- The Town will utilize the mitigation plan's risk assessment to guide emergency response planning including development of evacuation plans.
- The Town will consider development of a hazard mitigation goal in the next update of its Comprehensive Plan.
- The Town encourages cluster housing through Comprehensive Plan to mitigate flooding.

ADOPTION RESOLUTION

(Name of Jurisdiction) Town of New Lebanon

(Governing Body) Town Board

(Address) 14755 NY-22, New Lebanon NY 12125

RESOLUTION

Whereas, the Town of New Lebanon recognizes the threat that natural hazards pose to people and property within our community; and
Whereas, undertaking hazard mitigation actions will reduce the potential for harm to people and property from future hazard occurrences; and
Whereas, the U.S. Congress passed the Disaster Mitigation Act of 2000 ("Disaster Mitigation Act") emphasizing the need for pre-disaster mitigation of potential hazards;
Whereas, the Disaster Mitigation Act made available hazard mitigation grants to state and local governments; and
Whereas, an adopted Multi-Jurisdictional Hazard Mitigation Plan is required as a condition of future funding for mitigation projects under mitigation FEMA pre- and post-disaster mitigation grant programs; and
Whereas, the Town of New Lebanon fully participated in the FEMA-prescribed mitigation planning process to prepare this Multi-Jurisdictional Hazard Mitigation Plan; and
Whereas, the New York Emergency Management Office and the Federal Emergency Management Agency Region II officials have reviewed the "Columbia County Multi-Jurisdictional Hazard Mitigation Plan" and approved it contingent upon this official adoption of the participating governing body; and
Whereas, the Town of New Lebanon desires to comply with the requirements of the Disaster Mitigation Act and to augment its emergency planning efforts by formally adopting the Columbia County Multi-Jurisdictional Hazard Mitigation Plan; and
Whereas, adoption by the governing body for the Town of New Lebanon demonstrates the jurisdictions' commitment to fulfilling the mitigation goals and objectives outlined in the Multi-Jurisdictional Hazard Mitigation Plan.
Whereas, adoption of this legitimizes the plan and authorizes responsible agency to carry out their responsibilities under the plan;
Now, therefore, be it resolved, that the Town of New Lebanon adopts the "Columbia County Multi-Jurisdictional Hazard Mitigation Plan" as an official plan; and
Be it further resolved, the Town of New Lebanon will submit this Adoption Resolution to the New York State Office of Emergency Management and Federal Emergency Management Agency Region II officials to enable the plan's final approval.

Passed: _____

Certifying Official

TOWN OF STOCKPORT

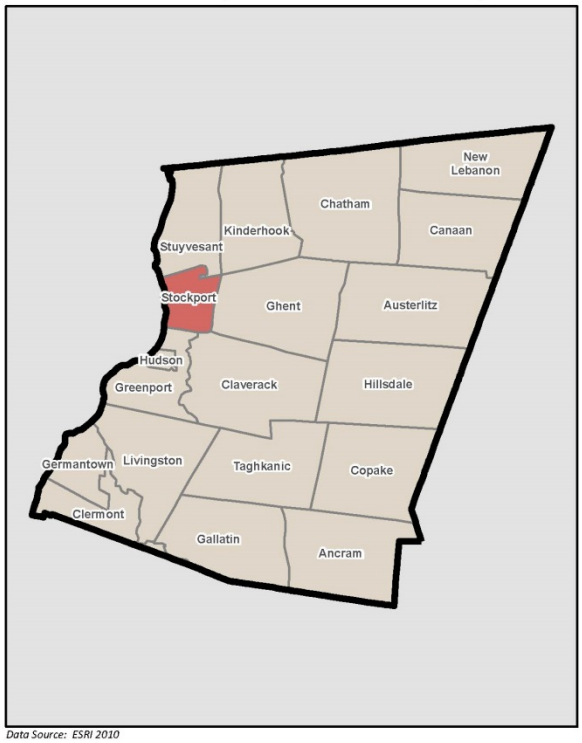
Last updated: 4/23/2018

Community Profile

Location and Geography

The Town of Stockport (Stockport) is located along the western edge of Columbia County and is bordered by the Town of Stuyvesant to the north, the Towns of Greenport and Claverack to the south, and the Town of Ghent to the east. Stockport is approximately 13 square miles, the smallest town in Columbia County. The Hudson River provides a natural border between the western edge of Stockport and Greene County, New York.

Town of Stockport Within Columbia County



Data Source: ESRI 2010

Climate

The climate in Stockport is similar to that of Columbia County, which experiences lows that range between 0°F and -10°F and highs of 90°F-100°F (NYS Climate Office Cornell ND).

Population Trends and Demographics

The population of Stockport is 2,815, which represents 4.46% of the total population of Columbia County. The population is 92% White, 4% African American, 0.7% Asian, and 3.3% other races including those that are of more than one race. Stockport is a semi-rural town primarily consisting of residences and farms (U.S. Census Bureau 2010).

As shown in Table 1, the median age in Stockport is 41.2. Approximately 13% of the population is over 65 while 6% is under 5 years old (U.S. Census Bureau 2010).

Table 1: Age Distribution in the Town of Stockport, 2000 to 2010

Age Group	Population	
	2000	**2010**
Under 5 years	188 (6.4%)	168 (6.0%)
65 years and older	328 (11.2%)	370 (13.1%)
Median Age	37.4	41.2

Sources: U.S. Census Bureau 2000 and 2010

Governance

Stockport is located within the 19th Congressional District, 43rd State Senate District, and 106th Assembly District (Columbia County Board of Elections 2012). A Town Council, made up of five elected councilmembers, oversees planning decisions at a local level.

Stockport has a police department with one commissioner and five officers.

Economy

Based on U.S. Census Bureau statistics, 61.5% of the total population in Stockport is considered part of the labor force. Of the 61.5%, approximately 5.3% is unemployed (U.S. Census Bureau 2010).

Approximately 23.7% of the working population is employed in sales and office occupations; 21.4% is employed in service occupations; management, business, science, and art occupations provide jobs to 21.2% of the population; 18.6% is employed in sales and office occupations; production, transportation, and material moving occupations make up 18.6% of the jobs; and natural resource, construction and maintenance occupations make up 15.0%. The educational, health care and social assistance services industries are the highest grossing industries within the county followed by the construction and manufacturing industries, respectively (U.S. Census Bureau 2010).

Land Use

No known changes in land use patterns or development patterns have been identified in the Town of Stockport. As shown in Table 2, the majority of structures within the town are residential followed by commercial and industrial.

Table 2: Structures in the Town of Stockport, Columbia County, New York

Type of Structure (Occupancy Class)	# in Community	$ in Community	No. in Hazard Area	$ in Hazard Area
Residential	1171	$214,783,000	27	$4,306,000
Commercial	27	$12,273,000	0	$519,000
Industrial	20	$8,988,000	0	$297,000
Agricultural	4	$888,000	0	$1,000
Religious/Non-Profit	2	$7,516,000	0	$536,000
Government	1	$1,092,000	0	$0
Education	1	$140,000	0	$5,000
Utilities	-	-	-	-
Total	**1,226**	**$245,680,000**	**27**	**$5,664,000**

National Flood Insurance Program Participation

The Town of Stockport entered into the NFIP on 10/18/1974 with effective flood rate maps dated 1/19/1983. The Town maintains a Flood Damage Prevention Ordinance (Chapter 68). The Town's NFIP Program is overseen by the Building Inspector. All new construction and development is subject to a site plan review, which measures present flood hazards and flood insurance regulations. A mitigation strategy within this plan is the development of a county-led flood hazard education and outreach program.

According to the NFIP data from FEMA, since 1978 there have been 9 repetitive loss claims resulting in $149,486 in payments. The latest claim was in 1996. These claims were spread between 3 properties as follows:

- Single Family Residences – 0

- Other Residences – 2
- Non-Residences – 1

Evacuation, Sheltering, and Housing

Coordination of evacuation operations is the responsibility of local law enforcement and will be guided by Columbia County's evacuation protocols. No jurisdiction-specific evacuation routes have been identified at this time.

Identification of sites for intermediate- and long-term housing is addressed in coordination with the County. The Town currently identifies two firehouses and the Town Hall as potential shelter locations.

Capability Assessment

This section identifies the following capabilities of the local jurisdiction:

- Legal and regulatory capability;
- Administrative and technical capability; and
- Fiscal capability.

Table 3: Legal and Regulatory Capability

Regulatory Tool	Y/N	Comments
Master Plan	Y	
Zoning ordinance	Y	
Subdivision ordinance	Y	
Growth management ordinance	N	
Floodplain ordinance	Y	Flood Damage Prevention Ordinance (Chapter 68)
Other special purpose ordinance (stormwater, steep slope, wildfire)	N	
Building code	Y	
Fire department ISO rating	Y	Stottville 5 / Stockport 4
Erosion or sediment control program	Y	
Stormwater management program	N	
Site plan review requirements	Y	
Capital improvements plan	Y	
Economic development plan	N	

Table 3: Legal and Regulatory Capability		
Regulatory Tool	**Y/N**	**Comments**
Local emergency operations plan	Y	
Other special plans (i.e. flood mitigation plan)	N	
Flood insurance study or other engineering study for streams	Y	FIRMs
Elevation certificates	Y	
Other		

Table 4: Administrative and Technical Capability		
Regulatory Tool	**Y/N**	**Comments**
If you are a City or County jurisdiction, please describe is your government structure? (e.g. Commission, Mayor/City Council, how many members, etc.)	-	
Planner/Engineer with knowledge of land development/land management practices	Y	
Engineer/Professional trained in construction practices related to buildings and/or infrastructure	Y	
Planner/Engineer/Scientist with an understanding of natural hazards	Y	
Personnel skilled in GIS	Y	Town planning consultant
Full time building official	N	
Floodplain Manager	Y	Building Inspector
Emergency Manager	Y	Town Police Chief
Grant writer	N	
Other personnel	N	
Other		

Table 5: Fiscal Capability		
Regulatory Tool	**Y/N**	**Comments**
Community Development Block Grants	N	
Capital improvements project funding	Y	
Authority to levy taxes for specific purposes	Y	
Fees for water, sewer, gas, or electric services	Y	
Impact fees for new development	N	
Incur debt through general obligation bonds	Y	
Incur debt through special tax bonds	N	
Incur debt through private activities	N	
Withhold spending in hazard prone areas	N	
Other		

Town of Stockport Mitigation Actions

Please refer to Chapter 5, tables 5-1 and 5-2 to view countywide as well as jurisdiction-specific mitigation strategies.

Table 6: Town of Stockport Mitigation Strategy

Strategy	Mitigation Action	Applies to New or Existing Assets	Hazard(s) Mitigated	Objectives Met	Lead Agency	Support Agencies	Estimated Cost	Sources of Funding	Timeline
PES-7	Trim trees by power company building.	Existing	All Hazards	Goal 1, Objective 1 and 2; Goal 2, All Objectives, Goal 3, All Objectives	Highway Department	None at this time	Low	State/federal grants	1 year
PPL-46	Elevate homes along Park Place, in the Hamlet of Stottville (located in the Village of Stockport). The structures are near Claverack Creek. • Collect cost estimates, photographs, maps, property information, and insurance claims history. • Develop engineering designs that elevate homes above the base flood elevation in accordance with NYS building codes. • Evaluate historic losses to ensure cost effectiveness, as well as an evaluation of compliance with environmental policy and historic preservation standards.	Existing	Flooding	Goal 1, Objective 1 and 2; Goal 2, All Objectives, Goal 3, All Objectives	Town Building Inspectors /Code Enforcement Officers	None at this time	Moderate	Town budget, FEMA HMGP/FMA/PDM	2 years

Strategy	Mitigation Action	Applies to New or Existing Assets	Hazard(s) Mitigated	Objectives Met	Lead Agency	Support Agencies	Estimated Cost	Sources of Funding	Timeline
PPL-47	Studies will need to be conducted along Kinderhook Creek to determine feasibility and cost-effectiveness of reconstructing dams. Considerations include: specifying the dam's purpose; choosing the best location, site investigation, laboratory and field testing, hydrology studies, engineering design, seepage control design and slope stability. Once studies have been completed and appropriate design selected, activities needing to take place will include: permitting and coordination with DEC and USACE and Conditional Letter of Map Revision consultation.	Existing	Flooding	Goal 1, Objective 1 and 2; Goal 2, All Objectives, Goal 3, All Objectives	Town Board, Highway Departme nt	None at this time	Mode rate	Town budget, FEMA HMGP	2 years

Status of Incorporation of Mitigation Planning Into Existing and Future Planning Mechanisms

Each jurisdiction within Columbia County intends to incorporate mitigation planning into daily municipal operations. Hazard mitigation will be an integral component of Town procedures. Planning mechanisms that have or will incorporate hazard mitigation planning include but are not limited to:

- Operating and Capital Improvement Budget;
- Building and Zoning Ordinances;
- Comprehensive Land Use Plan;
- Municipal Ordinances;
- Fire Plan;
- Local School Service Projects; and
- Economic Development Plan.

Specific actions that the community is taking or intends to pursue in the future include:

- The Town will consider establishing a line item in its municipal budget to fund pre-disaster mitigation projects to reduce its vulnerability.
- The Town will utilize the mitigation plan's risk assessment to guide emergency response planning including development of evacuation plans.
- The Town will consider development of a hazard mitigation goal in the next update of its Comprehensive Plan.

ADOPTION RESOLUTION

(Name of Jurisdiction) Town of Stockport

(Governing Body) Town Board

(Address) 2787 Atlantic Avenue, Hudson NY 12534

RESOLUTION

Whereas, the Town of Stockport recognizes the threat that natural hazards pose to people and property within our community; and
Whereas, undertaking hazard mitigation actions will reduce the potential for harm to people and property from future hazard occurrences; and
Whereas, the U.S. Congress passed the Disaster Mitigation Act of 2000 ("Disaster Mitigation Act") emphasizing the need for pre-disaster mitigation of potential hazards;
Whereas, the Disaster Mitigation Act made available hazard mitigation grants to state and local governments; and
Whereas, an adopted Multi-Jurisdictional Hazard Mitigation Plan is required as a condition of future funding for mitigation projects under mitigation FEMA pre- and post-disaster mitigation grant programs; and
Whereas, the Town of Stockport fully participated in the FEMA-prescribed mitigation planning process to prepare this Multi-Jurisdictional Hazard Mitigation Plan; and
Whereas, the New York Emergency Management Office and the Federal Emergency Management Agency Region II officials have reviewed the "Columbia County Multi-Jurisdictional Hazard Mitigation Plan" and approved it contingent upon this official adoption of the participating governing body; and
Whereas, the Town of Stockport desires to comply with the requirements of the Disaster Mitigation Act and to augment its emergency planning efforts by formally adopting the Columbia County Multi-Jurisdictional Hazard Mitigation Plan; and
Whereas, adoption by the governing body for the Town of Stockport demonstrates the jurisdictions' commitment to fulfilling the mitigation goals and objectives outlined in the Multi-Jurisdictional Hazard Mitigation Plan.
Whereas, adoption of this legitimizes the plan and authorizes responsible agency to carry out their responsibilities under the plan;
Now, therefore, be it resolved, that the Town of Stockport adopts the "Columbia County Multi-Jurisdictional Hazard Mitigation Plan" as an official plan; and
Be it further resolved, the Town of Stockport will submit this Adoption Resolution to the New York State Office of Emergency Management and Federal Emergency Management Agency Region II officials to enable the plan's final approval.

Passed: _____

Certifying Official

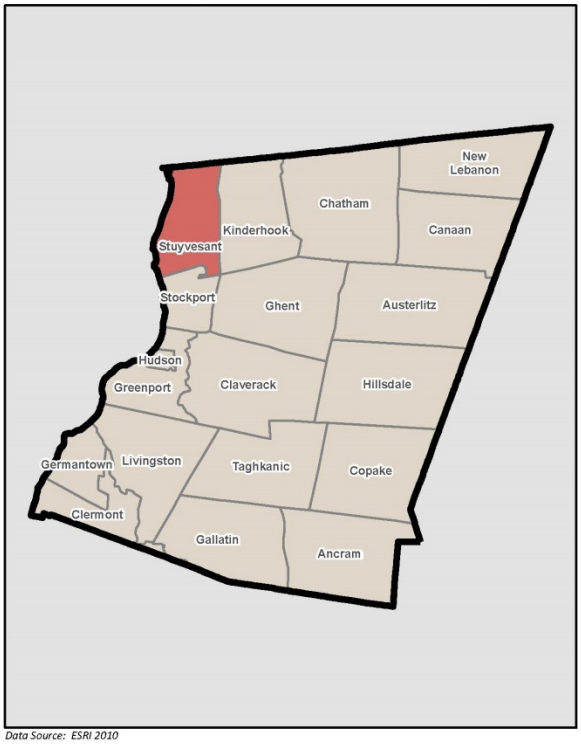
TOWN OF STUYVESANT

Last updated: 4/23/2018

Community Profile

Location and Geography

The Town of Stuyvesant (Stuyvesant) is located in the northwestern corner of Columbia County, New York. It is bordered by Rensselaer County to the north, Greene County to the west, Stockport to the south, and Kinderhook to the east.



Climate

The climate in Stuyvesant is similar to that of Columbia County, which experiences lows that range between 0°F and -10°F and highs of 90°F-100°F (NYS Climate Office Cornell ND).

Table 1 provides information on historical storms and associated costs of damage that occurred in Stuyvesant.

Table 1: Storm Events in the Town of Stuyvesant

Event	Date	Cost of Damages
Flood/Wind	8/25/2011	$35,262
Snow Storm	12/26/2010	$17,727
Ice Storm	12/11/2005	$121,535
Flood	4/2007	$50,040
Flood	4/2/2005	$51,308
Snow Storm	2/17/2003	$8,546
Snow Storm	12/24/2002	$15,594
Flood	9/25/2000	$5,000
Flood	1/19/1996	$74,355
Snow Storm	1/1996	$6,749
Snow Storm	3/13/1993	$1,587
Snow Storm	10/4/1987	$7,176

Population Trends and Demographics

The population of Stuyvesant is 2,027, which represents approximately 3.21% of the total population in Columbia County. The population is 95.8% White, 0.9% African-American, 0.4% Asian, and 2.9% of the population is a mix of races including those that are of more than one race (U.S. Census Bureau 2010).

As shown in Table 2, the median age in the Town of Stuyvesant is 42.2 years old. Just over 15% of the population is over 65 while approximately 5% is under 5 years old (U.S. Census Bureau 2010).

Table 2: Age Distribution in the Town of Stuyvesant, 2000 to 2010

Age Group	Population	
	2000	**2010**
Under 5 years	140 (6.4%)	106 (5.2%)
65 years and older	273 (12.5%)	313 (15.4%)
Median Age	38.1	42.2

Sources: U.S. Census Bureau 2000, 2010

Governance

Stuyvesant is now located within the 19th Congressional District, 43rd State Senate District, and 102nd Assembly District (Columbia County Board of Elections 2012). A Town Council, made up of four elected councilmembers, oversees planning decisions at a local level.

Stuyvesant has no town police, but is provided law enforcement support from the County Sheriff's Department and the State Police.

Economy

Based on U.S. Census Bureau statistics, 73.4% of the total population in Stuyvesant is considered part of the labor force. Of the 73.4%, approximately 6.3% is unemployed (U.S. Census Bureau 2010).

Over one third of the population is employed in management, business, science, and art occupations; 23.2% of the working population is employed in service occupations; sales and office occupations make up 15.9%; 13.3% is employed in production, transportation, and material moving occupations; and natural resource, construction and maintenance occupations make up 12.2% of the jobs. The educational, health care and social assistance services industries are the highest grossing industries within the county followed by the retail trade industry (U.S. Census Bureau 2010).

Land Use

No known changes in land use patterns or development patterns have been identified in the Town of Stuyvesant. As shown in Table 2, the majority of structures within the town are residential.

Table 3: Structures in the Town of Stuyvesant, Columbia County, New York

Type of Structure (Occupancy Class)	# in Community	$ in Community	No. in Hazard Area	$ in Hazard Area
Residential	1,024	$207,703,000	1	$773,000
Commercial	41	$18,175,000	0	$71,000
Industrial	14	$28,063,000	0	$605,000
Agricultural	10	$4,656,000	0	$0
Religious/Non-Profit	2	$3,464,000	0	$0
Government	7	$0	0	$0
Education	0	$22,990,000	0	$687,000
Utilities	-	-	-	-
Total	**1,098**	**$285,051,000**	**1**	**$2,136,000**

Critical Infrastructure

The Bridge CR 25A located over Kinderhook Creek is considered critical infrastructure within Stuyvesant.

National Flood Insurance Program Participation

The Town of Stuyvesant entered into the NFIP on 10/18/1974 with effective flood rate maps dated 9/14/1979. The Town's NFIP Program is overseen by the Building Inspector. Permits are required for all construction and development within mapped floodplains, and are subject to regulations set within the Flood Damage Prevention Law (#1-87). A mitigation strategy within this plan is the development of a county-led flood hazard education and outreach program.

According to the NFIP data from FEMA, since 1978 there have been 9 repetitive loss claims resulting in $395,986 in payments. The latest claim was in 2011. These claims were spread between 4 properties as follows:

- Single Family Residences – 4
- Other Residences – 0
- Non-Residences – 0

Evacuation, Sheltering, and Housing

Coordination of evacuation operations is the responsibility of local law enforcement and will be guided by Columbia County's evacuation protocols. No jurisdiction-specific evacuation routes have been identified at this time.

Identification of sites for intermediate- and long-term housing is addressed in coordination with the County.

Capability Assessment

This section identifies the following capabilities of the local jurisdiction:

- Legal and regulatory capability;
- Administrative and technical capability; and
- Fiscal capability.

Table 4: Legal and Regulatory Capability

Regulatory Tool	Y/N	Comments
Master Plan	Y	Adopted 1996
Zoning ordinance	Y	Adopted 2002
Subdivision ordinance	Y	
Growth management ordinance	N	
Floodplain ordinance	Y	Flood Damage Prevention Law (#1-87)
Other special purpose ordinance (stormwater, steep slope, wildfire)	N	Steep Slope Law being considered now
Building code	Y	Follow NYS
Fire department ISO rating	9	
Erosion or sediment control program	N	
Stormwater management program	N	

Table 4: Legal and Regulatory Capability		
Regulatory Tool	**Y/N**	**Comments**
Site plan review requirements	Y	
Capital improvements plan	N	
Economic development plan	N	
Local emergency operations plan	Y	Needs updating but exists
Other special plans (i.e. flood mitigation plan)	N	
Flood insurance study or other engineering study for streams	N	
Elevation certificates	N	
Other		

Table 5: Administrative and Technical Capability		
Regulatory Tool	**Y/N**	**Comments**
If you are a City or County jurisdiction, please describe is your government structure? (e.g. Commission, Mayor/City Council, how many members, etc.)	Y	Town Supervisor and town council
Planner/Engineer with knowledge of land development/land management practices	Y	Town Engineer
Engineer/Professional trained in construction practices related to buildings and/or infrastructure	Y	Can contract as needed
Planner/Engineer/Scientist with an understanding of natural hazards	N	
Personnel skilled in GIS	N	
Full time building official	N	
Floodplain Manager	Y	Building Inspector
Emergency Manager	N	
Grant writer	N	

Table 5: Administrative and Technical Capability		
Regulatory Tool	**Y/N**	**Comments**
Other personnel	N	
Other		

Table 6: Fiscal Capability		
Regulatory Tool	**Y/N**	**Comments**
Community Development Block Grants	N	
Capital improvements project funding	Y	Roads
Authority to levy taxes for specific purposes	Y	
Fees for water, sewer, gas, or electric services	N	
Impact fees for new development	N	
Incur debt through general obligation bonds	Y	
Incur debt through special tax bonds		
Incur debt through private activities	N	
Withhold spending in hazard prone areas	N	
Other		

Town of Stuyvesant Mitigation Actions

Please refer to Chapter 5, tables 5-1 and 5-2 to view countywide as well as jurisdiction-specific mitigation strategies.

Table 7: Town of Stuyvesant Mitigation Actions

Strategy	Mitigation Action	Applies to New or Existing Assets	Hazard(s) Mitigated	Objectives Met	Lead Agency	Support Agencies	Estimated Cost	Sources of Funding	Timeline
PPL-30	Develop and enforce steep slope laws and regulations to protect property owners from landslide risk.	Both	All Hazards	Goal 1, Objective 1 and 2; Goal 2, All Objectives, Goal 3, All Objectives	Town Administration	None at this time	Low	HMGP	5 years
PPL-41	This project was first mentioned in 2013 during New York Rising community meetings as #021-HA-51498-2013. The structure on Ferry Road is identified as being of historic importance. Steps toward completion at this point include: • Review completed paperwork for structure located at 41 Ferry Road. • Ensure application is in keeping with the Town's "Flood Damage Prevention Local Law" (adopted in 1987 as Local Law #1) to modify existing structures to bring them into compliance. • Submit grant applications to GOSR, Raise New York and New York State Historic Preservation Office.	Existing	Flooding	Goal 1, Objective 1 and 2; Goal 2, All Objectives, Goal 3, All Objectives	Building Department and Code Enforcement	None at this time	Moderate	New York Rising	2 years

PPL-42	Create a program for review of floodplain zoning ordinances. The review will take place bi-annually and after a major storm or flood. Ensure that current ordinances governing floodplain zoning and floodplain management are adequate for community needs. Recent shifts in the frequency and severity of local flooding show that early review of flood lines and proximity of water to nearby assets (homes businesses, infrastructure) will enable the Town of Kinderhook and its collocated villages to identify potentially critical situations sooner rather than after assets are affected.	Existing	Flooding	Goal 1, Objective 1 and 2; Goal 2, All Objectives, Goal 3, All Objectives	Building Department and Code Enforcement	None at this time	Low	Town budget, FEMA HMGP	1 year

Status of Incorporation of Mitigation Planning Into Existing and Future Planning Mechanisms

Each jurisdiction within Columbia County intends to incorporate mitigation planning into daily municipal operations. Hazard mitigation will be an integral component of Town procedures. Planning mechanisms that have or will incorporate hazard mitigation planning include but are not limited to:

- Operating and Capital Improvement Budget;
- Building and Zoning Ordinances;
- Comprehensive Land Use Plan;
- Municipal Ordinances;
- Fire Plan;
- Local School Service Projects; and
- Economic Development Plan.

Specific actions that the community is taking or intends to pursue in the future include:

- The Town will consider establishing a line item in its municipal budget to fund pre-disaster mitigation projects to reduce its vulnerability.
- The Town will utilize the mitigation plan's risk assessment to guide emergency response planning including development of evacuation plans.
- The Town will consider development of a hazard mitigation goal in the next update of its Comprehensive Plan.
- The Town routinely funds local Road improvements, which may include small mitigation projects to reduce its vulnerability.

ADOPTION RESOLUTION

(Name of Jurisdiction) Town of Stuyvesant

(Governing Body) Town Board

(Address) 5 Sunset Drive, Stuyvesant NY 12173

RESOLUTION

Whereas, the Town of Stuyvesant recognizes the threat that natural hazards pose to people and property within our community; and
Whereas, undertaking hazard mitigation actions will reduce the potential for harm to people and property from future hazard occurrences; and
Whereas, the U.S. Congress passed the Disaster Mitigation Act of 2000 ("Disaster Mitigation Act") emphasizing the need for pre-disaster mitigation of potential hazards;
Whereas, the Disaster Mitigation Act made available hazard mitigation grants to state and local governments; and
Whereas, an adopted Multi-Jurisdictional Hazard Mitigation Plan is required as a condition of future funding for mitigation projects under mitigation FEMA pre- and post-disaster mitigation grant programs; and
Whereas, the Town of Stuyvesant fully participated in the FEMA-prescribed mitigation planning process to prepare this Multi-Jurisdictional Hazard Mitigation Plan; and
Whereas, the New York Emergency Management Office and the Federal Emergency Management Agency Region II officials have reviewed the "Columbia County Multi-Jurisdictional Hazard Mitigation Plan" and approved it contingent upon this official adoption of the participating governing body; and
Whereas, the Town of Stuyvesant desires to comply with the requirements of the Disaster Mitigation Act and to augment its emergency planning efforts by formally adopting the Columbia County Multi-Jurisdictional Hazard Mitigation Plan; and
Whereas, adoption by the governing body for the Town of Stuyvesant demonstrates the jurisdictions' commitment to fulfilling the mitigation goals and objectives outlined in the Multi-Jurisdictional Hazard Mitigation Plan.
Whereas, adoption of this legitimizes the plan and authorizes responsible agency to carry out their responsibilities under the plan;
Now, therefore, be it resolved, that the Town of Stuyvesant adopts the "Columbia County Multi-Jurisdictional Hazard Mitigation Plan" as an official plan; and
Be it further resolved, the Town of Stuyvesant will submit this Adoption Resolution to the New York State Office of Emergency Management and Federal Emergency Management Agency Region II officials to enable the plan's final approval.

Passed: _____

Certifying Official

TOWN OF TAGHKANIC

Last updated: 4/23/2018

Community Profile

Location and Geography

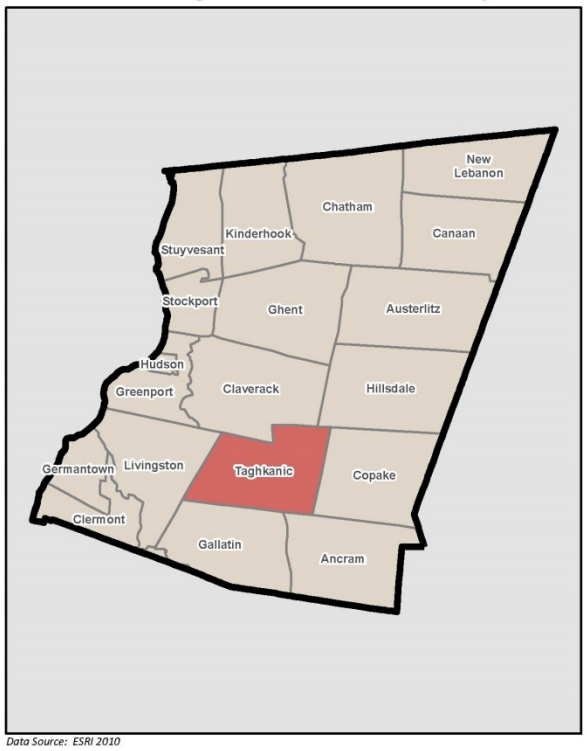
The Town of Taghkanic (Taghkanic) is located within central Columbia County. It is bordered by the Towns of Claverack and Hillsdale to the north, the Town of Livingston to the west, the Towns of Gallatin and Ancram to the south, and the Town of Copake to the east. Lake Taghkanic borders the town to the south.

Climate

The climate in Taghkanic is similar to that of Columbia County which experiences lows that range between 0°F and -10°F and highs of 90°F-100°F (NYS Climate Office Cornell ND).

Severe winter weather, with ice and heavy snow accumulation is common in this area, often resulting in dangerous travel conditions, fallen trees and power outages. Summer storms with thunder, lightning, hail, heavy rain and winds are also fairly typical. Heavy rains on July 7, 2013 resulted in significant damage to Allen Road, washed out a culvert on New Forge Road 2, and necessitated repairs to other roads, including New Forge Road 1, Banor Road, and Taghkanic Road. The Taghkanic Creek overflowed its banks, flooding State Route 82 and some buildings along the creek. Tornadoes can also occur during the summer months, and have been doing so with increased frequency.

Town of Taghkanic Within Columbia County



Data Source: ESRI 2010

Population Trends and Demographics

The population of Taghkanic is 1,310, which represents approximately 2.08% of the total population in Columbia County. The population is 95.4% White, 0.8% African American, 1.3% Asian, and 2.5% is a mix of races including Pacific Islander, Native American, and Hispanic and Latino as well as those that consider themselves to be of more than one race (U.S Census Bureau 2010).

As shown in Table 1, the median age in Taghkanic is 48.3. Approximately 19% of the population is over 65 while approximately 5% is under 5 years old (U.S. Census Bureau 2010).

Table 1: Age Distribution in the Town of Taghkanic, 1990 to 2010

Age Group		Population	
	1990	**2000**	**2010**
Under 5 years	75 (5.2%)	61 (4.2%)	67 (5.1%)
65 years and older	192 (13.2%)	254 (17.5%)	251 (19.2%)
Median Age	NA	NA	48.3

Sources: U.S. Census Bureau 1990, 2000, 2010

Governance

Due to recent redistricting, the Town of Taghkanic is now located within the 19th Congressional District, 43rd State Senate District, and 106th Assembly District (Columbia County Board of Elections 2012).

The Town of Taghkanic is served by the Taghkanic Volunteer Fire Department, located at the intersection of Old Route 82 and County Route 10. In addition to the main fire station, a small, single-truck station known as Station 2 is located at the corner of County Route 10 and County Route 27 in East Taghkanic. The main fire station serves as a Red Cross emergency shelter. Neighboring town fire departments support the Town of Taghkanic when needed.

Emergency medical and ambulance services are provided to the town by the Northern Dutchess Paramedics, Community Ambulance Service (Copake), and Greenport Rescue.

The Town of Taghkanic does not have its own town police department, but is provided law enforcement support from the County Sheriff's Department and the New York State Police.

Economy

Based on U.S. Census Bureau statistics, approximately 42% of the total population in Taghkanic is considered part of the labor force, and from that percentage, approximately 4.35% is unemployed (U.S. Census Bureau 2010).

Nearly 41% of the town's working population is employed in management, business, science, and arts occupations; 13% is employed in service occupations; sales and office occupations make up 22%; less than 8% is employed in production, transportation, and material moving occupations; and natural resource, construction and maintenance occupations make up almost 16% of the jobs. The educational, health care and social assistance services industry is the highest grossing industry within the county followed by the retail trade industry (U.S. Census Bureau 2010).

Land Use

While development has been slow in Taghkanic, trends indicate that land use in Taghkanic is gradually changing from agricultural to residential. However, much of Taghkanic remains open space or is forested. The Zoning Code is currently being rewritten and efforts are being made to ensure that open space is protected and development is controlled, in accordance with the town's comprehensive plan. It is anticipated that the code rewrite will be completed in 2018.

The Churchtown Reservoir, located in the northwest corner of Taghkanic, provides drinking water for the City of Hudson. The dam at the Churchtown Reservoir is rated by the US Army Corps of Engineers as a high hazard potential dam.

As shown in Table 2, the majority of structures within the town are residential.

Table 2: Structures in Town of Taghkanic

Type of Structure (Occupancy Class)	Number of Structures		
	# in Community	# in Hazard Area	% in Hazard Area
Residential	739	32	4.3
Agricultural	21	4	19
Utilities	19	4	21.1
Commercial	11	6	54.5
Religious/Non-Profit	5	0	0
Government	4	1	25
Education	1	0	0
Industrial	0	0	0
Total	**800**	**47**	**5.9**

Table 3 presents a breakdown of the types of structures found in Taghkanic.

Table 3: Structures in the Town of Taghkanic, Columbia County, New York

Type of Structure (Occupancy Class)	# in Community	$ in Community	No. in Hazard Area	$ in Hazard Area
Residential	739	unavailable	32	unavailable
Commercial	11	unavailable	6	unavailable
Industrial	0	unavailable	0	unavailable

Table 3: Structures in the Town of Taghkanic, Columbia County, New York				
Type of Structure (Occupancy Class)	**# in Community**	**$ in Community**	**No. in Hazard Area**	**$ in Hazard Area**
Agricultural	21	unavailable	4	unavailable
Religious/Non-Profit	5	unavailable	0	unavailable
Government	4	unavailable	1	unavailable
Education	1	unavailable	0	unavailable
Utilities	19	unavailable	4	unavailable
Total	**800**	unavailable	**47**	unavailable

Critical Infrastructure

As previously discussed, the Churchtown Reservoir, located in the northwest corner of Taghkanic, provides drinking water for the City of Hudson and its dam is rated by the US Army Corps of Engineers as a high hazard potential dam. Additional critical infrastructure includes:

- Taghkanic Town Hall;
- Taghkanic Fire Department;
- Taghkanic Motel;
- Hudson Valley Performing Arts Center;
- Copake Lake Rd;
- Berkshire Rd;
- County Route 11;
- Pumpkin Hollow Rd;
- County Route 27;
- Crow Hill Rd;
- New Forge Rd 2;
- Feller Rd 2;
- Feller Rd;
- Old Route 82;
- Taghkanic-Churchtown Rd;
- Reservoir Rd; and
- Taconic State Parkway.

No known changes in land use patterns or development patterns have been identified in the Town of Taghkanic.

National Flood Insurance Program Participation

The Town of Taghkanic entered into the NFIP on 12/20/1974 with effective flood rate maps dated 1/3/1986. The Town's NFIP Program is overseen by the Building Inspector. A Flood Damage Prevention Local Law regulates all construction and development within mapped floodplains.

According to the NFIP data from FEMA, since 1978 there have been no repetitive loss claims.

Evacuation, Sheltering, and Housing

Coordination of evacuation operations is the responsibility of local law enforcement and will be guided by Columbia County's evacuation protocols. No jurisdiction-specific evacuation routes have been identified at this time.

Identification of sites for intermediate- and long-term housing is addressed in coordination with the County.

Capability Assessment

This section identifies the following capabilities of the local jurisdiction:

- Legal and regulatory capability;
- Administrative and technical capability; and
- Fiscal capability.

Table 4: Legal and Regulatory Capability

Regulatory Tool	Y/N	Comments
Master Plan	Y	Town Comprehensive Plan
Zoning ordinance	Y	Currently being updated
Subdivision ordinance	Y	Needs update
Growth management ordinance	N	
Floodplain ordinance	N	Flood Damage Prevention Local Law
Other special purpose ordinance (stormwater, steep slope, wildfire)	N	
Building code	Y	Version: 2010
Fire department ISO rating	Y	Rating: 9
Erosion or sediment control program	Y	Trees for Tributaries
Stormwater management program	Y	Churchtown Reservoir, New Forge Dams
Site plan review requirements	Y	Planning Board

Table 4: Legal and Regulatory Capability		
Regulatory Tool	**Y/N**	**Comments**
Capital improvements plan	Y	
Economic development plan	Y	
Local emergency operations plan	Y	
Other special plans (i.e. flood mitigation plan)	Y	
Flood insurance study or other engineering study for streams	Y	
Elevation certificates	N	
Other		

Table 5: Administrative and Technical Capability		
Regulatory Tool	**Y/N**	**Comments**
If you are a City or County jurisdiction, please describe is your government structure? (e.g. Commission, Mayor/City Council, how many members, etc.)	N/A	
Planner/Engineer with knowledge of land development/land management practices	Y	Town Engineer: Morris Associates / Zoning Consultant: GreenPlan
Engineer/Professional trained in construction practices related to buildings and/or infrastructure	Y	Town Engineering Firm: Morris Associates
Planner/Engineer/Scientist with an understanding of natural hazards	N	
Personnel skilled in GIS	Y	Members of Zoning Commission have been trained in GIS through Columbia Land Conservancy
Full time building official	Y	CEO/ZEO
Floodplain Manager	Y	Building Inspector
Emergency Manager	Y	Fire Chief or designee: Incident Commander

Table 5: Administrative and Technical Capability		
Regulatory Tool	**Y/N**	**Comments**
Grant writer	N	
Other personnel	Y	Planning Board: Reviews building applications to ensure compliance with DEC buffer zones
Other	Y	Zoning Commission: New zoning code will take floodplains into consideration

Table 6: Fiscal Capability		
Regulatory Tool	**Y/N**	**Comments**
Community Development Block Grants	Y	No current applications
Capital improvements project funding	Y	
Authority to levy taxes for specific purposes	Y	
Fees for water, sewer, gas, or electric services	N	
Impact fees for new development	Y	
Incur debt through general obligation bonds	Y	
Incur debt through special tax bonds	N	
Incur debt through private activities	N	
Withhold spending in hazard prone areas	N	
Other		

Town of Taghkanic Mitigation Actions

Please refer to Chapter 5, Table 5-1 to view countywide as well as jurisdiction-specific mitigation strategies.

Table 7: Town of Taghkanic Mitigation Strategy

Strategy	Mitigation Action	Applies to New or Existing Assets	Hazard(s) Mitigated	Objectives Met	Lead Agency	Support Agencies	Estimated Cost	Sources of Funding	Timeline
PPL-13	Identify location for and install new culverts to eliminate and alleviate road flooding.	Both	Flooding	Goal 1, Objective 1 and 2; Goal 2, All Objectives, Goal 3, All Objectives	Highway Department	None at this time	Moderate	State/Federal Grants	5 years
PPL-43	Several culverts must be replaced and enlarged to accommodate stormwater from heavy rain events and flooding from creek overflow. Top priority would be given to the culvert on New Forge Road 2 because it washed out after heavy rains in July 2013. Columbia County weather was reported by the NOAA/UAlbany CSTAR program (http://cstar.cestm.albany.edu/PostMortems/CSTARPostMortems/2013/July_7_2013/7%20July%202013.htm).	Existing	Flooding	Goal 1, Objective 1 and 2; Goal 2, All Objectives, Goal 3, All Objectives	Highway Superintendent	None at this time	Low	DOS LTCR grants	1 year

Strategy	Mitigation Action	Applies to New or Existing Assets	Hazard(s) Mitigated	Objectives Met	Lead Agency	Support Agencies	Estimated Cost	Sources of Funding	Timeline
PPL-44	This two-phase project would begin with Phase 1: Hire an engineering firm to determine how to best control/reduce Taghkanic Creek flooding, especially in the area of the Fire Department and Town Hall; and Phase 2 would entail carrying out the Phase 1 recommendations.	Existing	Flooding	Goal 1, Objective 1 and 2; Goal 2, All Objectives, Goal 3, All Objectives	Town Supervisor	None at this time	Moderate	NYS DEC	2 years

Status of Incorporation of Mitigation Planning Into Existing and Future Planning Mechanisms

Each jurisdiction within Columbia County intends to incorporate mitigation planning into daily municipal operations. Hazard mitigation will be an integral component of Town procedures. Planning mechanisms that have or will incorporate hazard mitigation planning include but are not limited to:

- Operating and Capital Improvement Budget;
- Building and Zoning Ordinances;
- Comprehensive Land Use Plan;
- Municipal Ordinances;
- Fire Plan;
- Local School Service Projects; and
- Economic Development Plan.

Specific actions that the community is taking or intends to pursue in the future include:

- The Town will consider establishing a line item in its municipal budget to fund pre-disaster mitigation projects to reduce its vulnerability.
- The Town will utilize the mitigation plan's risk assessment to guide emergency response planning including development of evacuation plans.
- The Town will consider development of a hazard mitigation goal in the next update of its Comprehensive Plan.

ADOPTION RESOLUTION

(Name of Jurisdiction) Town of Taghkanic

(Governing Body) Town Board

(Address) Route 82 W, Ancram, NY 12502

RESOLUTION

Whereas, the Town of Taghkanic recognizes the threat that natural hazards pose to people and property within our community; and
Whereas, undertaking hazard mitigation actions will reduce the potential for harm to people and property from future hazard occurrences; and
Whereas, the U.S. Congress passed the Disaster Mitigation Act of 2000 ("Disaster Mitigation Act") emphasizing the need for pre-disaster mitigation of potential hazards;
Whereas, the Disaster Mitigation Act made available hazard mitigation grants to state and local governments; and
Whereas, an adopted Multi-Jurisdictional Hazard Mitigation Plan is required as a condition of future funding for mitigation projects under mitigation FEMA pre- and post-disaster mitigation grant programs; and
Whereas, the Town of Taghkanic fully participated in the FEMA-prescribed mitigation planning process to prepare this Multi-Jurisdictional Hazard Mitigation Plan; and
Whereas, the New York Emergency Management Office and the Federal Emergency Management Agency Region II officials have reviewed the "Columbia County Multi-Jurisdictional Hazard Mitigation Plan" and approved it contingent upon this official adoption of the participating governing body; and
Whereas, the Town of Taghkanic desires to comply with the requirements of the Disaster Mitigation Act and to augment its emergency planning efforts by formally adopting the Columbia County Multi-Jurisdictional Hazard Mitigation Plan; and
Whereas, adoption by the governing body for the Town of Taghkanic demonstrates the jurisdictions' commitment to fulfilling the mitigation goals and objectives outlined in the Multi-Jurisdictional Hazard Mitigation Plan.
Whereas, adoption of this legitimizes the plan and authorizes responsible agency to carry out their responsibilities under the plan;
Now, therefore, be it resolved, that the Town of Taghkanic adopts the "Columbia County Multi-Jurisdictional Hazard Mitigation Plan" as an official plan; and
Be it further resolved, the Town of Taghkanic will submit this Adoption Resolution to the New York State Office of Emergency Management and Federal Emergency Management Agency Region II officials to enable the plan's final approval.

Passed: _____

Certifying Official

VILLAGE OF CHATHAM

Last updated: 4/23/2018

Community Profile

Location and Geography

The Village of Chatham is located within the Towns of Chatham and Ghent, covering 390 acres of the town's southern border. The village is primarily surrounded by the Town of Chatham but shares its southern border with the Town of Ghent. Along a portion of the southeastern border, the village abuts the Borden's Pond Conservation area, which provides streamside-hiking trails, upland forest, and wetland areas.

There are small local concentrations of population and structures in the village. The village is a typical rural village in that it is larger than hamlets and has a higher share of structures devoted fully or partially to commercial activity.

Stony Kill, a Hudson River tributary, runs through the center of the village emptying into the Hudson River Basin.

Climate

The climate and storm history within the Village of Chatham is substantially similar to that of the town of Chatham and is therefore discussed above.

Population Trends and Demographics

The population of the Village of Chatham is 710. Population trends and demographics within the village are similar to those within the town and have been discussed in the Town of Chatham's profile.

Governance

The village is located within the 19th Congressional District, 43rd State Senate District, and 106th Assembly District (Columbia County Board of Elections 2012). A Village Board of Trustees from the Village of Chatham, made up of four board members and a mayor, oversees decisions at a local level.

The Chatham Fire Department firehouse is located at 10 Hoffman Street in the Village of Chatham and provides fire services to the village. The village owns the building, trucks, and equipment used by the Fire Company.

The Village of Chatham Police Department serves the Village of Chatham and is based in the Tracy Memorial Village Hall. The State Police and County Sheriff's Departments also provides support to the village.

Economy

Policies and regulations in the village support both the traditional and emerging agricultural sector as well as locally owned and operated businesses. Overall economy is discussed as part of the Town of Chatham profile.

Land Use

Commercial development that has taken place has been concentrated in and around the village, the hamlets, and in existing commercial areas. New businesses are designed to fit into the village's aesthetic; therefore, boutique style businesses are common. As a result, their environmental impact has been kept low and their visual appeal is consistent with the town's historic, rural character. Table 3 describes the types of structures found in Chatham.

Table 3: Structures in the Village of Chatham, Columbia County, New York

Type of Structure (Occupancy Class)	# in Community	$ in Community	No. in Hazard Area	$ in Hazard Area
Residential	687	$66,868,806	0	$0
Commercial	16	$4,078,976	0	$0
Industrial	1	$2,087,500	0	$0
Agricultural	1	$2,400,000	0	$0
Religious/Non-Profit	11	$5,879,000	0	$0
Government	2	$1,569,000	0	$0
Education	6	$18,076,700	0	$0
Utilities	10	$4,078,976	0	$0
Total	**734**	**$105.039,458**	**0**	**$0**

No known changes in land use patterns or development patterns have been identified in the Village of Chatham.

Critical Infrastructure

Critical infrastructure within the Village of Chatham incudes:

- Village of Chatham Wastewater Treatment Plants;
- Tracy Memorial Village Hall; and
- Chatham Fire Department Fire Hall.

National Flood Insurance Program Participation

The Village of Chatham entered into the NFIP on 12/6/1974 with effective flood rate maps dated 12/15/1982. The Town's NFIP Program is overseen by the Code Enforcement Officer and regulated by the Flood Damage Prevention Ordinance.

According to the NFIP data from FEMA, since 1978 there have been no repetitive loss claims.

Evacuation, Sheltering, and Housing

Coordination of evacuation operations is the responsibility of local law enforcement and will be guided by Columbia County's evacuation protocols. No jurisdiction-specific evacuation routes have been identified at this time.

Identification of sites for intermediate- and long-term housing is addressed in coordination with the County.

Capability Assessment

This section identifies the following capabilities of the local jurisdiction:

- Legal and regulatory capability;
- Administrative and technical capability; and
- Fiscal capability.

Table 4: Legal and Regulatory Capability

Regulatory Tool	Y/N	Comments
Master Plan	Y	Comprehensive Plan
Zoning ordinance	Y	
Subdivision ordinance	Y	
Growth management ordinance	Y	
Floodplain ordinance	Y	Flood Damage Prevention Ordinance
Other special purpose ordinance (stormwater, steep slope, wildfire)	Y	
Building code	Y	

Table 4: Legal and Regulatory Capability		
Regulatory Tool	**Y/N**	**Comments**
Fire department ISO rating	Y	
Erosion or sediment control program	N	
Stormwater management program	Y	
Site plan review requirements	Y	
Capital improvements plan	N	
Economic development plan	N	
Local emergency operations plan	N	
Other special plans (i.e. flood mitigation plan)	N	
Flood insurance study or other engineering study for streams	N	
Elevation certificates	N	
Other		

Table 5: Administrative and Technical Capability		
Regulatory Tool	**Y/N**	**Comments**
If you are a City or County jurisdiction, please describe is your government structure? (e.g. Commission, Mayor/City Council, how many members, etc.)	N/A	
Planner/Engineer with knowledge of land development/land management practices	Y	
Engineer/Professional trained in construction practices related to buildings and/or infrastructure	Y	
Planner/Engineer/Scientist with an understanding of natural hazards	Y	
Personnel skilled in GIS	N	
Full time building official	Y	
Floodplain Manager	Y	Code Enforcement Officer

Table 5: Administrative and Technical Capability		
Regulatory Tool	**Y/N**	**Comments**
Emergency Manager	-	
Grant writer	N	
Other personnel		
Other		

Table 6: Fiscal Capability		
Regulatory Tool	**Y/N**	**Comments**
Community Development Block Grants		
Capital improvements project funding		
Authority to levy taxes for specific purposes	Y	
Fees for water, sewer, gas, or electric services	Y	
Impact fees for new development		
Incur debt through general obligation bonds		
Incur debt through special tax bonds		
Incur debt through private activities		
Withhold spending in hazard prone areas		
Other		

Village of Chatham Mitigation Strategies

Please refer to Chapter 5, tables 5-1 and 5-2 to view countywide as well as jurisdiction-specific mitigation strategies.

Table 7: Village of Chatham Mitigation Strategy

Strategy	Mitigation Action	Applies to New or Existing Assets	Hazard(s) Mitigated	Objectives Met	Lead Agency	Support Agencies	Estimated Cost	Sources of Funding	Timeline
PES-16	Purchase generator for sewer plant.	Both	All Hazards	Goal 1, Objective 1 and 2; Goal 2, All Objectives, Goal 3, All Objectives	Chatham Sewer Dept.	None at this time	Low	State/Federal grants	6 months

Status of Incorporation of Mitigation Planning Into Existing and Future Planning Mechanisms

Each jurisdiction within Columbia County intends to incorporate mitigation planning into daily municipal operations. Hazard mitigation will be an integral component of Village procedures. Planning mechanisms that have or will incorporate hazard mitigation planning include but are not limited to:

- Operating and Capital Improvement Budget;
- Building and Zoning Ordinances;
- Comprehensive Land Use Plan;
- Municipal Ordinances;
- Fire Plan;
- Local School Service Projects; and
- Economic Development Plan.

Specific actions that the community is taking or intends to pursue in the future include:

- The Village will consider establishing a line item in its municipal budget to fund pre-disaster mitigation projects to reduce its vulnerability.
- The Village will utilize the mitigation plan's risk assessment to guide emergency response planning including development of evacuation plans.
- The Village will consider development of a hazard mitigation goal in the next update of its Comprehensive Plan.

ADOPTION RESOLUTION

(Name of Jurisdiction) Village of Chatham

(Governing Body) Town Board

(Address) 488 NY-295, Chatham NY 12037

RESOLUTION

Whereas, the Village of Chatham recognizes the threat that natural hazards pose to people and property within our community; and
Whereas, undertaking hazard mitigation actions will reduce the potential for harm to people and property from future hazard occurrences; and
Whereas, the U.S. Congress passed the Disaster Mitigation Act of 2000 ("Disaster Mitigation Act") emphasizing the need for pre-disaster mitigation of potential hazards;
Whereas, the Disaster Mitigation Act made available hazard mitigation grants to state and local governments; and
Whereas, an adopted Multi-Jurisdictional Hazard Mitigation Plan is required as a condition of future funding for mitigation projects under mitigation FEMA pre- and post-disaster mitigation grant programs; and
Whereas, the Village of Chatham fully participated in the FEMA-prescribed mitigation planning process to prepare this Multi-Jurisdictional Hazard Mitigation Plan; and
Whereas, the New York Emergency Management Office and the Federal Emergency Management Agency Region II officials have reviewed the "Columbia County Multi-Jurisdictional Hazard Mitigation Plan" and approved it contingent upon this official adoption of the participating governing body; and
Whereas, the Village of Chatham desires to comply with the requirements of the Disaster Mitigation Act and to augment its emergency planning efforts by formally adopting the Columbia County Multi-Jurisdictional Hazard Mitigation Plan; and
Whereas, adoption by the governing body for the Village of Chatham demonstrates the jurisdictions' commitment to fulfilling the mitigation goals and objectives outlined in the Multi-Jurisdictional Hazard Mitigation Plan.
Whereas, adoption of this legitimizes the plan and authorizes responsible agency to carry out their responsibilities under the plan;
Now, therefore, be it resolved, that the Village of Chatham adopts the "Columbia County Multi-Jurisdictional Hazard Mitigation Plan" as an official plan; and
Be it further resolved, the Village of Chatham will submit this Adoption Resolution to the New York State Office of Emergency Management and Federal Emergency Management Agency Region II officials to enable the plan's final approval.

Passed: _____

_____
Certifying Official

VILLAGE OF KINDERHOOK

Last updated: 4/23/2018

Community Profile

Location and Geography

The Village of Kinderhook is one of two villages located within the boundaries of the Town of Kinderhook. It is located within southwestern portion of the town and encompasses approximately 612 acres of both developed and undeveloped land. Valatie Village is also located in the Town of Kinderhook. It is located in the center of the town and encompasses 810 acres (see community profile for Valatie Village).

Climate

The climate in the Village of Kinderhook is similar to that of Columbia County, which experiences lows that range between 0°F and -10°F and highs of 90°F-100°F (NYS Climate Office Cornell ND).

Specific storm events that have affected the Village of Kinderhook are discussed above in the profile of the Town of Kinderhook.

Population Trends and Demographics

The population of the Village of Kinderhook is 1,211. The Villages of Kinderhook and Valatie and the Town of Kinderhook combined represent approximately 13.47% of the total population in Columbia County. The population is 96.7% White, 1.1% African American, 0.6% Asian, and 1.6% Hispanic or Latino, American Indian, and those that are a combination of one or more races.

Table 1 shows the median age as 45.2. Approximately 18% of the population is over 65 while approximately 5% is under 5 years old (U.S. Census Bureau 2010).

Table 1: Age Distribution Village of Kinderhook, New York, 1990 to 2010

Age Group	Population	
	2000	**2010**
Under 5 years	431 (5.2%)	396 (4.7%)
65 years and older	1,287 (15.5%)	1,538 (18.1%)
Median Age	40.7	45.2

Governance

The Village of Kinderhook is located within the 19th Congressional District, 43rd State Senate District, and 107th Assembly District (Columbia County Board of Elections 2012). The Village Board is comprised of five elected representatives, including four trustees and a mayor.

The Village of Kinderhook Fire Department provides fire protection services to the village. There is no village police department within the Village of Kinderhook, but is provided law enforcement support from the County Sherriff's department and the State Police.

Land Use

No known changes in land use patterns or development patterns have been identified in the Village of Kinderhook. Table 2 describes the types of structures found in Kinderhook. The majority of structures are residential.

Table 2: Structures in the Village of Kinderhook, Columbia County, New York

Type of Structure (Occupancy Class)	# in Community	$ in Community	No. in Hazard Area	$ in Hazard Area
Residential	567	$129,000,398	2	$1,858,500
Commercial	40	$12,695,144	2	$1,322,000
Industrial	0	$0	0	$0
Agricultural	8	$2,826,078	1	$796,610
Religious/Non-Profit	8	$6,113,375	0	$0
Government	8	$899,085	0	$0
Education	1	$1,418,059	0	$0
Utilities	3	$960,913	1	$158,558
Total	**635**	**$1,193,221**	**6**	**$4,135,668**

National Flood Insurance Program Participation

The Village of Kinderhook entered into the NFIP on 10/25/1974 with effective flood rate maps dated 12/1/1982. The Town's NFIP Program is overseen by the Code Enforcement Officer and regulated by the Flood Damage Prevention Ordinance.

According to the NFIP data from FEMA, since 1978 there have been no repetitive loss claims.

Evacuation, Sheltering, and Housing

Coordination of evacuation operations is the responsibility of local law enforcement and will be guided by Columbia County's evacuation protocols. No jurisdiction-specific evacuation routes have been identified at this time.

Identification of sites for intermediate- and long-term housing is addressed in coordination with the County.

Capability Assessment

This section identifies the following capabilities of the local jurisdiction:

- Legal and regulatory capability;
- Administrative and technical capability; and
- Fiscal capability.

Table 3: Legal and Regulatory Capability

Regulatory Tool	Y/N	Comments
Master Plan	Y	
Zoning ordinance	Y	
Subdivision ordinance	Y	
Growth management ordinance	Y	
Floodplain ordinance	Y	Flood Damage Prevention Ordinance
Other special purpose ordinance (stormwater, steep slope, wildfire)	N	
Building code	Y	Adopted State Building Code
Fire department ISO rating	Y	Protection Class 5
Erosion or sediment control program		
Stormwater management program	Y	
Site plan review requirements	Y	
Capital improvements plan	Y	
Economic development plan	Y	
Local emergency operations plan	Y	
Other special plans (i.e. flood	-	Currently working to implement plan

Table 3: Legal and Regulatory Capability		
Regulatory Tool	**Y/N**	**Comments**
mitigation plan)		
Flood insurance study or other engineering study for streams	Y	
Elevation certificates	Y	
Other		

Table 5: Administrative and Technical Capability		
Regulatory Tool	**Y/N**	**Comments**
If you are a City or County jurisdiction, please describe is your government structure? (e.g. Commission, Mayor/City Council, how many members, etc.)	-	Mayor/Village Board: Mayor + four trustees
Planner/Engineer with knowledge of land development/land management practices	Y	Village Engineer
Engineer/Professional trained in construction practices related to buildings and/or infrastructure	Y	Building Inspector
Planner/Engineer/Scientist with an understanding of natural hazards	Y	Village Engineer
Personnel skilled in GIS	N	
Full time building official	Y	
Floodplain Manager	Y	Code Enforcement Officer
Emergency Manager	Y	Mayor/Village Board
Grant writer		
Other personnel	Y	DPW
Other	Y	Fire Chief

Table 6: Fiscal Capability		
Regulatory Tool	**Y/N**	**Comments**

Table 6: Fiscal Capability		
Regulatory Tool	**Y/N**	**Comments**
Community Development Block Grants	N	
Capital improvements project funding	Y	
Authority to levy taxes for specific purposes	Y	
Fees for water, sewer, gas, or electric services	Y	
Impact fees for new development	Y	
Incur debt through general obligation bonds	Y	
Incur debt through special tax bonds	N	
Incur debt through private activities	N	
Withhold spending in hazard prone areas	N	
Other		

Village of Kinderhook Mitigation Actions

Please refer to Chapter 5, tables 5-1 and 5-2 to view countywide as well as jurisdiction-specific mitigation strategies.

Table 7: Village of Kinderhook Mitigation Strategy

Strategy	Mitigation Action	Applies to New or Existing Assets	Hazard(s) Mitigated	Objectives Met	Lead Agency	Support Agencies	Estimated Cost	Sources of Funding	Timeline
PES-6	Purchase a generator for the Village Hall, the seat of local government.	New	All Hazards	Goal 1, Objective 1 and 2; Goal 2, All Objectives, Goal 3, All Objectives	Village Inspector and Mayor	None at this time	Moderate	Village Budget, HMGP	1 year
PPL-45	Create a program for review of floodplain zoning ordinances. The review will take place bi-annually and after a major storm or flood. Ensure that current ordinances governing floodplain zoning and floodplain management are adequate for community needs. Recent shifts in the frequency and severity of local flooding show that early review of flood lines and proximity of water to nearby assets (homes, businesses, infrastructure) will enable the Village of Kinderhook and the collocated Town of Kinderhook to identify potentially critical situations sooner rather than after assets are affected.	Existing	Flooding	Goal 1, Objective 1 and 2; Goal 2, All Objectives, Goal 3, All Objectives	Village Inspector and Mayor	None at this time	Low	Village Budget, HMGP	1 year

Status of Incorporation of Mitigation Planning Into Existing and Future Planning Mechanisms

Each jurisdiction within Columbia County intends to incorporate mitigation planning into daily municipal operations. Hazard mitigation will be an integral component of Village procedures. Planning mechanisms that have or will incorporate hazard mitigation planning include but are not limited to:

- Operating and Capital Improvement Budget;
- Building and Zoning Ordinances;
- Comprehensive Land Use Plan;
- Municipal Ordinances;
- Fire Plan;
- Local School Service Projects; and
- Economic Development Plan.

Specific actions that the community is taking or intends to pursue in the future include:

- The Village will consider establishing a line item in its municipal budget to fund pre-disaster mitigation projects to reduce its vulnerability.
- The Village will utilize the mitigation plan's risk assessment to guide emergency response planning including development of evacuation plans.
- The Village will consider development of a hazard mitigation goal in the next update of its Comprehensive Plan.

ADOPTION RESOLUTION

(Name of Jurisdiction) Village of Kinderhook

(Governing Body) Village Board

(Address) P.O. BOX 325, 6 Chatham Street, Kinderhook NY 12106

RESOLUTION

Whereas, the Village of Kinderhook recognizes the threat that natural hazards pose to people and property within our community; and
Whereas, undertaking hazard mitigation actions will reduce the potential for harm to people and property from future hazard occurrences; and
Whereas, the U.S. Congress passed the Disaster Mitigation Act of 2000 ("Disaster Mitigation Act") emphasizing the need for pre-disaster mitigation of potential hazards;
Whereas, the Disaster Mitigation Act made available hazard mitigation grants to state and local governments; and
Whereas, an adopted Multi-Jurisdictional Hazard Mitigation Plan is required as a condition of future funding for mitigation projects under mitigation FEMA pre- and post-disaster mitigation grant programs; and
Whereas, the Village of Kinderhook fully participated in the FEMA-prescribed mitigation planning process to prepare this Multi-Jurisdictional Hazard Mitigation Plan; and
Whereas, the New York Emergency Management Office and the Federal Emergency Management Agency Region II officials have reviewed the "Columbia County Multi-Jurisdictional Hazard Mitigation Plan" and approved it contingent upon this official adoption of the participating governing body; and
Whereas, the Village of Kinderhook desires to comply with the requirements of the Disaster Mitigation Act and to augment its emergency planning efforts by formally adopting the Columbia County Multi-Jurisdictional Hazard Mitigation Plan; and
Whereas, adoption by the governing body for the Village of Kinderhook demonstrates the jurisdictions' commitment to fulfilling the mitigation goals and objectives outlined in the Multi-Jurisdictional Hazard Mitigation Plan.
Whereas, adoption of this legitimizes the plan and authorizes responsible agency to carry out their responsibilities under the plan;
Now, therefore, be it resolved, that the Village of Kinderhook adopts the "Columbia County Multi-Jurisdictional Hazard Mitigation Plan" as an official plan; and
Be it further resolved, the Village of Kinderhook will submit this Adoption Resolution to the New York State Office of Emergency Management and Federal Emergency Management Agency Region II officials to enable the plan's final approval.

Passed: _____

Certifying Official

VILLAGE OF PHILMONT

Last updated: 4/23/2018

Community Profile

Location and Geography

The Village of Philmont is located in central Columbia County, New York within the northeastern corner of the Town of Claverack.

Climate

The climate in the Village of Philmont is similar to that of the town of Claverack as well as Columbia County, which experiences lows that range between 0°F and -10°F and highs of 90°F-100°F (NYS Climate Office Cornell ND).

A 2002 high wind event caused $224,000 in damage throughout the region. During this storm, a tree fell onto a home in Philmont causing structural damage to the roof and attic. Additional storms that affected the general area are discussed in the Town of Claverack profile.

Population and Demographics

The population of Philmont is 1,379. Population trends and demographics within Philmont are similar to those within the Town of Claverack. Combined, The Town of Claverack and Village of Philmont represent approximately 9.54% of the total population in Columbia County. The population is 93.4% White, 3% African American, 0.7% Asian, and 2.9% is a mix of Hispanic, Native American, and those that consider themselves to be of more than one race.

Governance

Although Philmont is located within the boundaries of Claverack Township, it is considered its own municipality and governed separately. Due to redistricting, the village is now located within the 19th Congressional District, 43rd State Senate District, and 106th Assembly District (Columbia County Board of Elections 2012). In addition, an elected board of trustees and mayor provide governance at a local level.

Philmont has a volunteer fire company called the Philmont Fire Company. Additional support is provided by the A.B. Shaw Fire Company, Churchtown Fire Company, Craryville Fire Company, Mellenville Fire Company, and the West Ghent Fire Company. Ambulance and rescue services are provided by the Greenport Rescue Squad.

Philmont maintains a part-time police force but is also provided law enforcement support from the County Sheriff's Department and the State Police.

Economy

Philmont's economy is similar to the Town of Claverack's economy.

Land Use and Population Trends

The majority of Philmont is zoned for rural and low-density rural building along the outskirts of the village. Toward the central areas of the village, there are hamlets and general business and high density zones. In addition, parcels are zoned for mill production.

No known changes in land use patterns or development patterns have been identified in the Village of Philmont.

Critical Infrastructure

Critical infrastructure within Philmont includes:

- The Legion Hall;
- Police Station;
- Village Hall;
- Philmont Public Library;
- Philmont Wastewater Treatment Plant located in Mellenville;
- Philmont Dam Reservoir;
- Pine Haven Nursing and Rehabilitation Center;
- Tripp Nutrition Center; and
- Philmont Community Center.

National Flood Insurance Program Participation

The Village of Philmont does not participate in the NFIP and, according to FEMA has experienced no repetitive loss claims since 1978.

Evacuation, Sheltering, and Housing

Coordination of evacuation operations is the responsibility of local law enforcement and will be guided by Columbia County's evacuation protocols. No jurisdiction-specific evacuation routes have been identified at this time.

Identification of sites for intermediate- and long-term housing is addressed in coordination with the County.

Capability Assessment

This section identifies the following capabilities of the local jurisdiction:

- Legal and regulatory capability;
- Administrative and technical capability; and
- Fiscal capability.

Table 4: Legal and Regulatory Capability		
Regulatory Tool	**Y/N**	**Comments**
Master Plan	Y	Comprehensive Plan
Zoning ordinance	Y	
Subdivision ordinance	N	
Growth management ordinance	N	
Floodplain ordinance	N	
Other special purpose ordinance (stormwater, steep slope, wildfire)	N	
Building code	Y	
Fire department ISO rating	N	
Erosion or sediment control program	N	
Stormwater management program	N	
Site plan review requirements	Y	
Capital improvements plan	N	
Economic development plan	N	
Local emergency operations plan	Y	
Other special plans (i.e. flood mitigation plan)	N	
Flood insurance study or other engineering study for streams	N	
Elevation certificates	N	
Other		

Table 5: Administrative and Technical Capability		
Regulatory Tool	**Y/N**	**Comments**
If you are a City or County jurisdiction, please describe is your government structure? (e.g. Commission, Mayor/City Council, how many members, etc.)	N/A	

Table 5: Administrative and Technical Capability		
Regulatory Tool	**Y/N**	**Comments**
Planner/Engineer with knowledge of land development/land management practices	Y	
Engineer/Professional trained in construction practices related to buildings and/or infrastructure	Y	
Planner/Engineer/Scientist with an understanding of natural hazards	N	
Personnel skilled in GIS	N	
Full time building official	N	
Floodplain Manager	N	
Emergency Manager	N	
Grant writer	N	
Other personnel	N	
Other		

Table 6: Fiscal Capability		
Regulatory Tool	**Y/N**	**Comments**
Community Development Block Grants	N	
Capital improvements project funding	N	
Authority to levy taxes for specific purposes	N	
Fees for water, sewer, gas, or electric services	N	
Impact fees for new development	N	
Incur debt through general obligation bonds	N	
Incur debt through special tax bonds	N	
Incur debt through private activities	N	

Table 6: Fiscal Capability		
Regulatory Tool	**Y/N**	**Comments**
Withhold spending in hazard prone areas	N	
Other		

Village of Philmont Mitigation Actions

Please refer to Chapter 5, tables 5-1 and 5-2 to view countywide as well as jurisdiction-specific mitigation strategies.

Table 7: Village of Philmont Mitigation Strategy

Strategy	Mitigation Action	Applies to New or Existing Assets	Hazard(s) Mitigated	Objectives Met	Lead Agency	Support Agencies	Estimated Cost	Sources of Funding	Timeline
None identified									

Status of Incorporation of Mitigation Planning Into Existing and Future Planning Mechanisms

Each jurisdiction within Columbia County intends to incorporate mitigation planning into daily municipal operations. Hazard mitigation will be an integral component of Village procedures. Planning mechanisms that have or will incorporate hazard mitigation planning include but are not limited to:

- Operating and Capital Improvement Budget;
- Building and Zoning Ordinances;
- Comprehensive Land Use Plan;
- Municipal Ordinances;
- Fire Plan;
- Local School Service Projects; and
- Economic Development Plan.

Specific actions that the community is taking or intends to pursue in the future include:

- The Village will consider establishing a line item in its municipal budget to fund pre-disaster mitigation projects to reduce its vulnerability.
- The Village will utilize the mitigation plan's risk assessment to guide emergency response planning including development of evacuation plans.
- The Village will consider development of a hazard mitigation goal in the next update of its Comprehensive Plan.

ADOPTION RESOLUTION

(Name of Jurisdiction) Village of Philmont

(Governing Body) Village Board

(Address) 124 Main Street, PO BOX 822, Philmont NY 12565

RESOLUTION

Whereas, the Village of Philmont recognizes the threat that natural hazards pose to people and property within our community; and
Whereas, undertaking hazard mitigation actions will reduce the potential for harm to people and property from future hazard occurrences; and
Whereas, the U.S. Congress passed the Disaster Mitigation Act of 2000 ("Disaster Mitigation Act") emphasizing the need for pre-disaster mitigation of potential hazards;
Whereas, the Disaster Mitigation Act made available hazard mitigation grants to state and local governments; and
Whereas, an adopted Multi-Jurisdictional Hazard Mitigation Plan is required as a condition of future funding for mitigation projects under mitigation FEMA pre- and post-disaster mitigation grant programs; and
Whereas, the Village of Philmont fully participated in the FEMA-prescribed mitigation planning process to prepare this Multi-Jurisdictional Hazard Mitigation Plan; and
Whereas, the New York Emergency Management Office and the Federal Emergency Management Agency Region II officials have reviewed the "Columbia County Multi-Jurisdictional Hazard Mitigation Plan" and approved it contingent upon this official adoption of the participating governing body; and
Whereas, the Village of Philmont desires to comply with the requirements of the Disaster Mitigation Act and to augment its emergency planning efforts by formally adopting the Columbia County Multi-Jurisdictional Hazard Mitigation Plan; and
Whereas, adoption by the governing body for the Village of Philmont demonstrates the jurisdictions' commitment to fulfilling the mitigation goals and objectives outlined in the Multi-Jurisdictional Hazard Mitigation Plan.
Whereas, adoption of this legitimizes the plan and authorizes responsible agency to carry out their responsibilities under the plan;
Now, therefore, be it resolved, that the Village of Philmont adopts the "Columbia County Multi-Jurisdictional Hazard Mitigation Plan" as an official plan; and
Be it further resolved, the Village of Philmont will submit this Adoption Resolution to the New York State Emergency Management Office and Federal Emergency Management Agency Region II officials to enable the plan's final approval.

Passed: _____

Certifying Official

VILLAGE OF VALATIE

Last updated: 4/23/2018

Community Profile

Location and Geography

The Village of Valatie is one of two villages (Village of Kinderhook is located within the southwestern portion of the town) located within the boundaries of the Town of Kinderhook. It is located within the central portion of the town and encompasses approximately 810 acres.

Climate

The climate in the Village of Valatie is similar to that of Columbia County, which experiences lows that range between 0°F and -10°F and highs of 90°F-100°F (NYS Climate Office Cornell ND).

Specific storm events that have affected the Village of Valatie are discussed the Town of Kinderhook profile.

Population Trends and Demographics

The population of the Village of Valatie is 1.819. The Villages of Kinderhook and Valatie and the Town of Kinderhook combined represent approximately 13.47% of the total population in Columbia County. The population is 96.7% White, 1.1% African American, 0.6% Asian, and 1.6% Hispanic or Latino, American Indian, and those that are a combination of one or more races.

Governance

The Village of Valatie is located within the 19th Congressional District, 43rd State Senate District, and 106th Assembly District (Columbia County Board of Elections 2012). The Village Board is comprised of four trustees and a mayor.

The Village of Valatie Fire Department provides fire protection services to the village. There is no police department in the Village of Valatie. Law enforcement support is provided by the County Sheriff's Department and the State Police.

Land Use

No known changes in land use patterns or development patterns have been identified in the Village of Valatie. Table 3 describes the types of structures found in Valatie. The majority of structures are residential.

Table 3: Structures in the Village of Valatie, Columbia County, New York

Type of Structure (Occupancy Class)	# in Community	$ in Community	No. in Hazard Area	$ in Hazard Area
Residential	571	$124,989,956	0	$0
Commercial	47	$16,605,839	6	$1,605,215
Industrial	0	$0	0	$0
Agricultural	3	$445,100	2	$242,600
Religious/Non-Profit	13	$5,116,818	0	$0
Government	27	$6,606,100	3	$2,947,400
Education	0	$0	0	$0
Utilities (Poles)	N/A	$691,881	N/A	$291,881
Total	**661**	**$154,455,694**	**11**	**$5,087,096**

National Flood Insurance Program Participation

The Village of Valatie entered into the NFIP on 9/26/1975 with effective flood rate maps dated 12/1/1982. The Village's NFIP Program is overseen by the Code Enforcement Officer and regulated by the Flood Damage Prevention Ordinance. A mitigation strategy within this plan is the development of a county-led flood hazard education and outreach program.

According to the NFIP data from FEMA, since 1978 there have been 4 repetitive loss claims resulting in $35,277 in payments. The latest claim was in 2000. These claims were spread between 2 properties as follows:

- Single Family Residences – 1
- Other Residences – 1
- Non-Residences – 0

Evacuation, Sheltering, and Housing

Coordination of evacuation operations is the responsibility of local law enforcement and will be guided by Columbia County's evacuation protocols. No jurisdiction-specific evacuation routes have been identified at this time.

Identification of sites for intermediate- and long-term housing is addressed in coordination with the County.

Capability Assessment

This section identifies the following capabilities of the local jurisdiction:

- Legal and regulatory capability;
- Administrative and technical capability; and
- Fiscal capability.

Table 4: Legal and Regulatory Capability

Regulatory Tool	Y/N	Comments
Master Plan	N	
Zoning ordinance	Y	
Subdivision ordinance	Y	
Growth management ordinance	N	
Floodplain ordinance	Y	Flood Damage Prevention Ordinance
Other special purpose ordinance (stormwater, steep slope, wildfire)	N	
Building code	Y	
Fire department ISO rating	Y	
Erosion or sediment control program	N	
Stormwater management program	Y	
Site plan review requirements	Y	
Capital improvements plan	Y	
Economic development plan	N	
Local emergency operations plan	N	
Other special plans (i.e. flood mitigation plan)	N	
Flood insurance study or other engineering study for streams	N	

Table 4: Legal and Regulatory Capability		
Regulatory Tool	**Y/N**	**Comments**
Elevation certificates	N	
Other		

Table 5: Administrative and Technical Capability		
Regulatory Tool	**Y/N**	**Comments**
If you are a City or County jurisdiction, please describe is your government structure? (e.g. Commission, Mayor/City Council, how many members, etc.)	N/A	
Planner/Engineer with knowledge of land development/land management practices	N/A	
Engineer/Professional trained in construction practices related to buildings and/or infrastructure	N/A	
Planner/Engineer/Scientist with an understanding of natural hazards	N/A	
Personnel skilled in GIS	N/A	
Full time building official	N/A	
Floodplain Manager	Y	Code Enforcement Officer
Emergency Manager	N/A	
Grant writer	N/A	
Other personnel	N/A	
Other		

Table 6: Fiscal Capability		
Regulatory Tool	**Y/N**	**Comments**
Community Development Block Grants	No	
Capital improvements project funding	No	
Authority to levy taxes for specific	No	

Table 6: Fiscal Capability		
Regulatory Tool	**Y/N**	**Comments**
purposes		
Fees for water, sewer, gas, or electric services	No	
Impact fees for new development	No	
Incur debt through general obligation bonds	No	
Incur debt through special tax bonds	No	
Incur debt through private activities	No	
Withhold spending in hazard prone areas	No	
Other		

Village of Valatie Mitigation Strategies

Please refer to Chapter 5, tables 5-1 and 5-2 to view countywide as well as jurisdiction-specific mitigation strategies.

Table 7: Village of Valatie Mitigation Strategy

Strategy	Mitigation Action	Applies to New or Existing Assets	Hazard(s) Mitigated	Objectives Met	Lead Agency	Support Agencies	Estimated Cost	Sources of Funding	Timeline
PES-17	Improve sewer system to eliminate infiltration from storm water overflows during large storm events.	Both	Flooding	Goal 1, Objective 1 and 2; Goal 2, All Objectives, Goal 3, All Objectives	Valatie Sewer Dept.	None at this time	High	EFC Bonds	1 year
PES-24	Purchase a generator for the Village Hall (in the Martin H. Glynn Municipal Center), which serves as the seat of Valatie government.	Both	All Hazards	Goal 1, Objective 1 and 2; Goal 2, All Objectives, Goal 3, All Objectives	Village Building Inspector and Mayor	None at this time	Moderate	Village budget, joint funding, FEMA HMGP funding	1 year
PPL-19	Ensure that current ordinances governing floodplain zoning and floodplain management are adequate for community needs. Recent shifts in the frequency and severity of local flooding show that early review of flood lines and proximity of water to nearby assets (homes businesses, infrastructure) will enable the Village and collocated Town of Kinderhook to identify potentially critical situations sooner rather than after assets are affected.	Both	Flooding	Goal 1, Objective 1 and 2; Goal 2, All Objectives, Goal 3, All Objectives	Building Inspector and Mayor	None at this time	Low	Village budget, FEMA MGP	1 year

Strategy	Mitigation Action	Applies to New or Existing Assets	Hazard(s) Mitigated	Objectives Met	Lead Agency	Support Agencies	Estimated Cost	Sources of Funding	Timeline
PPL-48	Improvements would take place in two phases. Phase 1 is an engineering study to identify a reasonable solution to the problem. Improvements made as part of Phase 2 would be identified during the study. A map of the neighborhood and measurements of the study area are shown on the next page. A linear measurement of the road is provided in the text box and shows the street length as roughly one-quarter of a mile. Conduct a hydrogeologic study of the underground stream running through the New Street neighborhood. Measure level of flooding in each structure to determine how seepage affects each property. Compile report and recommend solution that enhances the resiliency of each property and the neighborhood.	Existing	Flooding	Goal 1, Objective 1 and 2; Goal 2, All Objectives, Goal 3, All Objectives	Mayor and Building Inspector	None at this time	Moderate	Community Development Funding	1 year

Status of Incorporation of Mitigation Planning Into Existing and Future Planning Mechanisms

Each jurisdiction within Columbia County intends to incorporate mitigation planning into daily municipal operations. Hazard mitigation will be an integral component of Village procedures. Planning mechanisms that have or will incorporate hazard mitigation planning include but are not limited to:

- Operating and Capital Improvement Budget;
- Building and Zoning Ordinances;
- Comprehensive Land Use Plan;
- Municipal Ordinances;
- Fire Plan;
- Local School Service Projects; and
- Economic Development Plan.

Specific actions that the community is taking or intends to pursue in the future include:

- The Village will consider establishing a line item in its municipal budget to fund pre-disaster mitigation projects to reduce its vulnerability.
- The Village will utilize the mitigation plan's risk assessment to guide emergency response planning including development of evacuation plans.
- The Village will consider development of a hazard mitigation goal in the next update of its Comprehensive Plan.

ADOPTION RESOLUTION

(Name of Jurisdiction) Village of Valatie

(Governing Body) Village Board

(Address) 3211 Church Street, Valatie NY 12184

RESOLUTION

Whereas, the Village of Valatie recognizes the threat that natural hazards pose to people and property within our community; and
Whereas, undertaking hazard mitigation actions will reduce the potential for harm to people and property from future hazard occurrences; and
Whereas, the U.S. Congress passed the Disaster Mitigation Act of 2000 ("Disaster Mitigation Act") emphasizing the need for pre-disaster mitigation of potential hazards;
Whereas, the Disaster Mitigation Act made available hazard mitigation grants to state and local governments; and
Whereas, an adopted Multi-Jurisdictional Hazard Mitigation Plan is required as a condition of future funding for mitigation projects under mitigation FEMA pre- and post-disaster mitigation grant programs; and
Whereas, the Village of Valatie fully participated in the FEMA-prescribed mitigation planning process to prepare this Multi-Jurisdictional Hazard Mitigation Plan; and
Whereas, the New York Emergency Management Office and the Federal Emergency Management Agency Region II officials have reviewed the "Columbia County Multi-Jurisdictional Hazard Mitigation Plan" and approved it contingent upon this official adoption of the participating governing body; and
Whereas, the Village of Valatie desires to comply with the requirements of the Disaster Mitigation Act and to augment its emergency planning efforts by formally adopting the Columbia County Multi-Jurisdictional Hazard Mitigation Plan; and
Whereas, adoption by the governing body for the Village of Valatie the jurisdictions' commitment to fulfilling the mitigation goals and objectives outlined in the Multi-Jurisdictional Hazard Mitigation Plan.
Whereas, adoption of this legitimizes the plan and authorizes responsible agency to carry out their responsibilities under the plan;
Now, therefore, be it resolved, that the Village of Valatie adopts the "Columbia County Multi-Jurisdictional Hazard Mitigation Plan" as an official plan; and
Be it further resolved, the Village of Valatie will submit this Adoption Resolution to the New York State Office of Emergency Management and Federal Emergency Management Agency Region II officials to enable the plan's final approval.

Passed: _____

Certifying Official



Columbia County, New York

Appendix C

Mitigation Action Worksheets

MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN

April 2018

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Action Worksheet		
1. Name of Jurisdiction: **Name of Haz. Mit. Plan:**	Countywide Columbia County Multi-Jurisdictional Hazard Mitigation Plan	
Risk / Vulnerability		
2. Problem being Mitigated:	All of the county may be affected by mitigation actions prioritized in this plan. An improper understanding of risk can potentially lead to wasted money or improper investment of risk areas.	
Potential Actions/Projects (not being Implemented at this time)		
3. Actions/Projects Considered with Summary Evaluation of Each:	Preferred: Incorporate existing and upcoming studies into the appropriate sections of this plan. Alternative: Hire a consultant to determine to perform engineering studies to determine high risk areas in greater detail.	
Action or Project Intended for Implementation		
4. Action/Project Number: **Name of Action or Project:**	EP-1 Incorporation of data into Hazard Mitigation Plan.	
5. Action or Project Description:	Collect additional information to fill any existing data gaps in this plan. Proper implementation of this plan depends on current and accurate data. Proper identification of hazard areas and highly vulnerable assets will assist in the reduction of risks.	
6. Summary of Evaluation[1] **Benefits (losses avoided)** **Estimated Cost** **Other Factors Considered** **(see STAPLEE Worksheet)**	**BENEFIT** **High.** On-going, long-term reduced vulnerability through inclusive planning.	**COST** **Low.** Low cost, on-going implementation.
Plan for Implementation		
7. Responsible Organization:	All jurisdictions in Columbia County	
8. Action/Project Priority (STAPLEE Score):	36	
9. Timeline for Completion:	ASAP	
10. Potential Fund Sources:	State/Federal Grants	
11. Local Planning Mechanisms to be Used in Implementation, if any:	County CEMP	
Progress Report		
12. 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		
1. Name of Jurisdiction: **Name of Haz. Mit. Plan:**	Countywide Columbia County Multi-Jurisdictional Hazard Mitigation Plan	
Risk / Vulnerability		
2. Problem being Mitigated:	Communities vulnerable to flood damage lack programs to ensure collaboration during natural disasters.	
Potential Actions/Projects (not being Implemented at this time)		
3. Actions/Projects Considered with Summary Evaluation of Each:	Preferred: Develop a countywide sandbagging action plan to encourage partnerships. Alternative: Continue to implement sandbagging operations independently.	
Action or Project Intended for Implementation		
4. Action/Project Number: **Name of Action or Project:**	EP-2 Sandbagging action plan.	
5. Action or Project Description:	Develop and implement a countywide sandbagging action plan to encourage partnerships between communities vulnerable to flood damages.	
6. Summary of Evaluation[1] **Benefits (losses avoided)** **Estimated Cost** **Other Factors Considered** **(see STAPLEE Worksheet)**	**BENEFIT** **High.** On-going, long-term reduced vulnerability through inclusive planning.	**COST** **Low.** Low cost, on-going implementation.
Plan for Implementation		
7. Responsible Organization:	All jurisdictions in Columbia County	
8. Action/Project Priority (STAPLEE Score):	36	
9. Timeline for Completion:	1 year	
10. Potential Fund Sources:	State/Federal Grants	
11. Local Planning Mechanisms to be Used in Implementation, if any:	Municipal Comprehensive Plans for all Columbia County	
Progress Report		
12. 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		
1. Name of Jurisdiction: **Name of Haz. Mit. Plan:**	Countywide Columbia County Multi-Jurisdictional Hazard Mitigation Plan	
Risk / Vulnerability		
2. Problem being Mitigated:	Lack of inter-jurisdictional agreements leads to inability to assist each other in times of need.	
Potential Actions/Projects (not being Implemented at this time)		
3. Actions/Projects Considered with Summary Evaluation of Each:	Preferred: Initiation of inter-jurisdictional agreements to augment local resources. Alternative: Continue working with local resources, and independently seeking out local assistance when required.	
Action or Project Intended for Implementation		
4. Action/Project Number: **Name of Action or Project:**	EP-3 Conduct cooperative study to encourage local inter-jurisdictional agreements.	
5. Action or Project Description:	Conduct a cooperative study with the Office of the State Comptroller using their Cooperation and Consolidation Consulting Service to encourage local inter-jurisdictional agreements where local resources are insufficient to handle a severe hazardous event, including sheltering evacuating citizens.	
6. Summary of Evaluation[1] **Benefits (losses avoided)** **Estimated Cost** **Other Factors Considered** **(see STAPLEE Worksheet)**	**BENEFIT** **High.** On-going, long-term reduced vulnerability through inclusive planning.	**COST** **Low.** Low cost, on-going implementation.
Plan for Implementation		
7. Responsible Organization:	All legislative jurisdictions in Columbia County	
8. Action/Project Priority (STAPLEE Score):	41	
9. Timeline for Completion:	1 year	
10. Potential Fund Sources:	State/Federal Grants	
11. Local Planning Mechanisms to be Used in Implementation, if any:	Municipal Comprehensive Plans for all Columbia County	
Progress Report		
12. 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		
Name of Jurisdiction: **Name of Haz. Mit. Plan:**	23 cities, towns and villages in Columbia County Columbia County Multi-Jurisdictional Hazard Mitigation Plan	
Risk / Vulnerability		
Problem being Mitigated:	Inter-Municipal Agreements with other Localities for Emergency Services	
Potential Actions/Projects (not being Implemented at this time)		
Actions/Projects Considered with Summary Evaluation of Each:	None at this time.	
Action or Project Intended for Implementation		
Action/Project Number: **Name of Action or Project:**	EP-4 Entering into Inter-Municipal Agreements for labor and equipment	
Action or Project Description:	Towns to enter into Inter-Municipality agreements to provide work force and equipment support during a severe hazardous event.	
Summary of Evaluation[1] **Benefits (losses avoided)** **Estimated Cost** **Other Factors Considered**	**BENEFIT** **High.** Allows Towns to share work force and equipment (which it may not have) and labor to repair hazard damage quickly.	**COST** **Low.** No Cost – Services are tracked and bartered.
Plan for Implementation		
Responsible Organization:	23 cities, towns and villages and Columbia County	
Action/Project Priority (STAPLEE Score):	39	
Timeline for Completion:	1 year	
Potential Fund Sources:	Town Highway Budgets	
Local Planning Mechanisms to be Used in Implementation, if any:	Municipal Comprehensive Plans for all Columbia County	
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		
Name of Jurisdiction: **Name of Haz. Mit. Plan:**	Town of Copake, NY Columbia County Multi-Jurisdictional Hazard Mitigation Plan	
Risk / Vulnerability		
Problem being Mitigated:	Gaps in Comprehensive Plan, and areas to integrate mitigation into planning to ensure risk assessment and mitigation planning is incorporated into all planning efforts.	
Potential Actions/Projects (not being Implemented at this time)		
Actions/Projects Considered with Summary Evaluation of Each:	Preferred: Use mitigation plan and planning process to document best practices for long-term planning. Alternative: Identify new avenues to incorporate mitigation planning into comprehensive plan.	
Action or Project Intended for Implementation		
Action/Project Number: **Name of Action or Project:**	EP-5 Mitigation incorporation planning	
Action or Project Description:	Review Comprehensive Plan to bring lessons learned from mitigation planning process into other planning processes.	
Summary of Evaluation[1] **Benefits (losses avoided)** **Estimated Cost** **Other Factors Considered**	**BENEFIT** **High.** Allows Town to increase overall mitigation.	**COST** **Low.** No Cost – Ongoing activity.
Plan for Implementation		
Responsible Organization:	Town of Copake	
Action/Project Priority (STAPLEE Score):	37	
Timeline for Completion:	1 year	
Potential Fund Sources:	General Budget	
Local Planning Mechanisms to be Used in Implementation, if any:	Municipal Comprehensive Plans for all Columbia County	
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		
1. Name of Jurisdiction: **Name of Haz. Mit. Plan:**	Countywide Columbia County Multi-Jurisdictional Hazard Mitigation Plan	
Risk / Vulnerability		
2. Problem being Mitigated:	Population may not be aware of hazards that may affect them and could be a high, moderate or low degree of preparedness.	
Potential Actions/Projects (not being Implemented at this time)		
3. Actions/Projects Considered with Summary Evaluation of Each:	Preferred: Develop cross-jurisdictional campaign information to pool resources and realize benefits to cooperating. Alternative: Release public information campaigns individually through each participating jurisdiction.	
Action or Project Intended for Implementation		
4. Action/Project Number: **Name of Action or Project:**	IPA-1 Full-scale public outreach program	
5. Action or Project Description:	Develop and implement a full-scale public outreach program to inform the public about the hazard risks in their community and provide useful best practices to help limit these risks. Provide floodplain information and maps as part of the program.	
6. Summary of Evaluation[1] **Benefits (losses avoided)** **Estimated Cost** **Other Factors Considered** **(see STAPLEE Worksheet)**	**BENEFIT** **High.** Immediate and long-term reduced vulnerability and increased resiliency from disasters.	**COST** **Low.** Low cost, on-going implementation.
Plan for Implementation		
7. Responsible Organization:	All jurisdictions in Columbia County	
8. Action/Project Priority (STAPLEE Score):	37	
9. Timeline for Completion:	1 year	
10. Potential Fund Sources:	State/Federal Grants	
11. Local Planning Mechanisms to be Used in Implementation, if any:	Columbia County CEMP	
Progress Report		
12. 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		
1. Name of Jurisdiction: **Name of Haz. Mit. Plan:**	Countywide Columbia County Multi-Jurisdictional Hazard Mitigation Plan	
Risk / Vulnerability		
2. Problem being Mitigated:	Citizens may lack knowledge of current resources for communication to County.	
Potential Actions/Projects (not being Implemented at this time)		
3. Actions/Projects Considered with Summary Evaluation of Each:	Preferred: Develop shared procedures for public to make complaints that can be disseminated at the local level. Alternative: County to develop singular procedure and share on website.	
Action or Project Intended for Implementation		
4. Action/Project Number: **Name of Action or Project:**	IPA-2 Citizen complaint procedures	
5. Action or Project Description:	Educate citizens of available countrywide mechanism for complaints about debris in drainage ditches and flood water across roadways (identical to Goal 4: PES-5).	
6. Summary of Evaluation[1] **Benefits (losses avoided)** **Estimated Cost** **Other Factors Considered** **(see STAPLEE Worksheet)**	**BENEFIT** **High.** Immediate and long-term reduction of flooding from areas backed up debris	**COST** **Low.** Low cost, on-going implementation.
Plan for Implementation		
7. Responsible Organization:	All highway department jurisdictions in Columbia County	
8. Action/Project Priority (STAPLEE Score):	34	
9. Timeline for Completion:	1 year	
10. Potential Fund Sources:	Highway department, NYDOT, General Fund	
11. Local Planning Mechanisms to be Used in Implementation, if any:	Columbia County CEMP	
Progress Report		
12. 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		
1. Name of Jurisdiction: **Name of Haz. Mit. Plan:**	Countywide Columbia County Multi-Jurisdictional Hazard Mitigation Plan	
Risk / Vulnerability		
2. Problem being Mitigated:	Citizens may be unaware of techniques to protect private property before storms.	
Potential Actions/Projects (not being Implemented at this time)		
3. Actions/Projects Considered with Summary Evaluation of Each:	Preferred: Countywide campaign to educate citizens with standardized information. Alternative: local jurisdictions develop their own standalone campaigns to educate citizens.	
Action or Project Intended for Implementation		
4. Action/Project Number: **Name of Action or Project:**	IPA-3 Debris clearance public information campaign	
5. Action or Project Description:	Institute an annual public information campaign to remind citizens to inspect and clear properties of tree limb debris before storm season.	
6. Summary of Evaluation[1] **Benefits (losses avoided)** **Estimated Cost** **Other Factors Considered** **(see STAPLEE Worksheet)**	**BENEFIT** **High.** Immediate and long-term reduced vulnerability through inclusive planning	**COST** **Moderate.** Low cost for public awareness, high cost to update floodplain maps.
Plan for Implementation		
7. Responsible Organization:	All jurisdictions in Columbia County	
8. Action/Project Priority (STAPLEE Score):	31	
9. Timeline for Completion:	1 year	
10. Potential Fund Sources:	General Fund	
11. Local Planning Mechanisms to be Used in Implementation, if any:	Columbia County CEMP	
Progress Report		
12. 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		
1. Name of Jurisdiction: **Name of Haz. Mit. Plan:**	Town of Germantown Columbia County Multi-Jurisdictional Hazard Mitigation Plan	
Risk / Vulnerability		
2. Problem being Mitigated:	Drainage systems may malfunction and increase or cause damage due to severe disasters.	
Potential Actions/Projects (not being Implemented at this time)		
3. Actions/Projects Considered with Summary Evaluation of Each:	Preferred: study the drainage issues occurring and determine the best system to alleviate issues. Alternative: Hire a consultant to recommend best drainage system solutions.	
Action or Project Intended for Implementation		
4. Action/Project Number: **Name of Action or Project:**	IPA-4 Drainage study	
5. Action or Project Description:	Generate a cost-effective option for improving drainage systems through an initial study of appropriate systems.	
6. Summary of Evaluation[1] **Benefits (losses avoided)** **Estimated Cost** **Other Factors Considered** **(see STAPLEE Worksheet)**	**BENEFIT** **High.** On-going, long-term reduced vulnerability through inclusive planning.	**COST** **Moderate.** Costs will vary as options become available.
Plan for Implementation		
7. Responsible Organization:	Town of Germantown	
8. Action/Project Priority (STAPLEE Score):	39	
9. Timeline for Completion:	2 years	
10. Potential Fund Sources:	State NFIP, FEMA, and Town of Germantown	
11. Local Planning Mechanisms to be Used in Implementation, if any:	Municipal Comprehensive Plan	
Progress Report		
12. 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		
1. Name of Jurisdiction: **Name of Haz. Mit. Plan:**	Town of Germantown Columbia County Multi-Jurisdictional Hazard Mitigation Plan	
Risk / Vulnerability		
2. Problem being Mitigated:	In the Town of Germantown increase public awareness of floodplain management and acquire better floodplain maps.	
Potential Actions/Projects (not being Implemented at this time)		
3. Actions/Projects Considered with Summary Evaluation of Each:	Preferred: Development of floodplain maps located on local website and in Town Hall. Alternative: Maintained floodplain maps available at Town Hall upon request.	
Action or Project Intended for Implementation		
4. Action/Project Number: **Name of Action or Project:**	IPA-5 Floodplain map distribution	
5. Action or Project Description:	Increase awareness of floodplain management through the creation and distribution of floodplain maps.	
6. Summary of Evaluation[1] **Benefits (losses avoided)** **Estimated Cost** **Other Factors Considered** **(see STAPLEE Worksheet)**	**BENEFIT** **High.** On-going, long-term reduced vulnerability through inclusive planning.	**COST** **Moderate.** Low cost for public awareness, high cost to update floodplain maps.
Plan for Implementation		
7. Responsible Organization:	Town of Germantown	
8. Action/Project Priority (STAPLEE Score):	44	
9. Timeline for Completion:	1 year	
10. Potential Fund Sources:	State NFIP, FEMA, and Town of Germantown	
11. Local Planning Mechanisms to be Used in Implementation, if any:	Columbia County CEMP	
Progress Report		
12. 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		
1. Name of Jurisdiction: **Name of Haz. Mit. Plan:**	Town of Germantown Columbia County Multi-Jurisdictional Hazard Mitigation Plan	
Risk / Vulnerability		
2. Problem being Mitigated:	Drainage systems may malfunction and increase or cause damage due to severe disasters.	
Potential Actions/Projects (not being Implemented at this time)		
3. Actions/Projects Considered with Summary Evaluation of Each:	Preferred: Study the drainage issues occurring and determine the best system to minimize them. Alternative: Hire a consultant to recommend best drainage system solutions.	
Action or Project Intended for Implementation		
4. Action/Project Number: **Name of Action or Project:**	IPA-6 Drainage study	
5. Action or Project Description:	Generate a cost-effective option for improving drainage systems through an initial study of appropriate systems.	
6. Summary of Evaluation[1] **Benefits (losses avoided)** **Estimated Cost** **Other Factors Considered** **(see STAPLEE Worksheet)**	**BENEFIT** **High.** On-going, long-term reduced vulnerability through inclusive planning.	**COST** **Moderate.** Costs will vary as options become available.
Plan for Implementation		
7. Responsible Organization:	Town of Germantown	
8. Action/Project Priority (STAPLEE Score):	39	
9. Timeline for Completion:	2 years	
10. Potential Fund Sources:	State NFIP, FEMA, and Town of Germantown	
11. Local Planning Mechanisms to be Used in Implementation, if any:	Municipal Comprehensive Plan	
Progress Report		
12. 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		
1. Name of Jurisdiction: **Name of Haz. Mit. Plan:**	Countywide Columbia County Multi-Jurisdictional Hazard Mitigation Plan	
Risk / Vulnerability		
2. Problem being Mitigated:	The County is unaware of which assets may be damaged due to floods because there is no standardized inventory of assets.	
Potential Actions/Projects (not being Implemented at this time)		
3. Actions/Projects Considered with Summary Evaluation of Each:	Preferred: Overlay all existing county assets with 100-year floodplain map to determine which assets are at the greatest risk, and determine need to relocate. Alternative: Survey unmapped assets to determine their proximity to floodplain.	
Action or Project Intended for Implementation		
4. Action/Project Number: **Name of Action or Project:**	PES-1 Inventory mapping	
5. Action or Project Description:	Develop an inventory map of county assets vulnerable to flood damage.	
6. Summary of Evaluation[1] **Benefits (losses avoided)** **Estimated Cost** **Other Factors Considered** **(see STAPLEE Worksheet)**	**BENEFIT** **High.** On-going, long-term reduced vulnerability through inclusive planning.	**COST** **Moderate.** The cost will vary in each community for on-going implementation.
Plan for Implementation		
7. Responsible Organization:	All legislative jurisdictions in Columbia County	
8. Action/Project Priority (STAPLEE Score):	39	
9. Timeline for Completion:	2 years	
10. Potential Fund Sources:	State/Federal Grants	
11. Local Planning Mechanisms to be Used in Implementation, if any:	Columbia County CEMP	
Progress Report		
12. 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		
1. Name of Jurisdiction: **Name of Haz. Mit. Plan:**	Countywide Columbia County Multi-Jurisdictional Hazard Mitigation Plan	
Risk / Vulnerability		
2. Problem being Mitigated:	County assets are vulnerable to flooding and value of many assets is unknown.	
Potential Actions/Projects (not being Implemented at this time)		
3. Actions/Projects Considered with Summary Evaluation of Each:	Preferred: Identify assets and determine valuation to develop prioritization criteria for protection. Alternative: Hire a consultant to determine need to flood-proof assets.	
Action or Project Intended for Implementation		
4. Action/Project Number: **Name of Action or Project:**	PES-2 Prioritized asset flood-proofing study	
5. Action or Project Description:	Conduct a study to prioritize county assets for future flood-proofing or elevation (i.e., elevation of utilities).	
6. Summary of Evaluation[1] **Benefits (losses avoided)** **Estimated Cost** **Other Factors Considered** **(see STAPLEE Worksheet)**	**BENEFIT** **High.** On-going, long-term reduced vulnerability through inclusive planning.	**COST** **Moderate.** The cost will vary in each community for on-going implementation.
Plan for Implementation		
7. Responsible Organization:	All floodplain manager offices	
8. Action/Project Priority (STAPLEE Score):	35	
9. Timeline for Completion:	2 years	
10. Potential Fund Sources:	State/Federal Funding	
11. Local Planning Mechanisms to be Used in Implementation, if any:	Columbia County CEMP	
Progress Report		
12. 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		
1. Name of Jurisdiction: **Name of Haz. Mit. Plan:**	Countywide Columbia County Multi-Jurisdictional Hazard Mitigation Plan	
Risk / Vulnerability		
2. Problem being Mitigated:	Municipalities need additional funding for hazard mitigation projects.	
Potential Actions/Projects (not being Implemented at this time)		
3. Actions/Projects Considered with Summary Evaluation of Each:	Preferred: Work with DHSES and FEMA to increase awareness of funding opportunities.	
Action or Project Intended for Implementation		
4. Action/Project Number: **Name of Action or Project:**	PES-3 Identification of funding streams for mitigation projects.	
5. Action or Project Description:	Develop a program to identify funding streams for hazard mitigation projects and help municipalities apply for project funding.	
6. Summary of Evaluation[1] **Benefits (losses avoided)** **Estimated Cost** **Other Factors Considered** **(see STAPLEE Worksheet)**	**BENEFIT** **High.** On-going, long-term reduced vulnerability through inclusive planning.	**COST** **Low.** Low cost, on-going implementation.
Plan for Implementation		
7. Responsible Organization:	All jurisdictions in Columbia County	
8. Action/Project Priority (STAPLEE Score):	32	
9. Timeline for Completion:	5 years	
10. Potential Fund Sources:	State/ Federal Grants	
11. Local Planning Mechanisms to be Used in Implementation, if any:	Columbia County CEMP	
Progress Report		
12. 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		
1. Name of Jurisdiction: **Name of Haz. Mit. Plan:**	Countywide Columbia County Multi-Jurisdictional Hazard Mitigation Plan	
Risk / Vulnerability		
2. Problem being Mitigated:	The County is unable to accurately estimate flood insurance rates on the fly because floodmaps are not available to quickly determine property proximities to floodplains.	
Potential Actions/Projects (not being Implemented at this time)		
3. Actions/Projects Considered with Summary Evaluation of Each:	Preferred: Request shapefiles to be placed into county GIS records.	
Action or Project Intended for Implementation		
4. Action/Project Number: **Name of Action or Project:**	PES-4 Place FIRMs into County GIS Database.	
5. Action or Project Description:	Incorporate Flood Insurance Rate Maps (FIRM) into the county GIS.	
6. Summary of Evaluation[1] **Benefits (losses avoided)** **Estimated Cost** **Other Factors Considered** **(see STAPLEE Worksheet)**	**BENEFIT** **High.** On-going, long-term reduced vulnerability through inclusive planning.	**COST** **Moderate.** The cost will vary in each community for on-going implementation.
Plan for Implementation		
7. Responsible Organization:	Floodplain administrators in Columbia County	
8. Action/Project Priority (STAPLEE Score):	34	
9. Timeline for Completion:	1 year	
10. Potential Fund Sources:	State/Federal grants	
11. Local Planning Mechanisms to be Used in Implementation, if any:	Columbia County CEMP	
Progress Report		
12. 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		
1. Name of Jurisdiction: **Name of Haz. Mit. Plan:**	Countywide Columbia County Multi-Jurisdictional Hazard Mitigation Plan	
Risk / Vulnerability		
2. Problem being Mitigated:	The County may not be able prevent damage to utility right-of-way before storms.	
Potential Actions/Projects (not being Implemented at this time)		
3. Actions/Projects Considered with Summary Evaluation of Each:	Preferred: annually inspect ROW for overhangs. Alleviates issues immediately. Alternative: Allow citizens to call in complaints. Relies upon citizens to properly understand risk, may misdiagnose problems.	
Action or Project Intended for Implementation		
4. Action/Project Number: **Name of Action or Project:**	PES-5 ROW Inspection Program	
5. Action or Project Description:	Annually inspect municipal utility right-of-way for overhanging and impinging tree limbs before the storm season.	
6. Summary of Evaluation[1] **Benefits (losses avoided)** **Estimated Cost** **Other Factors Considered** **(see STAPLEE Worksheet)**	**BENEFIT** **High.** Immediate and long-term reduction in flooding from areas backed up by debris.	**COST** **Low.** Low cost, on-going implementation.
Plan for Implementation		
7. Responsible Organization:	All jurisdictions in Columbia County	
8. Action/Project Priority (STAPLEE Score):	32	
9. Timeline for Completion:	1 year	
10. Potential Fund Sources:	State/Federal grants	
11. Local Planning Mechanisms to be Used in Implementation, if any:	Columbia County CEMP	
Progress Report		
12. 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

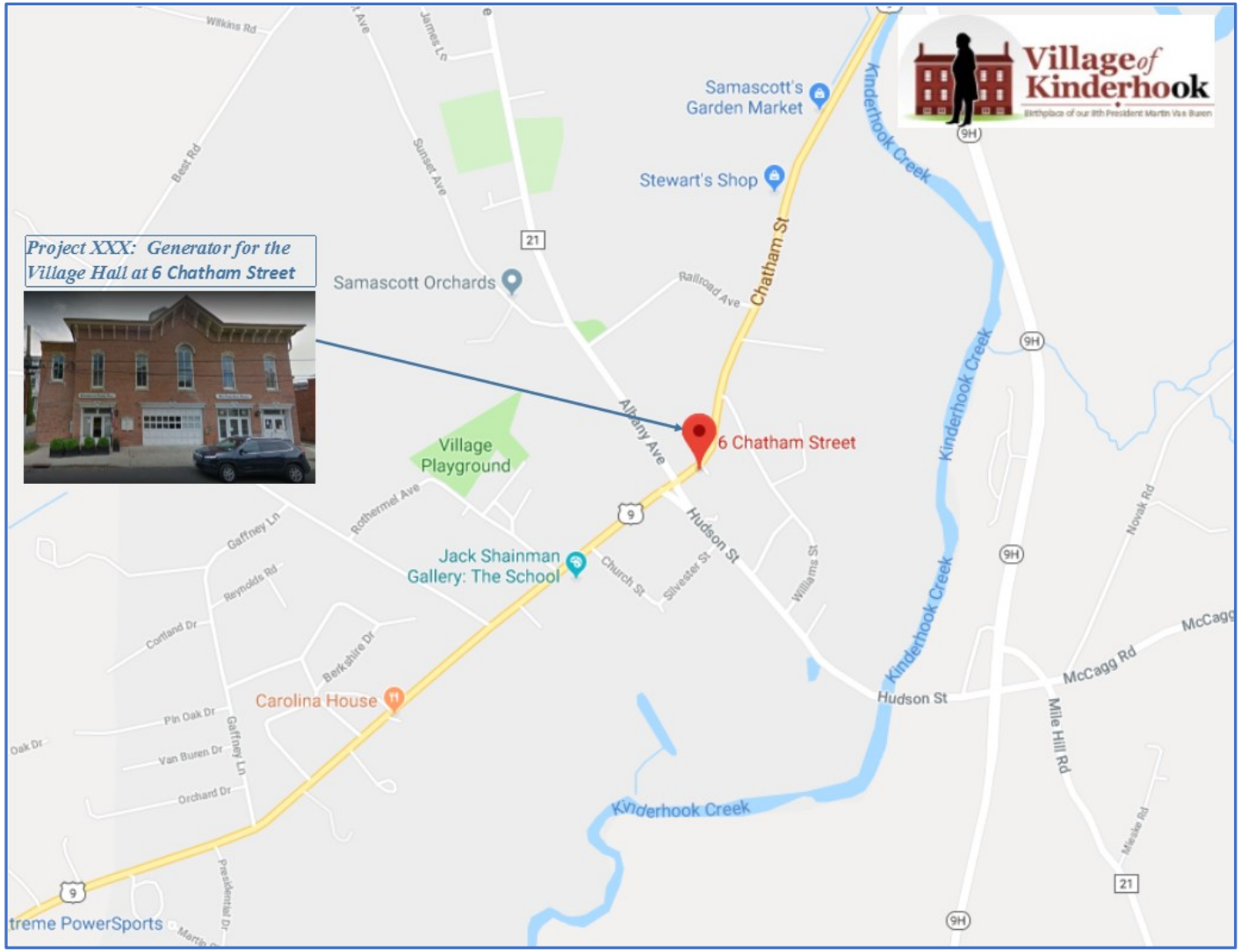
1. Name of Jurisdiction: **Name of Haz. Mit. Plan:**	Village of Kinderhook Columbia County Multi-Jurisdictional Hazard Mitigation Plan
Risk / Vulnerability	
2. Problem being Mitigated:	All hazards. Eliminate power outages at the Village Hall during heavy rainstorms, severe winter weather, and other hazard conditions. ***See map on the next page showing the project location.***
Potential Actions/Projects (not being Implemented at this time)	
3. Actions/Projects Considered with Summary Evaluation of Each:	Preferred: Purchase a generator and wire it in to the building. A permanent solution. Alternative: Continue to rent generators as needed. A rental is not always available. Alternative: Move operations. Not feasible because the facility houses critical facilities for the municipality and law enforcement.
Action or Project Intended for Implementation	
4. Action/Project Number: **Name of Action or Project:**	PES-6 Purchase a generator for the Village Hall, the seat of local government.
5. Action or Project Description:	Purchase a generator for the Village Hall, which houses Village operations and those of the New York State Police Troop K Zone 1 Station. A generator would ensure continuity of operations for both in the event of a disaster. Explore potential exists for cost sharing. This action would include the following steps: • Discuss with the Building Inspector the work required to have a generator installed. • Discuss project with the State Police. Explore possibility of sharing project-related expenses. • Present recommendation to the Village Board for its consideration and approval. • Secure bids for the generator and installation. • Install generator. • Invite media coverage showing the project and extolling the project's implications for continuity of operations and enhanced public safety. Highlight the joint effort between governmental entities.
6. Summary of Evaluation[1] **Benefits (losses avoided)** **Estimated Cost** **Other Factors Considered** **(see STAPLEE Worksheet)**	**BENEFIT** **High.** Maintain continuity of operations for the Village of Kinderhook and the State Police. Protect a structure valued at $350,000.
	COST **Low.** $50,000 to purchase the generator and wire building for installation. Project affords opportunity for cost sharing among government entities.
Plan for Implementation	
7. Responsible Organization:	Village Building Inspector and the Mayor
8. Action/Project Priority (STAPLEE Score):	20
9. Timeline for Completion:	1 year
10. Potential Fund Sources:	Village Budget, joint funding, FEMA HMGP funding
11. Local Planning Mechanisms to be Used in Implementation, if any:	Floodplain Management Plan, Community Development Plan
Progress Report	

12. Date of Status Report: **Report of Progress:** **Evaluation of Effectiveness:**	01/25/2018 – Project first discussed during a workshop during development of the Columbia County HMP.

Village of Kinderhook Proposed Village Hall Generator Projects

The Google Map below shows the ***location of the Village Hall Generator Project.***

Village Hall includes space used as a New York State Police Troop K Zone 1 Station. A ***photo on the next*** page shows entrances for the Village and State Troopers at the front of the building. According to the online records of the Columbia County Tax Assessor, in 2017 the structure was valued at $350,000.



The photo below shows collocation of operations for the Village of Kinderhook and the New York State Police Troop K Zone 1 Station in Kinderhook.



Action Worksheet		
1. Name of Jurisdiction: **Name of Haz. Mit. Plan:**	Town of Stockport Columbia County Multi-Jurisdictional Hazard Mitigation Plan	
Risk / Vulnerability		
2. Problem being Mitigated:	Town of Stockport is affected by power outages during most hazards.	
Potential Actions/Projects (not being Implemented at this time)		
3. Actions/Projects Considered with Summary Evaluation of Each:	Preferred: Trim trees to reduce risk of power outages. Most effective and cheap means to address problem. Alternative: Hire contractor to trim trees. Recurring costs and requires additional administrative costs to set schedule.	
Action or Project Intended for Implementation		
4. Action/Project Number: **Name of Action or Project:**	PES-7 Tree trimming activities	
5. Action or Project Description:	Trim trees by power company building.	
6. Summary of Evaluation[1] **Benefits (losses avoided)** **Estimated Cost** **Other Factors Considered** **(see STAPLEE Worksheet)**	**BENEFIT** **High.** Lower risk of power outages and fire in the Town of Stockport.	**COST** **Moderate.** Moderate annual cost and number of people to implement.
Plan for Implementation		
7. Responsible Organization:	Highway Department	
8. Action/Project Priority (STAPLEE Score):	28	
9. Timeline for Completion:	1 year	
10. Potential Fund Sources:	State/Federal grants	
11. Local Planning Mechanisms to be Used in Implementation, if any:	Columbia County CEMP	
Progress Report		
12. 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		
1. Name of Jurisdiction: **Name of Haz. Mit. Plan:**	Town of Gallatin Columbia County Multi-Jurisdictional Hazard Mitigation Plan	
Risk / Vulnerability		
2. Problem being Mitigated:	Floods may effect roads that emergency crews depend on during severe hazards.	
Potential Actions/Projects (not being Implemented at this time)		
3. Actions/Projects Considered with Summary Evaluation of Each:	Preferred: Implement transportation study. Fixing the problem requires a phased approach. Alternative: Improve roads based on perceived needs. May lead to inefficient use of funds.	
Action or Project Intended for Implementation		
4. Action/Project Number: **Name of Action or Project:**	PES-8 Transportation Study	
5. Action or Project Description:	Develop and implement a transportation study to identify and improve roads most vulnerable to flood hazards.	
6. Summary of Evaluation[1] **Benefits (losses avoided)** **Estimated Cost** **Other Factors Considered** **(see STAPLEE Worksheet)**	**BENEFIT** **High.** Eliminate roadway flooding and damage.	**COST** **Moderate.** Moderate cost, prolonged implementation.
Plan for Implementation		
7. Responsible Organization:	Town of Gallatin	
8. Action/Project Priority (STAPLEE Score):	43	
9. Timeline for Completion:	1 year	
10. Potential Fund Sources:	State/Federal grants	
11. Local Planning Mechanisms to be Used in Implementation, if any:	Columbia County CEMP	
Progress Report		
12. 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		
1. Name of Jurisdiction: **Name of Haz. Mit. Plan:**	Town of Greenport Columbia County Multi-Jurisdictional Hazard Mitigation Plan	
Risk / Vulnerability		
2. Problem being Mitigated:	Town of Greenport wells are subject to flooding, leading to inability to access fresh water.	
Potential Actions/Projects (not being Implemented at this time)		
3. Actions/Projects Considered with Summary Evaluation of Each:	None at this time.	
Action or Project Intended for Implementation		
4. Action/Project Number: **Name of Action or Project:**	PES-9 Well access assurance	
5. Action or Project Description:	Improve access to town wells during severe weather hazards (like flooding) by developing maintenance program.	
6. Summary of Evaluation[1] **Benefits (losses avoided)** **Estimated Cost** **Other Factors Considered** **(see STAPLEE Worksheet)**	**BENEFIT** **High.** Eliminate risk to village and environment of Greenport.	**COST** **Moderate.** Moderate annual cost and number of people to implement.
Plan for Implementation		
7. Responsible Organization:	Town of Greenport	
8. Action/Project Priority (STAPLEE Score):	34	
9. Timeline for Completion:	5 years	
10. Potential Fund Sources:	HMGP DR 4085 and State/Federal Grants	
11. Local Planning Mechanisms to be Used in Implementation, if any:	Columbia County CEMP	
Progress Report		
12. 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		
1. Name of Jurisdiction: **Name of Haz. Mit. Plan:**	Town of Germantown Columbia County Multi-Jurisdictional Hazard Mitigation Plan	
Risk / Vulnerability		
2. Problem being Mitigated:	Town of Germantown may be affected by mitigation actions prioritized in this plan.	
Potential Actions/Projects (not being Implemented at this time)		
3. Actions/Projects Considered with Summary Evaluation of Each:	Preferred: Develop one town-wide emergency preparedness plan. Ensures standardized approach across all agencies. Alternative: Request agencies to develop emergency preparedness procedures. Leads to potential issue of conflicting operations.	
Action or Project Intended for Implementation		
4. Action/Project Number: **Name of Action or Project:**	PES-10 Develop Emergency Preparedness Plan	
5. Action or Project Description:	Develop an Emergency Preparedness Plan in conjunction with the town and fire departments.	
6. Summary of Evaluation[1] **Benefits (losses avoided)** **Estimated Cost** **Other Factors Considered** **(see STAPLEE Worksheet)**	**BENEFIT** **High.** On-going long-term reduced vulnerability through inclusive planning.	**COST** **Low.** Low cost, on-going implementation.
Plan for Implementation		
7. Responsible Organization:	Town of Germantown	
8. Action/Project Priority (STAPLEE Score):	46	
9. Timeline for Completion:	1 year	
10. Potential Fund Sources:	State/Federal Grants	
11. Local Planning Mechanisms to be Used in Implementation, if any:	Columbia County CEMP	
Progress Report		
12. 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		
1. Name of Jurisdiction: **Name of Haz. Mit. Plan:**	Town of Germantown Columbia County Multi-Jurisdictional Hazard Mitigation Plan	
Risk / Vulnerability		
2. Problem being Mitigated:	Germantown is unsure of the structural risks associated with severe weather.	
Potential Actions/Projects (not being Implemented at this time)		
3. Actions/Projects Considered with Summary Evaluation of Each:	Preferred: Develop inventory of all structures within town. Ensures standardized approach to determining risk. Alternative: Request agencies to identify high risk structures. Low cost, but risks no standardized approach. d	
Action or Project Intended for Implementation		
4. Action/Project Number: **Name of Action or Project:**	PES-11 Inventory map of vulnerable structures	
5. Action or Project Description:	Develop an inventory and map of structures that are vulnerable to damage during severe weather.	
6. Summary of Evaluation[1] **Benefits (losses avoided)** **Estimated Cost** **Other Factors Considered** **(see STAPLEE Worksheet)**	**BENEFIT** **High.** On-going long-term reduced vulnerability through inclusive planning.	**COST** **Moderate.** The cost will vary for on-going implementation.
Plan for Implementation		
7. Responsible Organization:	Town of Germantown	
8. Action/Project Priority (STAPLEE Score):	40	
9. Timeline for Completion:	5 years	
10. Potential Fund Sources:	State/Federal grants	
11. Local Planning Mechanisms to be Used in Implementation, if any:	Columbia County CEMP	
Progress Report		
12. 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		
Name of Jurisdiction: **Name of Haz. Mit. Plan:**	Town of Canaan, NY Columbia County Multi-Jurisdictional Hazard Mitigation Plan	
Risk / Vulnerability		
Problem being Mitigated:	Many senior citizens don't have the ability to leave their homes during evacuations due to severe weather.	
Potential Actions/Projects (not being Implemented at this time)		
Actions/Projects Considered with Summary Evaluation of Each:	Preferred: Develop plan to ensure coordination on available generators. Ensures coordination. Alternative: Provide generators to senior citizens based on a first-available basis. Discounts the potential magnitude of the need.	
Action or Project Intended for Implementation		
Action/Project Number: **Name of Action or Project:**	PES-12 Emergency Shelters Plan	
Action or Project Description:	A disaster plan will be created to coordinate with: Town of Canaan, Highway Department, Fire Companies, and County Emergency Shelters to provide and service generators to senior citizens who cannot leave their home during severe hazards.	
Summary of Evaluation[1] **Benefits (losses avoided)** **Estimated Cost** **Other Factors Considered**	**BENEFIT** **High.** Allows Town to address the hazard directly with specific locations that serve the public better.	**COST** **Moderate:** Electric/oil or propane heat
Plan for Implementation		
Responsible Organization:	Town Supervisor	
Action/Project Priority (STAPLEE Score):	39	
Timeline for Completion:	2 years	
Potential Fund Sources:	State/ Federal grants	
Local Planning Mechanisms to be Used in Implementation, if any:	Columbia County CEMP	
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		
Name of Jurisdiction: **Name of Haz. Mit. Plan:**	Town of Copake, NY Columbia County Multi-Jurisdictional Hazard Mitigation Plan	
Risk / Vulnerability		
Problem being Mitigated:	New winter storm related risks affect the Town's ability to function during severe hazards.	
Potential Actions/Projects (not being Implemented at this time)		
Actions/Projects Considered with Summary Evaluation of Each:	Preferred: Update Snow and Ice Policy and Emergency Management Plan. Ensures plans support one another. Alternative: Update only the Snow and Ice Policy. Risks incompatibility with other existing plans and procedures.	
Action or Project Intended for Implementation		
Action/Project Number: **Name of Action or Project:**	PES-13 Update of Snow and Ice Policy	
Action or Project Description:	Annual update to the Town's Snow and Ice Policy and Emergency Management Plan to mitigation of winter storm related risks.	
Summary of Evaluation[1] **Benefits (losses avoided)** **Estimated Cost** **Other Factors Considered**	**BENEFIT** **High.** Allows Town to address the hazard directly.	**COST** Low
Plan for Implementation		
Responsible Organization:	Town of Copake	
Action/Project Priority (STAPLEE Score):	42	
Timeline for Completion:	1 year	
Potential Fund Sources:	State/Federal grants	
Local Planning Mechanisms to be Used in Implementation, if any:	Municipal Comprehensive Plan	
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		
Name of Jurisdiction: **Name of Haz. Mit. Plan:**	Town of Copake, NY Columbia County Multi-Jurisdictional Hazard Mitigation Plan	
Risk / Vulnerability		
Problem being Mitigated:	Tree limbs cause power outages and hazardous situations.	
Potential Actions/Projects (not being Implemented at this time)		
Actions/Projects Considered with Summary Evaluation of Each:	Preferred: Perform annual maintenance on trees that appear to risk power outages. Ensures timely review of problem areas. Alternative: Address tree and limb issues upon complaints for the public. Risks added power outages if public does not see the risk.	
Action or Project Intended for Implementation		
Action/Project Number: **Name of Action or Project:**	PES-14 Tree maintenance program.	
Action or Project Description:	Annual tree and limb maintenance program to reduce risk of power outages.	
Summary of Evaluation[1] **Benefits (losses avoided)** **Estimated Cost** **Other Factors Considered**	**BENEFIT** **High.** Reduces vulnerability of secondary hazards	**COST** **Low.** Labor costs
Plan for Implementation		
Responsible Organization:	Town of Copake	
Action/Project Priority (STAPLEE Score):	42	
Timeline for Completion:	1 year	
Potential Fund Sources:	State/Federal grants	
Local Planning Mechanisms to be Used in Implementation, if any:	Municipal Comprehensive Plan	
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		
Name of Jurisdiction: **Name of Haz. Mit. Plan:**	Town of Kinderhook, NY Columbia County Multi-Jurisdictional Hazard Mitigation Plan	
Risk / Vulnerability		
Problem being Mitigated:	Power outages stop Highway Department's ability to effectively respond to emergencies.	
Potential Actions/Projects (not being Implemented at this time)		
Actions/Projects Considered with Summary Evaluation of Each:	Preferred: Purchase a generator and wire it in to the building. Safe, permanent solution. Alternative: Continue to rent generators as needed. A rental is not always available. Alternative: Move operations if power fails. Difficult because the structure houses critical facilities for two municipalities and a law enforcement agency.	
Action or Project Intended for Implementation		
Action/Project Number: **Name of Action or Project:**	PES-15 Purchase generator for Highway Department	
Action or Project Description:	Purchase generator for Highway Department	
Summary of Evaluation[1] **Benefits (losses avoided)** **Estimated Cost** **Other Factors Considered**	**BENEFIT** **High.** Reduces vulnerability of secondary hazards	**COST** **Moderate.** Purchase and maintenance costs
Plan for Implementation		
Responsible Organization:	Town of Kinderhook	
Action/Project Priority (STAPLEE Score):	35	
Timeline for Completion:	1 year	
Potential Fund Sources:	State/Federal grants	
Local Planning Mechanisms to be Used in Implementation, if any:	Municipal Comprehensive Plan	
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		
Name of Jurisdiction: **Name of Haz. Mit. Plan:**	Village of Chatham, NY Columbia County Multi-Jurisdictional Hazard Mitigation Plan	
Risk / Vulnerability		
Problem being Mitigated:	Power outages stop sewer plant's ability to effectively respond to emergencies.	
Potential Actions/Projects (not being Implemented at this time)		
Actions/Projects Considered with Summary Evaluation of Each:	Preferred: Purchase a generator and wire it in to the building. Safe, permanent solution. Alternative: Continue to rent generators as needed. A rental is not always available. Alternative: Move operations if power fails. Difficult because the structure houses critical facilities for two municipalities and a law enforcement agency.	
Action or Project Intended for Implementation		
Action/Project Number: **Name of Action or Project:**	PES-16 Purchase generator for sewer plant.	
Action or Project Description:	Purchase generator for sewer plant.	
Summary of Evaluation[1] **Benefits (losses avoided)** **Estimated Cost** **Other Factors Considered**	**BENEFIT** **High.** Reduces vulnerability of secondary hazards	**COST** **Moderate.** Purchase and maintenance costs
Plan for Implementation		
Responsible Organization:	Village of Chatham	
Action/Project Priority (STAPLEE Score):	35	
Timeline for Completion:	6 months	
Potential Fund Sources:	State/Federal grants	
Local Planning Mechanisms to be Used in Implementation, if any:	Municipal Comprehensive Plan	
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		
1. Name of Jurisdiction: **Name of Haz. Mit. Plan:**	Village of Valatie Columbia County Multi-Jurisdictional Hazard Mitigation Plan	
Risk / Vulnerability		
2. Problem being Mitigated:	Sewer overflows occur during large storm events.	
Potential Actions/Projects (not being Implemented at this time)		
3. Actions/Projects Considered with Summary Evaluation of Each:	Preferred: Develop increased capacity for sewer system. Addresses increased infiltration events. Alternative: Do nothing. Risk infiltration due to minimal impacts.	
Action or Project Intended for Implementation		
4. Action/Project Number: **Name of Action or Project:**	PES-17 Sewer system improvements	
5. Action or Project Description:	Improve sewer system to eliminate infiltration from storm water overflows during large storm events.	
6. Summary of Evaluation[1] **Benefits (losses avoided)** **Estimated Cost** **Other Factors Considered** **(see STAPLEE Worksheet)**	**BENEFIT** **High.** On-going long-term reduced vulnerability through minimizing impacts of secondary hazard.	**COST** **Moderate.** Labor and construction
Plan for Implementation		
7. Responsible Organization:	Village of Valatie	
8. Action/Project Priority (STAPLEE Score):	41	
9. Timeline for Completion:	1 Year	
10. Potential Fund Sources:	State/Federal grants	
11. Local Planning Mechanisms to be Used in Implementation, if any:	Municipal Comprehensive Plan	
Progress Report		
12. 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		
1. Name of Jurisdiction: **Name of Haz. Mit. Plan:**	Town of Clermont Columbia County Multi-Jurisdictional Hazard Mitigation Plan	
Risk / Vulnerability		
2. Problem being Mitigated:	Storms cause debris to flood roads and bring down power lines.	
Potential Actions/Projects (not being Implemented at this time)		
3. Actions/Projects Considered with Summary Evaluation of Each:	Preferred: Remove power lines, trees, and brush. Be prepared for grid implementation. Alternative: Continue to maintain power lines by only removing trees that may impact power lines. Lower cost and doesn't rely upon national movement to grid.	
Action or Project Intended for Implementation		
4. Action/Project Number: **Name of Action or Project:**	PES-18 Tree Removal; Grid Preparation	
5. Action or Project Description:	Removal of power lines, trees, and brush for the implementation of national grid.	
6. Summary of Evaluation[1] **Benefits (losses avoided)** **Estimated Cost** **Other Factors Considered** **(see STAPLEE Worksheet)**	**BENEFIT** **High.** Improves health and safety, as well as protects transportation routes.	**COST** **Moderate.** Labor and construction
Plan for Implementation		
7. Responsible Organization:	Town of Clermont	
8. Action/Project Priority (STAPLEE Score):	43	
9. Timeline for Completion:	1 Year	
10. Potential Fund Sources:	State/Federal grants	
11. Local Planning Mechanisms to be Used in Implementation, if any:	Municipal Comprehensive Plan	
Progress Report		
12. 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		
1. Name of Jurisdiction: **Name of Haz. Mit. Plan:**	Town of Clermont Columbia County Multi-Jurisdictional Hazard Mitigation Plan	
Risk / Vulnerability		
2. Problem being Mitigated:	Debris blocks transportation routes and impacts culverts and ditches.	
Potential Actions/Projects (not being Implemented at this time)		
3. Actions/Projects Considered with Summary Evaluation of Each:	Preferred: Develop standards to remove and manage debris along all roads. Decreases risk of debris flows and jams during severe weather events. Alternative: Rely on public to file complaints of debris. Relies upon the public to know what debris is problematic.	
Action or Project Intended for Implementation		
4. Action/Project Number: **Name of Action or Project:**	PES-19 Debris Management Planning	
5. Action or Project Description:	Evaluate and manage debris along all town roads, culvert replacement, and road ditching.	
6. Summary of Evaluation[1] **Benefits (losses avoided)** **Estimated Cost** **Other Factors Considered** **(see STAPLEE Worksheet)**	**BENEFIT** **High.** Improves health and safety, as well as protects transportation routes.	**COST** **Moderate.** Labor and construction
Plan for Implementation		
7. Responsible Organization:	Town of Clermont	
8. Action/Project Priority (STAPLEE Score):	38	
9. Timeline for Completion:	1 year	
10. Potential Fund Sources:	State/Federal grants	
11. Local Planning Mechanisms to be Used in Implementation, if any:	Municipal Comprehensive Plan	
Progress Report		
12. 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		
1. Name of Jurisdiction: **Name of Haz. Mit. Plan:**	Town of Gallatin Columbia County Multi-Jurisdictional Hazard Mitigation Plan	
Risk / Vulnerability		
2. Problem being Mitigated:	Electricity outages pose risk to providing vital services to residents.	
Potential Actions/Projects (not being Implemented at this time)		
3. Actions/Projects Considered with Summary Evaluation of Each:	Preferred: Purchase a generator and wire it in to the building. Safe, permanent solution. Alternative: Continue to rent generators as needed. A rental is not always available. Alternative: Move operations if power fails. Difficult because the structure houses critical facilities for two municipalities and a law enforcement agency.	
Action or Project Intended for Implementation		
4. Action/Project Number: **Name of Action or Project:**	PES-20 Purchase backup generator	
5. Action or Project Description:	Purchase backup generator for Gallatin Highway Garage.	
6. Summary of Evaluation[1] **Benefits (losses avoided)** **Estimated Cost** **Other Factors Considered** **(see STAPLEE Worksheet)**	**BENEFIT** **High.** Improves Town's ability to respond following an incident.	**COST** **Moderate.** Asset purchase
Plan for Implementation		
7. Responsible Organization:	Town of Gallatin	
8. Action/Project Priority (STAPLEE Score):	34	
9. Timeline for Completion:	1 year	
10. Potential Fund Sources:	HMGP DR 4085	
11. Local Planning Mechanisms to be Used in Implementation, if any:	Columbia County CEMP	
Progress Report		
12. 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		
1. Name of Jurisdiction: **Name of Haz. Mit. Plan:**	22 towns and villages in Columbia County Columbia County Multi-Jurisdictional Hazard Mitigation Plan	
Risk / Vulnerability		
2. Problem being Mitigated:	Electricity outages pose risk to providing vital services to residents.	
Potential Actions/Projects (not being Implemented at this time)		
3. Actions/Projects Considered with Summary Evaluation of Each:	Preferred: Develop standards to remove and manage debris along all roads. Decreases risk of debris flows and jams during severe weather events. Alternative: Rely on public to file complaints of debris. Relies upon the public to know what debris is problematic.	
Action or Project Intended for Implementation		
4. Action/Project Number: **Name of Action or Project:**	PES-21 Tree and Brush Removal	
5. Action or Project Description:	Removal of trees and brush from near power lines.	
6. Summary of Evaluation[1] **Benefits (losses avoided)** **Estimated Cost** **Other Factors Considered** **(see STAPLEE Worksheet)**	**BENEFIT** **High.** Improves Town's ability to respond to incidents and provide electricity to residents.	**COST** **Moderate.** Labor and equipment costs
Plan for Implementation		
7. Responsible Organization:	All 22 towns and villages including Columbia County	
8. Action/Project Priority (STAPLEE Score):	34	
9. Timeline for Completion:	2 years	
10. Potential Fund Sources:	State/Federal grants	
11. Local Planning Mechanisms to be Used in Implementation, if any:	Columbia County CEMP	
Progress Report		
12. Date of Status Report: **Report of Progress:** **Evaluation of Effectiveness:**		

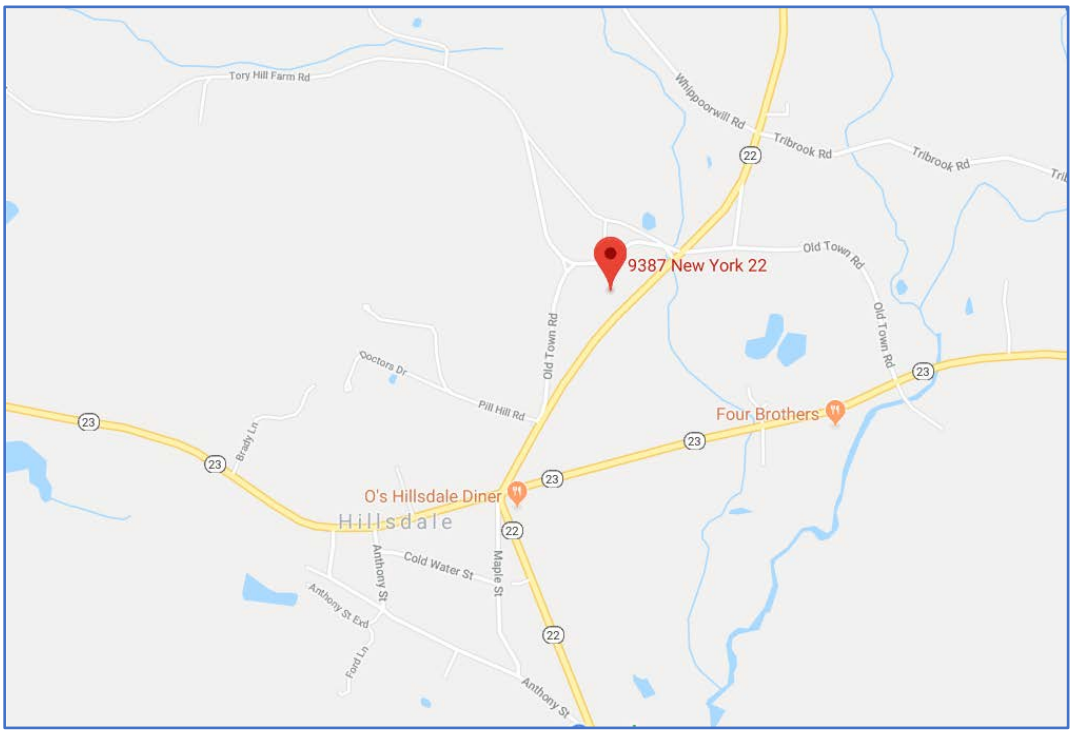
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Action Worksheet

1. Name of Jurisdiction: **Name of Haz. Mit. Plan:**	Town of Hillsdale Columbia County Multi-Jurisdictional Hazard Mitigation Plan
Risk / Vulnerability	
2. Problem being Mitigated:	The Town of Hillsdale Fire Company does not have backup power. In addition to serving as a critical facility, the structure provides emergency shelter for residents in the event of a flood event, tornado, microburst, severe winter weather, and other potential disasters. ***See map on the following page showing the project location.***
Potential Actions/Projects (not being Implemented at this time)	
3. Actions/Projects Considered with Summary Evaluation of Each:	Preferred: Purchase a backup generator. Alternative: Create a microgrid, although this would be a costly option. Alternative: Install solar panels to hold onsite power storage. This energy source may not generate enough power needed to support fire and emergency shelter operations.
Action or Project Intended for Implementation	
4. Action/Project Number: **Name of Action or Project:**	PES-22 Hillsdale Fire Company/Shelter Generator Project
5. Action or Project Description:	The Firehouse serves as the town emergency operations center & emergency shelter that serves a local population of 1,600 people. There are many documented instances of the town losing power during natural hazard events, including wind, lightning, hail, and downed trees. The town needs a generator that can power fire house operations, including the garages, kitchen, toilets etc., as well as the EOC and emergency shelter, should the facility lose power from regular utility resources.
6. Summary of Evaluation[1] **Benefits (losses avoided)** **Estimated Cost** **Other Factors Considered** **(see STAPLEE Worksheet)**	**BENEFIT** **High.** • Power to support Fire operations, the EOC, and a community shelter during emergencies. • Eliminate the need to rent a large enough generator during an emergency, which would be hard to locate in a pinch. • A new, compatible generator will be hard wired and safer than a rental, which would be pigtailed. Save on the cost of hiring an electrician during each event to hook up the generator.
	COST **Low.** $100,000 to purchase the generator and pay for structural wiring and installation labor.
Plan for Implementation	
7. Responsible Organization:	Hillsdale Fire Company and the Town Board
8. Action/Project Priority (STAPLEE Score):	20
9. Timeline for Completion:	6-12 months
10. Potential Fund Sources:	FEMA HMGP or PDM; Town Bond issue or Reserve Fund
11. Local Planning Mechanisms to be Used in Implementation, if any:	Town Comprehensive Plan (https://hillsdaleny.com/planning-zoning-building/download-comprehensive-plan/) Sheriff's Office, Fire and Safety Operations (https://hillsdaleny.com/fire-and-safety/the-hillsdale-fire-company/)
Progress Report	
12. Date of Status Report: **Report of Progress:** **Evaluation of Effectiveness:**	01/25/2018 – Project first discussed during a workshop during development of the Columbia County HMP.

Town of Hillsdale Proposed Mitigation Project One

The Google images below show the ***location of the proposed Hillsdale Fire Company/Shelter Generator Project***. The Columbia County Tax Assessor 2017 online records show the property being valued at $623,800. The project would ensure continuity of operations for a critical facility that provides disaster response and recovery services, including serving as an emergency shelter. The station is located at 9387 NY-22, Hillsdale, NY 12529.





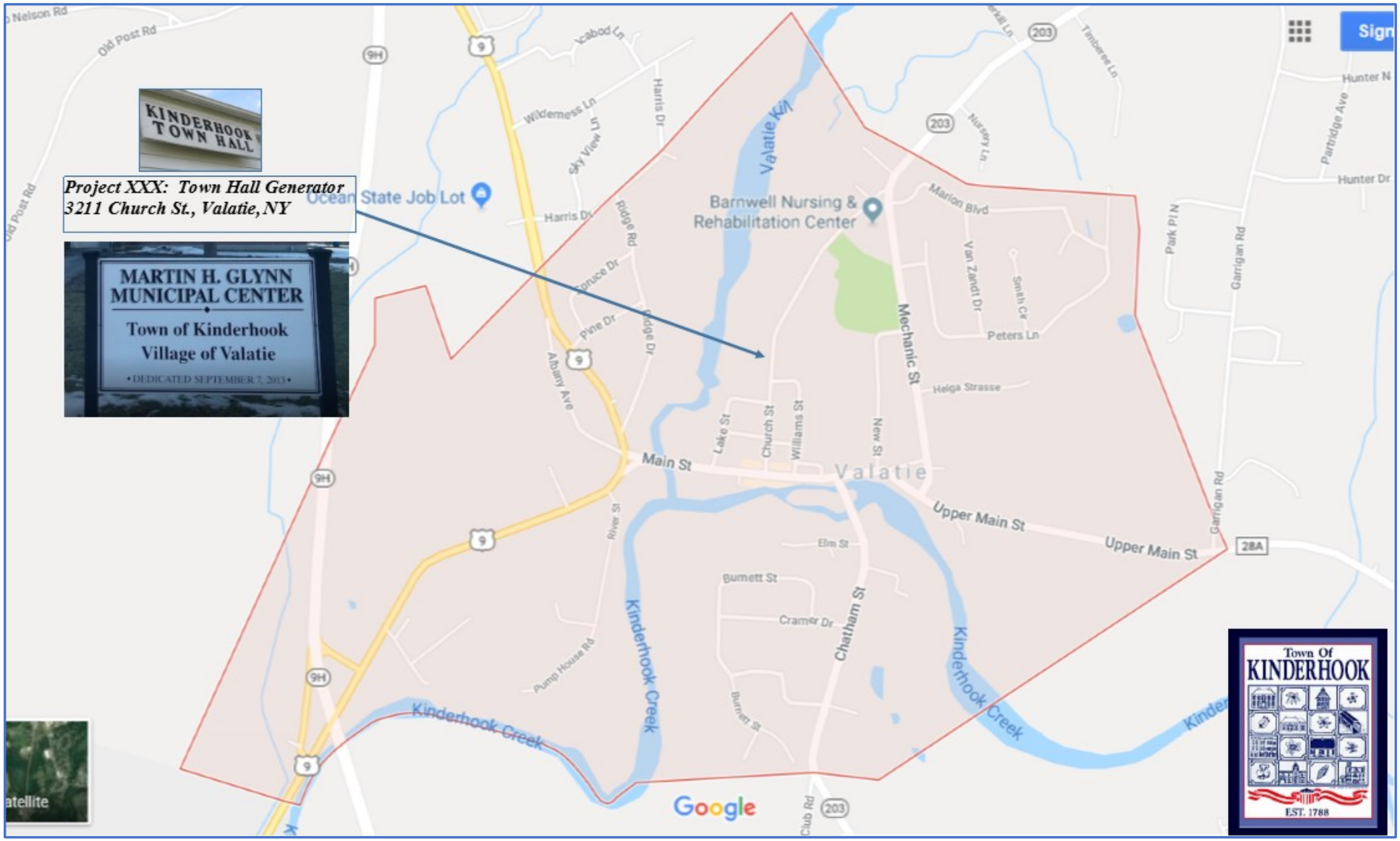
Action Worksheet

1. Name of Jurisdiction: **Name of Haz. Mit. Plan:**	Town of Kinderhook Columbia County Multi-Jurisdictional Hazard Mitigation Plan
Risk / Vulnerability	
2. Problem being Mitigated:	All hazards. Eliminate power outages at the Town Hall heavy rainstorms, severe winter weather, and other hazard conditions. ***See map below showing the project location.***
Potential Actions/Projects (not being Implemented at this time)	
3. Actions/Projects Considered with Summary Evaluation of Each:	Preferred: Purchase a generator and wire it in to the building. Safe, permanent solution. Alternative: Continue to rent generators as needed. A rental is not always available. Alternative: Move operations if power fails. Difficult because the structure houses critical facilities for two municipalities and a law enforcement agency.
Action or Project Intended for Implementation	
4. Action/Project Number: **Name of Action or Project:**	PES-23 Purchase a generator for Kinderhook Town Hall.
5. Action or Project Description:	Purchase a generator for the Martin H. Glynn Municipal Center, which houses operations for the Town of Kinderhook, the Village of Valatie, and a substation for Columbia County Sheriff's Office. A generator would ensure continuity of operations for all three entities in the event of a disaster. Consider cost-sharing among the three government entities. This action would include the following steps: • Discuss with the Building Inspector the work required to have a generator installed. • Discuss project with the Sheriff's Office and Village of Valatie. Explore possibility of sharing project-related expenses. • Present recommendation to the Town Board for its consideration and approval. • Secure bids for the generator and installation. • Install generator. • Invite media coverage showing the project and extolling its implications for continuity of operations and enhanced public safety. Highlight the joint effort between governmental entities.
6. Summary of Evaluation[1] **Benefits (losses avoided)** **Estimated Cost** **Other Factors Considered** **(see STAPLEE Worksheet)**	**BENEFIT** **High.** Maintain continuity of operations for the Town of Kinderhook, the Village of Valatie, and the Columbia County Sheriff's Office. Protect a building valued at $2,565,420.
	COST **Low.** $75,000 to purchase the generator and wire to building for installation. Project affords opportunity for cost sharing among government entities.
Plan for Implementation	
7. Responsible Organization:	Town Building Inspector and the Mayor
8. Action/Project Priority (STAPLEE Score):	2
9. Timeline for Completion:	1 year
10. Potential Fund Sources:	Town Budget, joint funding, FEMA HMGP funding
11. Local Planning Mechanisms to be Used in Implementation, if any:	Floodplain Management Plan, Community Development Plan
Progress Report	

12. Date of Status Report: **Report of Progress:** **Evaluation of Effectiveness:**	01/25/2018 – Project first discussed during a workshop during development of the Columbia County HMP.

The Google Map below shows the ***location of the Town Hall Generator Project*** proposed for the Town of Kinderhook.

Town Hall operations, housed in the Martin H. Glynn Municipal Center, is roughly in the center of the Village of Valatie, which is collocated there. In 2017, the property was valued at $2,565,420 in the 2017 online records of the Columbia County Tax Assessor



Action Worksheet		
1. Name of Jurisdiction:	Village of Valatie Columbia County Multi-Jurisdictional Hazard Mitigation Plan	
Risk / Vulnerability		
2. Problem being Mitigated:	All hazards. Eliminate power outages at Village Hall during heavy rainstorms, severe winter weather, and other hazard conditions. ***See map on the previous page showing the location of the project at the Village Hall.***	
Potential Actions/Projects (not being Implemented at this time)		
3. Actions/Projects Considered with Summary Evaluation of Each:	Purchase a generator for the Village Hall to ensure government continuity of operations for the Village, the Town of Kinderhook, and the Columbia County Sheriff's Office substation, all collocated in the building. Consider possible cost-sharing among the three government entities. Because the structure houses multiple government entities, its formal name is the Martin H. Glynn Municipal Center.	
Action or Project Intended for Implementation		
4. Action/Project Number: Name of Action or Project:	PES-24 Purchase a generator for the Village Hall (in the Martin H. Glynn Municipal Center), which serves as the seat of Valatie government.	
5. Action or Project Description:	This mitigation strategy would include the following steps: • Discuss with the Building Inspector the work required to have a generator installed. • Discuss project with the Sheriff's Department and Town of Kinderhook. Explore possibility of sharing project-related expenses. • Present to the Village Board for its consideration and approval. • Secure bids for the generator and installation. • Install generator. • Invite media coverage showing the project and extolling its implications for continuity of operations and enhanced public safety. Highlight the joint effort between governmental entities.	
6. Summary of Evaluation[1] **Benefits (losses avoided)** **Estimated Cost** **Other Factors Considered**	**BENEFIT** **High.** Maintain continuity of operations for the Village of Valatie, the Town of Kinderhook and the Sheriff's Office. Protect a structure valued at $2,565,420.	**COST** **Low.** $75,000 to purchase the generator and wire building for installation. Project affords opportunity for cost sharing among government entities.
Plan for Implementation		
7. Responsible	Village Building Inspector and the Mayor	
8. Action/Project Priority	20	
9. Timeline for	1 year	
10. Potential Fund Sources:	Village Budget, joint funding, FEMA HMGP funding	
11. Local Planning Mechanisms to be Used in	Floodplain Management Plan, Community Development Plan	
Progress Report		

12. Date of Status Report: Report of Progress: Evaluation of Effectiveness:	01/25/2018 – Project first discussed during a workshop during development of the Columbia County HMP.

Action Worksheet		
Name of Jurisdiction: **Name of Haz. Mit. Plan:**	All Jurisdictions Columbia County Multi-Jurisdictional Hazard Mitigation Plan	
Risk / Vulnerability		
Problem being Mitigated:	Most of the county housing stock was built before flood- and earthquake - resistant building codes became common practice.	
Potential Actions/Projects		
Actions/Projects Considered with Summary Evaluation of Each:	Preferred: Adopt national standards for building codes and phase out old construction. Improves risk reduction in the long-term. Alternative: Purchase known high-risk properties. Improves risk reduction in the short-term. Very expensive.	
Action or Project Intended for Implementation		
Action/Project Number: **Name of Action or Project:**	PPL-1 New building codes	
Action or Project Description:	Develop and implement new building codes to increase disaster-resistant construction for new structures and encourage renovations to existing structures.	
Summary of Evaluation[1] **Benefits (losses avoided)** **Estimated Cost** **Other Factors Considered**	**BENEFIT** **High.** Identification of violations will prevent future flooding.	**COST** **Moderate.** Moderate construction cost, prolonged permitting and time to implement.
Plan for Implementation		
Responsible Organization:	Building departments of all jurisdictions countywide.	
Action/Project Priority (STAPLEE Score):	40	
Timeline for Completion:	2 years	
Potential Fund Sources:	State/Federal grants	
Local Planning Mechanisms to be Used in Implementation, if any:	Columbia County CEMP	
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		
1. Name of Jurisdiction: **Name of Haz. Mit. Plan:**	All Jurisdictions Columbia County Multi-Jurisdictional Hazard Mitigation Plan	
Risk / Vulnerability		
2. Problem being Mitigated:	Currently structures are located within flood hazard prone areas.	
Potential Actions/Projects (not being Implemented at this time)		
3. Actions/Projects Considered with Summary Evaluation of Each:	Preferred: Adopt national standards for building codes and phase out old construction. Improves risk reduction in the long-term. Alternative: Purchase known high-risk properties. Improves risk reduction in the short-term. Very expensive.	
Action or Project Intended for Implementation		
4. Action/Project Number: **Name of Action or Project:**	PPL-2 Flood prone zoning code update	
5. Action or Project Description:	Develop and implement zoning code updates to limit the types of structures that can be built in disaster-prone areas.	
6. Summary of Evaluation[1] **Benefits (losses avoided)** **Estimated Cost** **Other Factors Considered** **(see STAPLEE Worksheet)**	**BENEFIT** **High.** Over the long-term a large portion of the county building stock will be less vulnerable to hazards.	**COST** **Moderate.** Low cost and time to implement.
Plan for Implementation		
7. Responsible Organization:	Legislatures of all jurisdictions countywide.	
8. Action/Project Priority (STAPLEE Score):	36	
9. Timeline for Completion:	2 years	
10. Potential Fund Sources:	State/Federal grants	
11. Local Planning Mechanisms to be Used in Implementation, if any:	Columbia County CEMP	
Progress Report		
12. 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		
1. Name of Jurisdiction: **Name of Haz. Mit. Plan:**	All Jurisdictions Columbia County Multi-Jurisdictional Hazard Mitigation Plan	
Risk / Vulnerability		
2. Problem being Mitigated:	Floodplain zones are encroached upon by developers, causing an increase for hazards during major floods.	
Potential Actions/Projects (not being Implemented at this time)		
3. Actions/Projects Considered with Summary Evaluation of Each:	Preferred: Develop program for ongoing review of floodplain ordinances. Alternative: Review ordinances after a major storm event. This option does not allow the Town to be proactive and address potential problems until an event has affected the community, possibly causing loss of life or property damage.. Alternative: Review ordinances on a schedule set by the NYSDEC. CAV and CAC interactions with DEC do not take place frequently enough to "get a jump on" flood-related issues before a major incident occurs.	
Action or Project Intended for Implementation		
4. Action/Project Number: **Name of Action or Project:**	PPL-3 Inspection of floodplain zoning ordinances	
5. Action or Project Description:	Develop and implement program for bi-annual inspections of floodplain zoning ordinances.	
6. Summary of Evaluation[1] **Benefits (losses avoided)** **Estimated Cost** **Other Factors Considered** **(see STAPLEE Worksheet)**	**BENEFIT** **High.** Identification of violations will prevent future flooding.	**COST** **Moderate.** Moderate construction cost, prolonged permitting and time to implement.
Plan for Implementation		
7. Responsible Organization:	All jurisdictions in Columbia County	
8. Action/Project Priority (STAPLEE Score):	34	
9. Timeline for Completion:	1 year	
10. Potential Fund Sources:	State/Federal grants	
11. Local Planning Mechanisms to be Used in Implementation, if any:	Columbia County CEMP	
Progress Report		
12. 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		
1. Name of Jurisdiction: **Name of Haz. Mit. Plan:**	All Jurisdictions Columbia County Multi-Jurisdictional Hazard Mitigation Plan	
Risk / Vulnerability		
2. Problem being Mitigated:	Many properties in the County reside in high-risk flooding areas.	
Potential Actions/Projects (not being Implemented at this time)		
3. Actions/Projects Considered with Summary Evaluation of Each:	Preferred: Develop program for ongoing review of floodplain ordinances. Alternative: Review ordinances after a major storm event. This option does not allow the Town to be proactive and address potential problems until an event has affected the community, possibly causing loss of life or property damage.. Alternative: Review ordinances on a schedule set by the NYSDEC. CAV and CAC interactions with DEC do not take place frequently enough to "get a jump on" flood-related issues before a major incident occurs.	
Action or Project Intended for Implementation		
4. Action/Project Number: **Name of Action or Project:**	PPL-4 Flood-proof repetitive loss properties	
5. Action or Project Description:	Develop and implement a program to flood-proof repetitive loss properties.	
6. Summary of Evaluation[1] **Benefits (losses avoided)** **Estimated Cost** **Other Factors Considered** **(see STAPLEE Worksheet)**	**BENEFIT** **High.** Identify violations to prevent flooding.	**COST** **Low.** Low cost, on-going implementation.
Plan for Implementation		
7. Responsible Organization:	All jurisdictions in Columbia County	
8. Action/Project Priority (STAPLEE Score):	40	
9. Timeline for Completion:	2 years	
10. Potential Fund Sources:	State/Federal grants	
11. Local Planning Mechanisms to be Used in Implementation, if any:	Columbia County CEMP	
Progress Report		
12. 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		
1. Name of Jurisdiction: **Name of Haz. Mit. Plan:**	Town of Ancram Columbia County Multi-Jurisdictional Hazard Mitigation Plan	
Risk / Vulnerability		
2. Problem being Mitigated:	Reduced access and reduced snow removal capabilities due to use of equipment on Carlson Rd.	
Potential Actions/Projects (not being Implemented at this time)		
3. Actions/Projects Considered with Summary Evaluation of Each:	None at this time.	
Action or Project Intended for Implementation		
4. Action/Project Number: **Name of Action or Project:**	PPL-5 Snow fence installation.	
5. Action or Project Description:	Install snow fencing on Carlson Road to ease snow removal.	
6. Summary of Evaluation[1] **Benefits (losses avoided)** **Estimated Cost** **Other Factors Considered** **(see STAPLEE Worksheet)**	**BENEFIT** **High.** Increased snow removal capability, reduced risk of isolation for residents on Carlson Road	**COST** **Low.** Low construction cost.
Plan for Implementation		
7. Responsible Organization:	Highway Department	
8. Action/Project Priority (STAPLEE Score):	36.5	
9. Timeline for Completion:	6 months	
10. Potential Fund Sources:	Ancram Highway Department General Fund	
11. Local Planning Mechanisms to be Used in Implementation, if any:	Columbia County CEMP	
Progress Report		
12. 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		
1. Name of Jurisdiction: **Name of Haz. Mit. Plan:**	Town of Ancram Columbia County Multi-Jurisdictional Hazard Mitigation Plan	
Risk / Vulnerability		
2. Problem being Mitigated:	Reduced access and reduced snow removal capabilities due to use of equipment on Sawchuck Road.	
Potential Actions/Projects (not being Implemented at this time)		
3. Actions/Projects Considered with Summary Evaluation of Each:	None at this time.	
Action or Project Intended for Implementation		
4. Action/Project Number: **Name of Action or Project:**	PPL-6 Install snow fencing.	
5. Action or Project Description:	Install snow fencing on Sawchuck Road to ease snow removal.	
6. Summary of Evaluation[1] **Benefits (losses avoided)** **Estimated Cost** **Other Factors Considered** **(see STAPLEE Worksheet)**	**BENEFIT** **High.** Increased snow removal capability, reduced risk of isolation of residents on Sawchuck Road.	**COST** **Low.** Low construction cost.
Plan for Implementation		
7. Responsible Organization:	Highway Department	
8. Action/Project Priority (STAPLEE Score):	36.5	
9. Timeline for Completion:	6 months	
10. Potential Fund Sources:	Ancram Highway Department General Fund	
11. Local Planning Mechanisms to be Used in Implementation, if any:	Columbia County CEMP	
Progress Report		
12. 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		
1. Name of Jurisdiction: **Name of Haz. Mit. Plan:**	Town of Ancram Columbia County Multi-Jurisdictional Hazard Mitigation Plan	
Risk / Vulnerability		
2. Problem being Mitigated:	Reduced access and reduced snow removal capabilities due to use of equipment on State Route 22.	
Potential Actions/Projects (not being Implemented at this time)		
3. Actions/Projects Considered with Summary Evaluation of Each:	None at this time.	
Action or Project Intended for Implementation		
4. Action/Project Number: **Name of Action or Project:**	PPL-7 Install snow fencing	
5. Action or Project Description:	Install snow fencing on State Route 22 to ease snow removal.	
6. Summary of Evaluation[1] **Benefits (losses avoided)** **Estimated Cost** **Other Factors Considered** **(see STAPLEE Worksheet)**	**BENEFIT** **High.** Increased snow removal capability, reduced risk of isolation of residents on St. Route 22.	**COST** **Low.** Low construction cost.
Plan for Implementation		
7. Responsible Organization:	Highway Department	
8. Action/Project Priority (STAPLEE Score):	36.5	
9. Timeline for Completion:	6 months	
10. Potential Fund Sources:	Ancram Highway Department General Fund	
11. Local Planning Mechanisms to be Used in Implementation, if any:	Columbia County CEMP	
Progress Report		
12. 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		
1. Name of Jurisdiction: **Name of Haz. Mit. Plan:**	Town of Austerlitz Columbia County Multi-Jurisdictional Hazard Mitigation Plan	
Risk / Vulnerability		
2. Problem being Mitigated:	Town of Austerlitz to reinforce bridges over Green River and to isolate if bridges are damaged or fail.	
Potential Actions/Projects (not being Implemented at this time)		
3. Actions/Projects Considered with Summary Evaluation of Each:	Preferred: Study bridge to determine required engineering upgrades. Assess priorities based on hydraulic and structural conditions of each road. Alternative: Monitor and regularly clean debris from culverts in several locations. Costly & not a permanent solution, takes staff away from regular duties. Alternative: Monitor and regularly clean debris from culverts in several locations. Costly, not a permanent solution, takes staff away from regular duties.	
Action or Project Intended for Implementation		
4. Action/Project Number: **Name of Action or Project:**	PPL-8 Bridge reinforcement project	
5. Action or Project Description:	Reinforce bridges over the Green River to prevent damage from flooding.	
6. Summary of Evaluation[1] **Benefits (losses avoided)** **Estimated Cost** **Other Factors Considered** **(see STAPLEE Worksheet)**	**BENEFIT** **High.** Eliminates risk of bridge failures during flood hazards.	**COST** **Moderate.** Moderate construction cost, prolonged permitting and time to implement.
Plan for Implementation		
7. Responsible Organization:	Highway Department	
8. Action/Project Priority (STAPLEE Score):	28	
9. Timeline for Completion:	5 years	
10. Potential Fund Sources:	State/Federal grants	
11. Local Planning Mechanisms to be Used in Implementation, if any:	Municipal Comprehensive Plan	
Progress Report		
12. 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		
1. Name of Jurisdiction: **Name of Haz. Mit. Plan:**	Town of Chatham Columbia County Multi-Jurisdictional Hazard Mitigation Plan	
Risk / Vulnerability		
2. Problem being Mitigated:	Roadways near sluiceway are subject to flooding in the Town of Chatham.	
Potential Actions/Projects (not being Implemented at this time)		
3. Actions/Projects Considered with Summary Evaluation of Each:	Preferred: Develop an annual debris clearance program at sluiceway to ensure proper drainage. Alternative: Remove debris as problems crop up and as resources allow.	
Action or Project Intended for Implementation		
4. Action/Project Number: **Name of Action or Project:**	PPL-9 Clear debris in sluiceway	
5. Action or Project Description:	Clear debris in sluiceway on annual basis to improve drainage and alleviate road flooding.	
6. Summary of Evaluation[1] **Benefits (losses avoided)** **Estimated Cost** **Other Factors Considered** **(see STAPLEE Worksheet)**	**BENEFIT** **Moderate.** Moderate reduction in roadway flooding.	**COST** **Low.** Moderate annual cost and a number of people to implement.
Plan for Implementation		
7. Responsible Organization:	Highway Department	
8. Action/Project Priority (STAPLEE Score):	38	
9. Timeline for Completion:	1 year	
10. Potential Fund Sources:	State/Federal grants	
11. Local Planning Mechanisms to be Used in Implementation, if any:	Municipal Comprehensive Plan	
Progress Report		
12. 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		
1. Name of Jurisdiction: **Name of Haz. Mit. Plan:**	Town of Chatham Columbia County Multi-Jurisdictional Hazard Mitigation Plan	
Risk / Vulnerability		
2. Problem being Mitigated:	The culvert on Highland Road in the Town of Chatham has washed out causing traffic delays.	
Potential Actions/Projects (not being Implemented at this time)		
3. Actions/Projects Considered with Summary Evaluation of Each:	Preferred: Increase culvert size on Highland Road and River Street to reduce washouts. Alternative: Maintain improved response resources to address associated washouts at Hunt Road and River Road.	
Action or Project Intended for Implementation		
4. Action/Project Number: **Name of Action or Project:**	PPL-10 Increase culvert size	
5. Action or Project Description:	Increase the culvert size on Highland Road and River Street to reduce the washouts from Hunt Road to River Road.	
6. Summary of Evaluation[1] **Benefits (losses avoided)** **Estimated Cost** **Other Factors Considered** **(see STAPLEE Worksheet)**	**BENEFIT** **Moderate.** Moderate reduction in roadway flooding.	**COST** **High.** High cost and increased run-off.
Plan for Implementation		
7. Responsible Organization:	Highway Department	
8. Action/Project Priority (STAPLEE Score):	39	
9. Timeline for Completion:	2 years	
10. Potential Fund Sources:	State/federal grants	
11. Local Planning Mechanisms to be Used in Implementation, if any:	Municipal Comprehensive Plans for all Columbia County	
Progress Report		
12. 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		
1. Name of Jurisdiction: **Name of Haz. Mit. Plan:**	Town of New Lebanon Columbia County Multi-Jurisdictional Hazard Mitigation Plan	
Risk / Vulnerability		
2. Problem being Mitigated:	The Town of New Lebanon is subject to flooding due to the limited storm water capacity of Wyomanock Creek.	
Potential Actions/Projects (not being Implemented at this time)		
3. Actions/Projects Considered with Summary Evaluation of Each:	Preferred: Install concrete beds on Wyomanack Creek to alleviate street flooding and increase carrying capacity. Alternative: Construct larger culverts and improve storm drainage system. Likely much more expensive.	
Action or Project Intended for Implementation		
4. Action/Project Number: **Name of Action or Project:**	PPL-11 Install flood control on Wyomanock Creek.	
5. Action or Project Description:	Install flood control (concrete beds) on Wyomanock Creek.	
6. Summary of Evaluation[1] **Benefits (losses avoided)** **Estimated Cost** **Other Factors Considered** **(see STAPLEE Worksheet)**	**BENEFIT** **Moderate.** Moderate reduced risk of property damage along Wyomanock Creek.	**COST** **High.** Construction costs.
Plan for Implementation		
7. Responsible Organization:	Highway Department and contractors	
8. Action/Project Priority (STAPLEE Score):	37	
9. Timeline for Completion:	2 years	
10. Potential Fund Sources:	State/Federal grants	
11. Local Planning Mechanisms to be Used in Implementation, if any:	Columbia County CEMP	
Progress Report		
12. 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		
1. Name of Jurisdiction: **Name of Haz. Mit. Plan:**	Town of New Lebanon Columbia County Multi-Jurisdictional Hazard Mitigation Plan	
Risk / Vulnerability		
2. Problem being Mitigated:	The Town of New Lebanon is subject to flooding due to the limited storm water capacity of Kinderhook Creek	
Potential Actions/Projects (not being Implemented at this time)		
3. Actions/Projects Considered with Summary Evaluation of Each:	Preferred: Install concrete beds on Kinderhook Creek to alleviate street flooding and increase carrying capacity. Alternative: Construct larger culverts and improve storm drainage system. Likely much more expensive.	
Action or Project Intended for Implementation		
4. Action/Project Number: **Name of Action or Project:**	PPL-12 Install flood control on Kinderhook Creek.	
5. Action or Project Description:	Install flood control (concrete beds) on Kinderhook Creek.	
6. Summary of Evaluation[1] **Benefits (losses avoided)** **Estimated Cost** **Other Factors Considered** **(see STAPLEE Worksheet)**	**BENEFIT** **Moderate.** Moderate reduced risk of property damage along Kinderhook Creek.	**COST** **High.** Construction costs.
Plan for Implementation		
7. Responsible Organization:	Highway Department	
8. Action/Project Priority (STAPLEE Score):	37	
9. Timeline for Completion:	2 years	
10. Potential Fund Sources:	State/Federal grants	
11. Local Planning Mechanisms to be Used in Implementation, if any:	Columbia County CEMP	
Progress Report		
12. 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		
1. Name of Jurisdiction: **Name of Haz. Mit. Plan:**	Town of Taghkanic Columbia County Multi-Jurisdictional Hazard Mitigation Plan	
Risk / Vulnerability		
2. Problem being Mitigated:	The Town of Taghkanic is subject to flooding from inadequate drainage systems.	
Potential Actions/Projects (not being Implemented at this time)		
3. Actions/Projects Considered with Summary Evaluation of Each:	None at this time.	
Action or Project Intended for Implementation		
4. Action/Project Number: **Name of Action or Project:**	PPL-13 New culverts	
5. Action or Project Description:	Identify location for and install new culverts to eliminate and alleviate road flooding.	
6. Summary of Evaluation[1] **Benefits (losses avoided)** **Estimated Cost** **Other Factors Considered** **(see STAPLEE Worksheet)**	**BENEFIT** **High.** Eliminates roadway flooding and damage.	**COST** **Moderate.** Moderate cost, prolonged implementation.
Plan for Implementation		
7. Responsible Organization:	Highway Department	
8. Action/Project Priority (STAPLEE Score):	40	
9. Timeline for Completion:	5 years	
10. Potential Fund Sources:	State/Federal grants	
11. Local Planning Mechanisms to be Used in Implementation, if any:	Municipal Comprehensive Plan	
Progress Report		
12. 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		
1. Name of Jurisdiction: **Name of Haz. Mit. Plan:**	Town of Claverack Columbia County Multi-Jurisdictional Hazard Mitigation Plan	
Risk / Vulnerability		
2. Problem being Mitigated:	The Town of Claverack could be affected if the dam fails or flood control is reduced.	
Potential Actions/Projects (not being Implemented at this time)		
3. Actions/Projects Considered with Summary Evaluation of Each:	Preferred: Monitor and regularly clean debris from culverts in several locations. Costly & not a permanent solution, takes staff away from regular duties. Alternative: Study dam to determine required engineering upgrades. Assess priorities based on hydraulic and structural conditions of each road.	
Action or Project Intended for Implementation		
4. Action/Project Number: **Name of Action or Project:**	PPL-14 Inspect and repair Philmont Reservoir Dam	
5. Action or Project Description:	Develop and implement a program to annually inspect and repair the Philmont Reservoir Dam using local resources and inspectors.	
6. Summary of Evaluation[1] **Benefits (losses avoided)** **Estimated Cost** **Other Factors Considered** **(see STAPLEE Worksheet)**	**BENEFIT** **Moderate.** Moderate reduction in roadway flooding.	**COST** **Moderate.** Moderate cost and number of people to implement.
Plan for Implementation		
7. Responsible Organization:	Highway Departments for Claverack and Philmont	
8. Action/Project Priority (STAPLEE Score):	37	
9. Timeline for Completion:	5 years	
10. Potential Fund Sources:	State/Federal grants	
11. Local Planning Mechanisms to be Used in Implementation, if any:	Municipal Comprehensive Plan	
Progress Report		
12. 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		
1. Name of Jurisdiction: **Name of Haz. Mit. Plan:**	Town of Claverack Columbia County Multi-Jurisdictional Hazard Mitigation Plan	
Risk / Vulnerability		
2. Problem being Mitigated:	Village of Claverack water/ wastewater treatment plant is subject to overflows due to flooding and heavy rain.	
Potential Actions/Projects (not being Implemented at this time)		
3. Actions/Projects Considered with Summary Evaluation of Each:	Preferred: Elevate water/wastewater treatment plant. Provides long-term flood relief. Alternative: Build flood control devices to protect the treatment plant. Costly and will require constant maintenance.	
Action or Project Intended for Implementation		
4. Action/Project Number: **Name of Action or Project:**	PPL-15 Elevate water/wastewater treatment plant.	
5. Action or Project Description:	Elevate water/wastewater treatment plant.	
6. Summary of Evaluation[1] **Benefits (losses avoided)** **Estimated Cost** **Other Factors Considered** **(see STAPLEE Worksheet)**	**BENEFIT** **High.** Eliminated risk to the village and environment of Claverack.	**COST** **Moderate.** Construction and labor costs.
Plan for Implementation		
7. Responsible Organization:	Utilities	
8. Action/Project Priority (STAPLEE Score):	40	
9. Timeline for Completion:	5 years	
10. Potential Fund Sources:	State/Federal grants	
11. Local Planning Mechanisms to be Used in Implementation, if any:	Municipal Comprehensive Plan	
Progress Report		
12. 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		
1. Name of Jurisdiction: **Name of Haz. Mit. Plan:**	Town of Greenport Columbia County Multi-Jurisdictional Hazard Mitigation Plan	
Risk / Vulnerability		
2. Problem being Mitigated:	Bridge on Finger Road in the Town of Greenport needs repair and causes debris scouring.	
Potential Actions/Projects (not being Implemented at this time)		
3. Actions/Projects Considered with Summary Evaluation of Each:	Preferred: Replace or retrofit the Finger Road bridge. Provides increased carrying capacity. Alternative: Clear debris on annual basis. Requires routine maintenance.	
Action or Project Intended for Implementation		
4. Action/Project Number: **Name of Action or Project:**	PPL-16 Replace or retrofit the Finger Road bridge	
5. Action or Project Description:	Replace or retrofit the Finger Road bridge over Mud Creek to reduce scouring risk.	
6. Summary of Evaluation[1] **Benefits (losses avoided)** **Estimated Cost** **Other Factors Considered** **(see STAPLEE Worksheet)**	**BENEFIT** **Moderate.** Moderate reduction in roadway flooding.	**COST** **Moderate.** Moderate annual cost and number of people to implement.
Plan for Implementation		
7. Responsible Organization:	Highway Department	
8. Action/Project Priority (STAPLEE Score):	33	
9. Timeline for Completion:	5 years	
10. Potential Fund Sources:	HMGP DR 4085 and State/Federal grants	
11. Local Planning Mechanisms to be Used in Implementation, if any:	Municipal Comprehensive Plan	
Progress Report		
12. 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		
1. Name of Jurisdiction: **Name of Haz. Mit. Plan:**	Town of Ancram Columbia County Multi-Jurisdictional Hazard Mitigation Plan	
Risk / Vulnerability		
2. Problem being Mitigated:	In the Town of Ancram improve drainage and alleviate road flooding	
Potential Actions/Projects (not being Implemented at this time)		
3. Actions/Projects Considered with Summary Evaluation of Each:	Preferred: Conduct drainage study on Finkle Road to determine how to reduce flooding. Alternative: Hold workshop to determine field crews' knowledge of flood problem areas and construct flood controls at those locations. Likely expensive and does not provide technical assessment of risk.	
Action or Project Intended for Implementation		
4. Action/Project Number: **Name of Action or Project:**	PPL-17 Conduct a drainage study on Finkle Road	
5. Action or Project Description:	Conduct a drainage study on Finkle Road to determine how to reduce flooding.	
6. Summary of Evaluation[1] **Benefits (losses avoided)** **Estimated Cost** **Other Factors Considered** **(see STAPLEE Worksheet)**	**BENEFIT** **Moderate.** Reduced risk of flooding.	**COST** **High.** High cost and increased run-off.
Plan for Implementation		
7. Responsible Organization:	Highway Department	
8. Action/Project Priority (STAPLEE Score):	32	
9. Timeline for Completion:	5 years	
10. Potential Fund Sources:	State/Federal grants	
11. Local Planning Mechanisms to be Used in Implementation, if any:	Agricultural and Farmland Protection Plan	
Progress Report		
12. Date of Status Report: **Report of Progress:** **Evaluation of Effectiveness:**		

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Action Worksheet		
1. Name of Jurisdiction: **Name of Haz. Mit. Plan:**	Town of Germantown Columbia County Multi-Jurisdictional Hazard Mitigation Plan	
Risk / Vulnerability		
2. Problem being Mitigated:	The Town of Germantown could be impacted if dam fails or flood control is reduced.	
Potential Actions/Projects (not being Implemented at this time)		
3. Actions/Projects Considered with Summary Evaluation of Each:	Preferred: Perform engineering study on Power Mill Spring Dam to determine restoration needs. Phased approach will allow for most efficient use of funds. Alternative: Bring in Army Corps of Engineers to determine restoration recommendations.	
Action or Project Intended for Implementation		
4. Action/Project Number: **Name of Action or Project:**	PPL-18 Powder Mill Spring Dam Restoration Project	
5. Action or Project Description:	Powder Mill Spring Dam Restoration Project designed to improve the structural integrity of the dam and improve flood controls.	
6. Summary of Evaluation[1] **Benefits (losses avoided)** **Estimated Cost** **Other Factors Considered** **(see STAPLEE Worksheet)**	**BENEFIT** **Moderate.** Moderate reduction in roadway flooding.	**COST** **Moderate.** Moderate annual cost and number of people to implement.
Plan for Implementation		
7. Responsible Organization:	Utilities, US Army Corps of Engineers	
8. Action/Project Priority (STAPLEE Score):	40	
9. Timeline for Completion:	5 years	
10. Potential Fund Sources:	State/Federal grants	
11. Local Planning Mechanisms to be Used in Implementation, if any:	Municipal Comprehensive Plan	
Progress Report		
12. 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		
1. Name of Jurisdiction: **Name of Haz. Mit. Plan:**	Village of Valatie Columbia County Multi-Jurisdictional Hazard Mitigation Plan	
Risk / Vulnerability		
2. Problem being Mitigated:	Flooding caused by overflow from rivers and creeks with higher than normal water levels, and from inadequate stormwater management.	
Potential Actions/Projects (not being Implemented at this time)		
3. Actions/Projects Considered with Summary Evaluation of Each:	Create a program for review of floodplain zoning ordinances. The review will take place bi-annually and after a major storm or flood event.	
Action or Project Intended for Implementation		
4. Action/Project Number: **Name of Action or Project:**	PPL-19 Review village ordinances governing floodplain zoning.	
5. Action or Project Description:	Ensure that current ordinances governing floodplain zoning and floodplain management are adequate for community needs. Recent shifts in the frequency and severity of local flooding show that early review of flood lines and proximity of water to nearby assets (homes businesses, infrastructure) will enable the Village and collocated Town of Kinderhook to identify potentially critical situations sooner rather than after assets are affected.	
6. Summary of Evaluation[1] **Benefits (losses avoided)** **Estimated Cost** **Other Factors Considered** **(see STAPLEE Worksheet)**	**BENEFIT** **High.** Early identification of flood-related issues will improve living conditions and ensure the safety of residents and property.	**COST** **Low.** Building Inspector's salary. Recruit an engineer for additional study if he detects problems requiring a hydrological study.
Plan for Implementation		
7. Responsible Organization:	The Building Inspector and the Mayor	
8. Action/Project Priority (STAPLEE Score):	23	
9. Timeline for Completion:	1 year	
10. Potential Fund Sources:	Village Budget, joint funding, FEMA HMGP funding	
11. Local Planning Mechanisms to be Used in Implementation, if any:	Floodplain Management Plan, Community Development Plan	
Progress Report		
12. Date of Status Report: **Report of Progress:** **Evaluation of Effectiveness:**	01/25/2018 – Project first discussed during a workshop during development of the Columbia County HMP.	

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Action Worksheet		
Name of Jurisdiction: **Name of Haz. Mit. Plan:**	Town of Canaan, NY Columbia County Multi-Jurisdictional Hazard Mitigation Plan	
Risk / Vulnerability		
Problem being Mitigated:	Developed regular repair schedule for roads, drainage and infrastructure.	
Potential Actions/Projects (not being Implemented at this time)		
Actions/Projects Considered with Summary Evaluation of Each:	Preferred: Schedule enhanced road maintenance. Ensures problem flood control devices are replaced properly and in timely manner. Alternative: Continue normal maintenance program. Risks missing clear problems with flood control devices.	
Action or Project Intended for Implementation		
Action/Project Number: **Name of Action or Project:**	PPL-20 Road maintenance	
Action or Project Description:	Scheduled road maintenance, which surpasses normal maintenance and replaces major culverts, bridges, infrastructure trouble spots.	
Summary of Evaluation[1] **Benefits (losses avoided)** **Estimated Cost** **Other Factors Considered**	**BENEFIT** **High.** Allows Town to regularly address trouble infrastructure as it occurs and schedule large costly maintenance over a number of years.	**COST** **Low.** Special Projects - $75,000/year; Town Highway Department has a regular annual budget for infrastructure enhancement over and above normal maintenance.
Plan for Implementation		
Responsible Organization:	Town Supervisor	
Action/Project Priority (STAPLEE Score):	38	
Timeline for Completion:	5 years	
Potential Fund Sources:	State/Federal grants	
Local Planning Mechanisms to be Used in Implementation, if any:	Municipal Comprehensive Plan	
Progress Report		
Date of Status Report: **Report of Progress:** **Evaluation of Effectiveness:**		

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Action Worksheet		
Name of Jurisdiction: **Name of Haz. Mit. Plan:**	City of Hudson, NY Columbia County Multi-Jurisdictional Hazard Mitigation Plan	
Risk / Vulnerability		
Problem being Mitigated:	Sewer pump stations lack capacity, and spill sewage during rain events.	
Potential Actions/Projects (not being Implemented at this time)		
Actions/Projects Considered with Summary Evaluation of Each:	Preferred: Upgrade pump stations to protect against overflows. Alternative: Build permanent flood control structures to protect existing pump stations. Stations will have to be replaced at some point and this does not address that issue.	
Action or Project Intended for Implementation		
Action/Project Number: **Name of Action or Project:**	PPL- 21 Upgrade sewer pump stations	
Action or Project Description:	Upgrade sewer pump stations to protect against overflows from limited capacity.	
Summary of Evaluation[1] **Benefits (losses avoided)** **Estimated Cost** **Other Factors Considered**	**BENEFIT** **High.** Allows City to provide improved health and safety to residents by limiting raw sewage leaching.	**COST** **Moderate.** Construction and labor costs
Plan for Implementation		
Responsible Organization:	Public Works Department	
Action/Project Priority (STAPLEE Score):	36	
Timeline for Completion:	2 years	
Potential Fund Sources:	State/Federal grants	
Local Planning Mechanisms to be Used in Implementation, if any:	Municipal Comprehensive Plan	
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		
Name of Jurisdiction: **Name of Haz. Mit. Plan:**	City of Hudson, NY Columbia County Multi-Jurisdictional Hazard Mitigation Plan	
Risk / Vulnerability		
Problem being Mitigated:	Ferry Street Bridge is old and catches debris leading to dangerous conditions.	
Potential Actions/Projects (not being Implemented at this time)		
Actions/Projects Considered with Summary Evaluation of Each:	Preferred: Replace bridge to decrease debris holding potential. Allows for decreased maintenance costs. Alternative: Develop enhanced maintenance program to remove debris on an ongoing basis. Not all incidents will be caught in adequate time.	
Action or Project Intended for Implementation		
Action/Project Number: **Name of Action or Project:**	PPL 22 Replace Ferry Street Bridge	
Action or Project Description:	Replace Ferry Street Bridge to be upgraded to minimize debris scouring and allow for improved river capacity through town.	
Summary of Evaluation[1] **Benefits (losses avoided)** **Estimated Cost** **Other Factors Considered**	**BENEFIT** **High.** Allows City to provide improved safety by improving a potential evacuation corridor and limiting potential secondary hazards.	**COST** **High.** Construction and labor costs
Plan for Implementation		
Responsible Organization:	Public Works Department	
Action/Project Priority (STAPLEE Score):	38	
Timeline for Completion:	5 years	
Potential Fund Sources:	State/Federal grants	
Local Planning Mechanisms to be Used in Implementation, if any:	Municipal Comprehensive Plan	
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		
Name of Jurisdiction: **Name of Haz. Mit. Plan:**	City of Hudson, NY Columbia County Multi-Jurisdictional Hazard Mitigation Plan	
Risk / Vulnerability		
Problem being Mitigated:	Climate change and flooding leading to increased inundation.	
Potential Actions/Projects (not being Implemented at this time)		
Actions/Projects Considered with Summary Evaluation of Each:	Preferred: Upgrade Waste Water Treatment Plant to address future conditions. Built to withstand higher magnitude events. Alternative: Construct flood control devices to protect existing plant. Devices will have to be maintained and may not be adequate for future conditions.	
Action or Project Intended for Implementation		
Action/Project Number: **Name of Action or Project:**	PPL 23 Sea Level Rise Hardening	
Action or Project Description:	Upgrade to City Waste Water Treatment Plant, substantial improvements to systems within 100-yr sea level rise areas.	
Summary of Evaluation[1] **Benefits (losses avoided)** **Estimated Cost** **Other Factors Considered**	**BENEFIT** **High.** Allows City to minimize future losses caused by climate change and flooding.	**COST** **High.** Construction and labor costs
Plan for Implementation		
Responsible Organization:	Public Works Department	
Action/Project Priority (STAPLEE Score):	36	
Timeline for Completion:	10 years	
Potential Fund Sources:	State/federal grants	
Local Planning Mechanisms to be Used in Implementation, if any:		
Progress Report		
Date of Status Report: **Report of Progress:** **Evaluation of Effectiveness:**		

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Action Worksheet		
Name of Jurisdiction: **Name of Haz. Mit. Plan:**	Town of Canaan, NY Columbia County Multi-Jurisdictional Hazard Mitigation Plan	
Risk / Vulnerability		
Problem being Mitigated:	Lack of funding for emergency repairs during hazardous or severe weather.	
Potential Actions/Projects (not being Implemented at this time)		
Actions/Projects Considered with Summary Evaluation of Each:	Preferred: Increase contingency budgets. Provides additional funding for emergency needs. Alternative: Require all departments to maintain "rainy day" funds. Can stretch departments thin.	
Action or Project Intended for Implementation		
Action/Project Number: **Name of Action or Project:**	PPL-24 Budgeting contingencies for hazard repair and mitigation	
Action or Project Description:	Increasing budgets for contingency funding in the amounts of: $50,000 General Government Budgets and $80,000 Highway Depart Budgets.	
Summary of Evaluation[1] **Benefits (losses avoided)** **Estimated Cost** **Other Factors Considered**	**BENEFIT** **High.** Allows Town to immediately repair or maintain hazard prone infrastructure.	**COST** **Low.** See above.
Plan for Implementation		
Responsible Organization:	Town Supervisor	
Action/Project Priority (STAPLEE Score):	35	
Timeline for Completion:	Being implemented	
Potential Fund Sources:	State/Federal grants	
Local Planning Mechanisms to be Used in Implementation, if any:	Columbia County CEMP	
Progress Report		
Date of Status Report: **Report of Progress:** **Evaluation of Effectiveness:**		

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Action Worksheet		
Name of Jurisdiction: **Name of Haz. Mit. Plan:**	Town of Copake, NY Columbia County Multi-Jurisdictional Hazard Mitigation Plan	
Risk / Vulnerability		
Problem being Mitigated:	Snow blocks major transportation routes and created hazardous driving conditions during the winter.	
Potential Actions/Projects (not being Implemented at this time)		
Actions/Projects Considered with Summary Evaluation of Each:	Preferred: construct snow fence. Protects road. Alternative: pre-stage road closure resources to minimize risks once event has occurred. Does not protect against immediate snow.	
Action or Project Intended for Implementation		
Action/Project Number: **Name of Action or Project:**	PPL-25 Snow fence	
Action or Project Description:	Installation of 1,750' snow fence to protect roads during snow events.	
Summary of Evaluation[1] **Benefits (losses avoided)** **Estimated Cost** **Other Factors Considered**	**BENEFIT** **High.** Protects important transportation routes	**COST** **Low.** Construction costs are relatively minimal.
Plan for Implementation		
Responsible Organization:	Highway Department	
Action/Project Priority (STAPLEE Score):	37	
Timeline for Completion:	1 year	
Potential Fund Sources:	State/Federal grants	
Local Planning Mechanisms to be Used in Implementation, if any:	Municipal Comprehensive Plan	
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		
Name of Jurisdiction: **Name of Haz. Mit. Plan:**	Town of Copake, NY Columbia County Multi-Jurisdictional Hazard Mitigation Plan	
Risk / Vulnerability		
Problem being Mitigated:	Debris jams in culverts and drainages lead to flooding.	
Potential Actions/Projects (not being Implemented at this time)		
Actions/Projects Considered with Summary Evaluation of Each:	Preferred: Develop an annual debris clearance program at culverts and ditches to ensure proper drainage. Alternative: Remove debris as problems crop up and as resources allow.	
Action or Project Intended for Implementation		
Action/Project Number: **Name of Action or Project:**	PPL-26 Culvert inspection program	
Action or Project Description:	Annual inspections and cleaning of culverts and ditches town wide.	
Summary of Evaluation[1] **Benefits (losses avoided)** **Estimated Cost** **Other Factors Considered**	**BENEFIT** **High.** Protects important transportation routes and reduces flooding risk	**COST** **Low.** Labor costs
Plan for Implementation		
Responsible Organization:	Highway Department	
Action/Project Priority (STAPLEE Score):	41	
Timeline for Completion:	5 years	
Potential Fund Sources:	State/Federal grants	
Local Planning Mechanisms to be Used in Implementation, if any:	Municipal Comprehensive Plan	
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		
Name of Jurisdiction: **Name of Haz. Mit. Plan:**	Town of Copake, NY Columbia County Multi-Jurisdictional Hazard Mitigation Plan	
Risk / Vulnerability		
Problem being Mitigated:	Repairs are necessary along Sunset Road due to aging road infrastructure.	
Potential Actions/Projects (not being Implemented at this time)		
Actions/Projects Considered with Summary Evaluation of Each:	Preferred: Elevate and strengthen roadway. Builds to withstand future conditions. Alternative: Consider alternative route with fewer potential impacts. High cost of construction.	
Action or Project Intended for Implementation		
Action/Project Number: **Name of Action or Project:**	PPL-27 Sunset road project	
Action or Project Description:	Sunset Road Project maintenance prevents hazardous road conditions by strengthening roadway.	
Summary of Evaluation[1] **Benefits (losses avoided)** **Estimated Cost** **Other Factors Considered**	**BENEFIT** **High.** Protects important transportation routes and reduces hazard risk	**COST** **Medium.** Labor and construction costs
Plan for Implementation		
Responsible Organization:	Highway Department	
Action/Project Priority (STAPLEE Score):	37	
Timeline for Completion:	5 years	
Potential Fund Sources:	State/Federal grants	
Local Planning Mechanisms to be Used in Implementation, if any:	Municipal Comprehensive Plan	
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		
Name of Jurisdiction: **Name of Haz. Mit. Plan:**	Town of Hillsdale, NY Columbia County Multi-Jurisdictional Hazard Mitigation Plan	
Risk / Vulnerability		
Problem being Mitigated:	Repairs are necessary along Wolf Hill Road due to aging road infrastructure.	
Potential Actions/Projects (not being Implemented at this time)		
Actions/Projects Considered with Summary Evaluation of Each:	Preferred: Elevate and strengthen roadway. Builds to withstand future conditions. Alternative: Consider alternative route with fewer potential impacts. High cost of construction.	
Action or Project Intended for Implementation		
Action/Project Number: **Name of Action or Project:**	PPL-28 Wolf Hill Road Paving	
Action or Project Description:	Paving and resurfacing Wolf Hill Road with prevent hazardous road conditions for the Town of Hillsdale.	
Summary of Evaluation[1] **Benefits (losses avoided)** **Estimated Cost** **Other Factors Considered**	**BENEFIT** **High.** Protects important transportation routes and reduces hazard risk	**COST** **Medium.** Labor and construction costs
Plan for Implementation		
Responsible Organization:	Highway Department	
Action/Project Priority (STAPLEE Score):	38	
Timeline for Completion:	5 Year	
Potential Fund Sources:	State/Federal grants	
Local Planning Mechanisms to be Used in Implementation, if any:	Municipal Comprehensive Plan	
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		
Name of Jurisdiction: **Name of Haz. Mit. Plan:**	Town of Livingston, NY Columbia County Multi-Jurisdictional Hazard Mitigation Plan	
Risk / Vulnerability		
Problem being Mitigated:	Culvert capacity not large enough to deal with large storms, overflows and causes flooding.	
Potential Actions/Projects (not being Implemented at this time)		
Actions/Projects Considered with Summary Evaluation of Each:	Preferred: Develop an annual debris clearance program at sluiceway to ensure proper drainage. Alternative: Replace sluiceway/culvert. Built to future conditions, but expensive.	
Action or Project Intended for Implementation		
Action/Project Number: **Name of Action or Project:**	PPL-29 Repair sluiceway and culvert	
Action or Project Description:	Repair sluiceway/culvert on Roe-Jan Creek at Rt. 9 and Buckwheat.	
Summary of Evaluation[1] **Benefits (losses avoided)** **Estimated Cost** **Other Factors Considered**	**BENEFIT** **High.** Protects important transportation routes and reduces hazard risk	**COST** **Medium.** Labor and construction costs
Plan for Implementation		
Responsible Organization:	Highway Department	
Action/Project Priority (STAPLEE Score):	37	
Timeline for Completion:	1 Year	
Potential Fund Sources:	State/Federal grants	
Local Planning Mechanisms to be Used in Implementation, if any:	Municipal Comprehensive Plan	
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		
Name of Jurisdiction: **Name of Haz. Mit. Plan:**	Town of Stuyvesant, NY Columbia County Multi-Jurisdictional Hazard Mitigation Plan	
Risk / Vulnerability		
Problem being Mitigated:	Recent flooding can caused landslides and other hazards if regulations are not enforced.	
Potential Actions/Projects (not being Implemented at this time)		
Actions/Projects Considered with Summary Evaluation of Each:	Preferred: Identify best practices to steep slope regulations. Ensures codes are properly updated.	
Action or Project Intended for Implementation		
Action/Project Number: **Name of Action or Project:**	PPL-30 Steep slope development enforcement	
Action or Project Description:	Develop and enforce steep slope laws and regulations to protect property owners from landslide risk.	
Summary of Evaluation[1] **Benefits (losses avoided)** **Estimated Cost** **Other Factors Considered**	**BENEFIT** **High.** Protects homeowners and transportation routes.	**COST** **Low.** Administrative costs.
Plan for Implementation		
Responsible Organization:	Code Enforcement Officer	
Action/Project Priority (STAPLEE Score):	34	
Timeline for Completion:	5 years	
Potential Fund Sources:	State/Federal grants	
Local Planning Mechanisms to be Used in Implementation, if any:	Columbia County CEMP	
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		
Name of Jurisdiction: **Name of Haz. Mit. Plan:**	Columbia County, NY Columbia County Multi-Jurisdictional Hazard Mitigation Plan	
Risk / Vulnerability		
Problem being Mitigated:	Lack of established evacuation routes and mass care sites leads to increased vulnerability.	
Potential Actions/Projects (not being Implemented at this time)		
Actions/Projects Considered with Summary Evaluation of Each:	None at this time.	
Action or Project Intended for Implementation		
Action/Project Number: **Name of Action or Project:**	PPL-31 Update County evacuation and mass care plans	
Action or Project Description:	Update County evacuation and mass care plans including development of community-specific evacuation routes, identification of shelter locations, and identification of potential sites for temporary housing and longer-term housing solutions.	
Summary of Evaluation[1] **Benefits (losses avoided)** **Estimated Cost** **Other Factors Considered**	**BENEFIT** **High.** Protects residents from all hazards, provide evacuation routes and mass care services.	**COST** **Low.** Administrative costs
Plan for Implementation		
Responsible Organization:	Columbia County Emergency Services	
Action/Project Priority (STAPLEE Score):	38	
Timeline for Completion:	1 year	
Potential Fund Sources:	State/Federal grants	
Local Planning Mechanisms to be Used in Implementation, if any:	Columbia County CEMP	
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		
Name of Jurisdiction: **Name of Haz. Mit. Plan:**	Town of Gallatin, NY Columbia County Multi-Jurisdictional Hazard Mitigation Plan	
Risk / Vulnerability		
Problem being Mitigated:	Repairs needed for damaged culvert due to DR 1857.	
Potential Actions/Projects (not being Implemented at this time)		
Actions/Projects Considered with Summary Evaluation of Each:	None at this time.	
Action or Project Intended for Implementation		
Action/Project Number: **Name of Action or Project:**	PPL-32 Culvert Replacement	
Action or Project Description:	Replace Elsohn Road Culvert to address damage caused by DR 1857.	
Summary of Evaluation[1] **Benefits (losses avoided)** **Estimated Cost** **Other Factors Considered**	**BENEFIT** **High.** Protects residents from flooding, provide evacuation routes.	**COST** **High.** Labor and construction costs.
Plan for Implementation		
Responsible Organization:	Highway Department	
Action/Project Priority (STAPLEE Score):	36	
Timeline for Completion:	2 years	
Potential Fund Sources:	HMGP DR 4085	
Local Planning Mechanisms to be Used in Implementation, if any:	Municipal Comprehensive Plan	
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		
Name of Jurisdiction: **Name of Haz. Mit. Plan:**	Town of Gallatin, NY Columbia County Multi-Jurisdictional Hazard Mitigation Plan	
Risk / Vulnerability		
Problem being Mitigated:	Repairs needed to damaged culvert due to DR 1857.	
Potential Actions/Projects (not being Implemented at this time)		
Actions/Projects Considered with Summary Evaluation of Each:	None at this time.	
Action or Project Intended for Implementation		
Action/Project Number: **Name of Action or Project:**	PPL-33 Replace Culvert	
Action or Project Description:	Replace Kosowski Road Culvert.	
Summary of Evaluation[1] **Benefits (losses avoided)** **Estimated Cost** **Other Factors Considered**	**BENEFIT** **High.** Protects residents from flooding, provide evacuation routes.	**COST** **High.** Labor and construction costs
Plan for Implementation		
Responsible Organization:	Highway Department	
Action/Project Priority (STAPLEE Score):	36	
Timeline for Completion:	2 years	
Potential Fund Sources:	HMGP DR 4085	
Local Planning Mechanisms to be Used in Implementation, if any:	Municipal Comprehensive Plan	
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		
Name of Jurisdiction: **Name of Haz. Mit. Plan:**	City of Hudson, NY Columbia County Multi-Jurisdictional Hazard Mitigation Plan	
Risk / Vulnerability		
Problem being Mitigated:	Improves City's ability to respond to needs and provide vital utilities and services.	
Potential Actions/Projects (not being Implemented at this time)		
Actions/Projects Considered with Summary Evaluation of Each:	Preferred: Purchase backup power supply to ensure services. Alternative: Construct backup water supply location. Highly expensive.	
Action or Project Intended for Implementation		
Action/Project Number: **Name of Action or Project:**	PPL-34 Backup power for water supply	
Action or Project Description:	Backup power water supply for chemical field to ensure utilities are functional.	
Summary of Evaluation[1] **Benefits (losses avoided)** **Estimated Cost** **Other Factors Considered**	**BENEFIT** **High.** Provides for continuity of service.	**COST** **Moderate.**
Plan for Implementation		
Responsible Organization:	Public Works Department	
Action/Project Priority (STAPLEE Score):	35	
Timeline for Completion:	ASAP	
Potential Fund Sources:	State/Federal grants	
Local Planning Mechanisms to be Used in Implementation, if any:	Columbia County CEMP	
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		
Name of Jurisdiction: **Name of Haz. Mit. Plan:**	Columbia County, NY Columbia County Multi-Jurisdictional Hazard Mitigation Plan	
Risk / Vulnerability		
Problem being Mitigated:	Improves County's ability to understand and prepare for future hazards likely to impact its communities.	
Potential Actions/Projects (not being Implemented at this time)		
Actions/Projects Considered with Summary Evaluation of Each:	None at this time.	
Action or Project Intended for Implementation		
Action/Project Number: **Name of Action or Project:**	PPL-35 Climate change study	
Action or Project Description:	Conduct an analysis of the potential impact of climate change on the County to include an analysis of how climate change may affect the County's vulnerability to hazards identified in the mitigation plan (flood, severe storms, winter storms, and tornado). The study should also include concrete strategies and recommendations for action that the community can implement to reduce the impact of climate change and incorporate climate change into multiple planning mechanisms.	
Summary of Evaluation[1] **Benefits (losses avoided)** **Estimated Cost** **Other Factors Considered**	**BENEFIT** **High.** Provides for improved readiness and understanding of proper mitigation strategies.	**COST** **Moderate.**
Plan for Implementation		
Responsible Organization:	CCEMO	
Action/Project Priority (STAPLEE Score):	35	
Timeline for Completion:	3 years	
Potential Fund Sources:	State/Federal grants	
Local Planning Mechanisms to be Used in Implementation, if any:	Columbia County CEMP	
Progress Report		
Date of Status Report: **Report of Progress:** **Evaluation of Effectiveness:**		

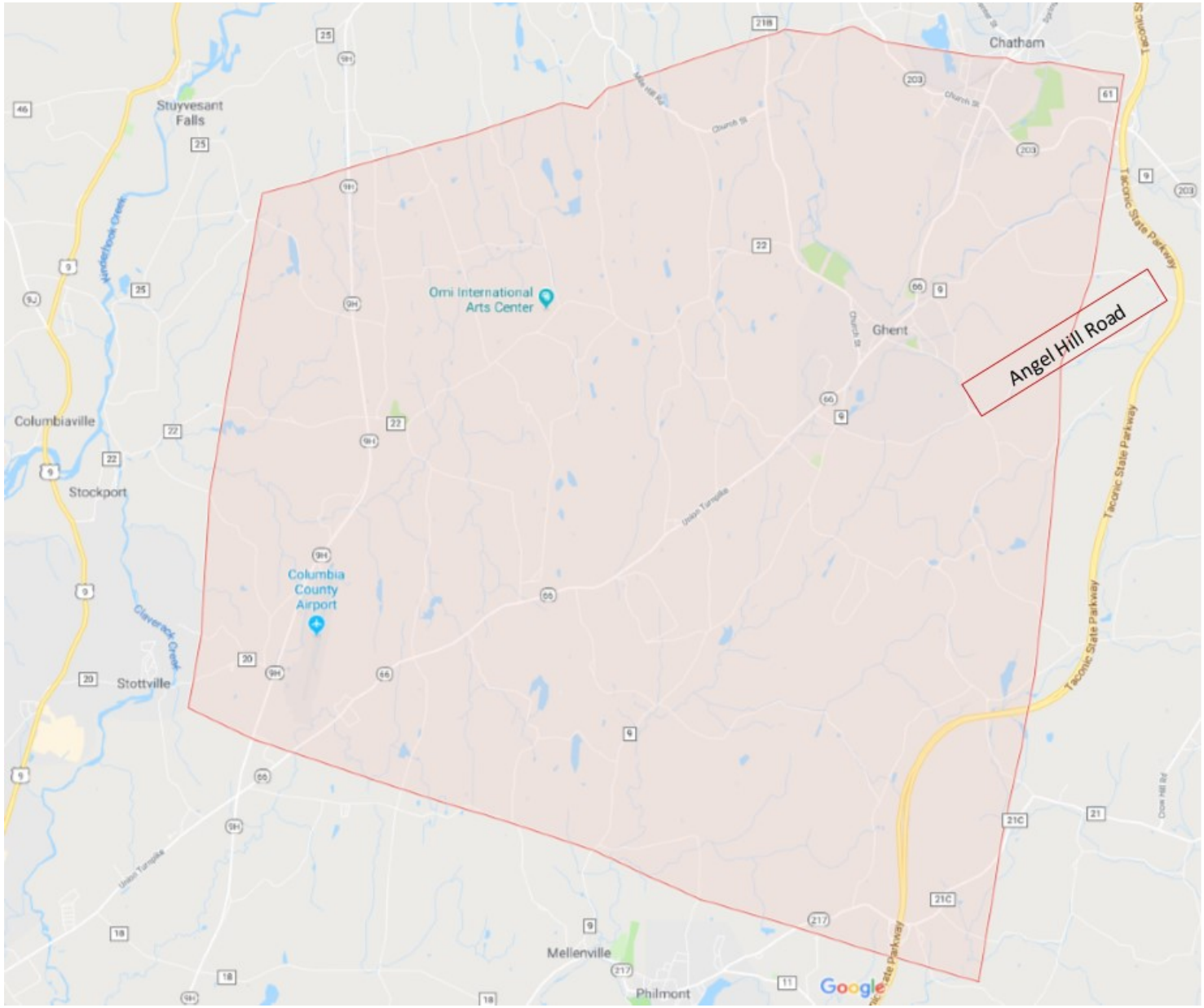
[1] Summarize the evaluation of potential actions and the action selected for implementation. Always consider the benefits and costs. Other criterion might include: Technical Feasibility, Political Support, Legal Authority, Environmental Impacts, positive and negative Social Impacts, and whether the 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

1. Name of Jurisdiction: **Name of Haz. Mit. Plan:**	Town of Ghent Columbia County Multi-Jurisdictional Hazard Mitigation Plan
Risk / Vulnerability	
2. Problem being Mitigated:	Flooding of Angel Hill Road. There are two undersized 36" side-by-side culvert pipes, configured such that they are easily filled with debris, thus blocking water flow. In addition to creating flood conditions, each flood event requires costly DPW cleanup. Flood events also cause damage to Angel Hill Road and to private property (especially to the French family properties) within the Town ROW. Flood-related damage occurs 1 to 2 times per year and results in $2,000 to $3,000 in repairs per incident. The Town also incurs costs associated with monitoring the area when larger rain events or quick snow melts are forecast. Such events cause the road to be closed for 1-2 days at a time and vehicular traffic is forced to make an 8- to 10-mile detour.
Potential Actions/Projects (not being Implemented at this time)	
3. Actions/Projects Considered with Summary Evaluation of Each:	Preferred: Combination of upgrading the capacity along with conversion to one opening to allow debris to pass through, thus preventing blockage. This will allow continued flow, thus mitigating flooding and associated damages. Alternative: Install detention-retention basin(s), but these will not prevent debris build-up; have greater environmental impacts; and would be more costly. Alternative: Stream reconfiguration, which would entail dealing with many regulations; have a negative environmental impact, and be costly to implement.
Action or Project Intended for Implementation	
4. Action/Project Number: **Name of Action or Project:**	PPL-36 Angel Hill Road Culvert Upgrade
5. Action or Project Description:	An H&H study will be completed to determine the appropriate culvert size and ensure that the project will not create negative impacts upstream or downstream. After determining the best project design, the Town will secure all appropriate permits will be obtained; order materials; and stage materials at the project site. Existing culverts will be removed and disposed of. New culvert will be installed, surrounding area will be fill, and pavement installed.
6. Summary of Evaluation[1] **Benefits (losses avoided)** **Estimated Cost** **Other Factors Considered** **(see STAPLEE Worksheet)**	**BENEFIT** **High.** • Mitigate future road damages • Eliminate costs of road monitoring and cleanout • Minimize road closures and detours that cause economic hardship to road users • Protect 15 residential properties with an assessed value of $3.431.000 located on the road.
	COST **Low.** $40,000 to $50,000 for an Engineering Study (professional expertise, material, labor and equipment)
Plan for Implementation	
7. Responsible Organization:	Town of Ghent Superintendent of Highways
8. Action/Project Priority (STAPLEE Score):	18
9. Timeline for Completion:	3 years
10. Potential Fund Sources:	NYSDEC
11. Local Planning Mechanisms to be Used in Implementation, if any:	Town Comprehensive Plan (http://townofghent.org/quicklinks/comprehensive-plan/), Flood Damage Prevention Code (https://www.ecode360.com/10599737)
Progress Report	

12. Date of Status Report: **Report of Progress:** **Evaluation of Effectiveness:**	01/25/2018 – Project first discussed during a workshop during development of the Columbia County HMP.

The two Google maps that follow identify the location of Angel Hill Road in the Town of Ghent. The first map shows the road as a connector between town and the Taconic State Parkway, and major north-south throughway used by local residents and the region's extensive tourist population. This map also shows the detour roads drivers would take should Angel Hill Road be closed as a result of a flood event.



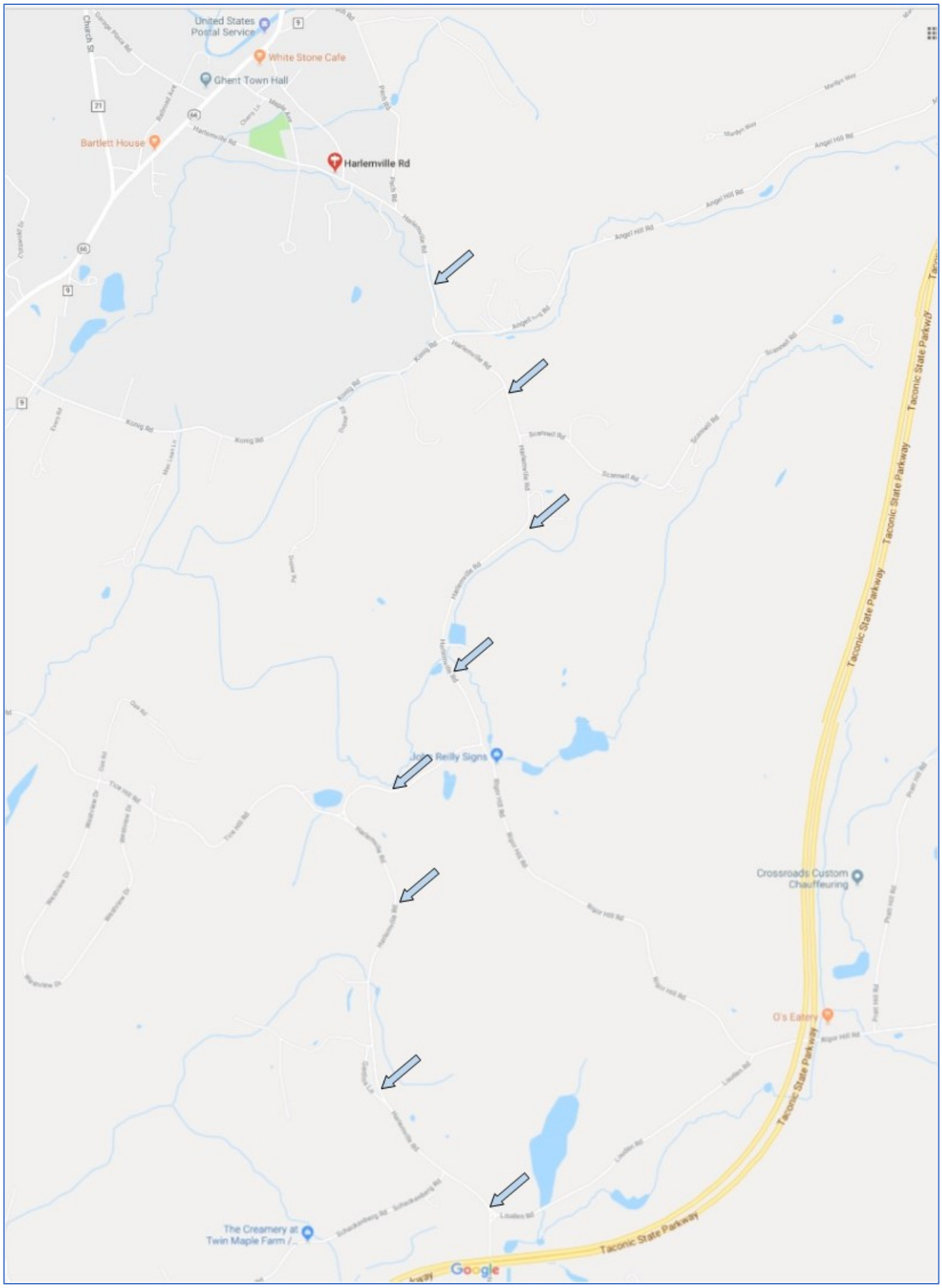
The following map is a close-up view of the road and shows it as measuring 1.89 miles. The image also shows the road as running parallel to a local waterway, and intersecting several roads leading to downtown Ghent. The road's proximity to the Taconic State Parkway and local arteries indicate its importance to local and regional transportation.



Action Worksheet

1. Name of Jurisdiction: **Name of Haz. Mit. Plan:**	Town of Ghent Columbia County Multi-Jurisdictional Hazard Mitigation Plan	
Risk / Vulnerability		
2. Problem being Mitigated:	Erosion to Harlemville Road and damage to road shoulders, private driveways, and driveway culverts from excessive stormwater runoff. This section of Harlemville Road has a steep, 20% grade, with existing ditch configurations not conducive to handling the runoff velocities. Between 5 and 6 times per year, the Ghent DPW must respond to this location to repair the road, shoulders, and driveways. This is a main connector road that services 500-600 VPD. The cost incurred to the Town for repairs varies from $2,000 per small event to $6,000+ per larger event.	
Potential Actions/Projects (not being Implemented at this time)		
3. Actions/Projects Considered with Summary Evaluation of Each:	Preferred: Install larger driveway culverts and bulkheads with riprap protecting the land from continued erosion. Include concrete the ditches and aprons, and install intermediate weirs. Alternative: Install detention-retention basin(s). Solution not viable for given the terrain and cost. Alternative: Road realignment/elevation, which is not feasible for the terrain and given the cost.	
Action or Project Intended for Implementation		
4. Action/Project Number: **Name of Action or Project:**	PPL-37 Eliminate erosion on Harlemville Road	
5. Action or Project Description:	Work will be performed by Town DPW. All appropriate permits will be obtained, materials ordered/staged at project site. Existing driveway culverts will be removed and disposed of. New culverts will be installed, placement of concrete ditching and rip-rap as bulking of driveway culverts as appropriate. Intermediate weirs will be installed in ditches.	
6. Summary of Evaluation[1] **Benefits (losses avoided)** **Estimated Cost** **Other Factors Considered** **(see STAPLEE Worksheet)**	**BENEFIT** **High.** • Mitigate future damage to the road, shoulders, and private driveway aprons. • Avoid traffic disruption to cross traffic, 44 households, and the sustainable farm and educational facilities located on the road. • Mitigate against similar erosion problems that could affect all neighborhood properties, which have a total assessed value of $13.3 million.	**COST** **Low.** $50,000+ would cover materials, labor and equipment to complete the project
Plan for Implementation		
7. Responsible Organization:	Town of Ghent Superintendent of Public Works	
8. Action/Project Priority (STAPLEE Score):	18	
9. Timeline for Completion:	3 years	
10. Potential Fund Sources:	NYSDEC	
11. Local Planning Mechanisms to be Used in Implementation, if any:	Town Comprehensive Plan (http://townofghent.org/quicklinks/comprehensive-plan/), Flood Damage Prevention Code (https://www.ecode360.com/10599737)	
Progress Report		
12. Date of Status Report: **Report of Progress:** **Evaluation of Effectiveness:**	01/25/2018 – Project first discussed during a workshop during development of the Columbia County HMP.	

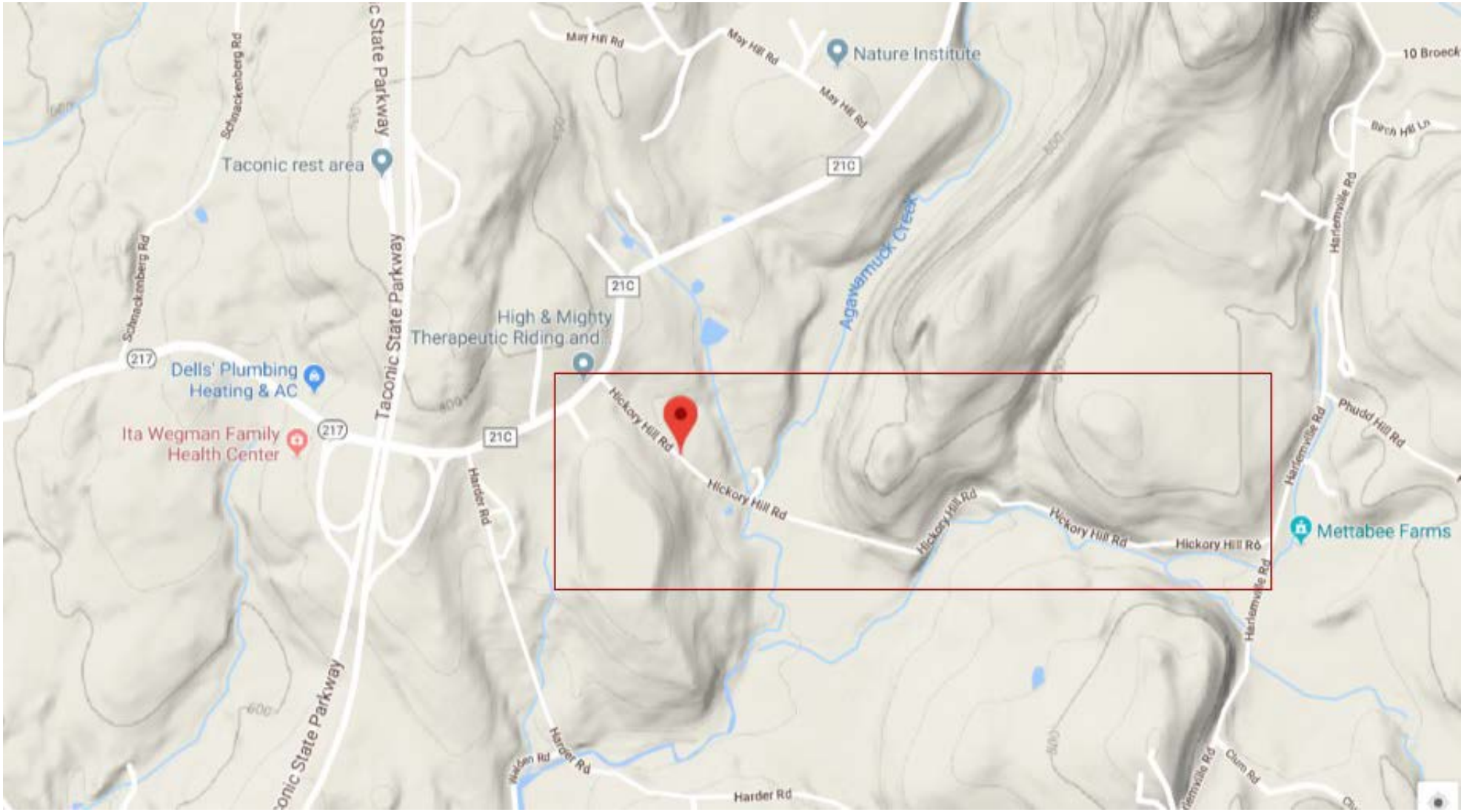
The full length of Harlemville Road is indicated by the arrows placed on the map as guide markers. The road is a major north-south thoroughfare used by local traffic, commuters using the Taconic State Parkway, and visitors traveling to the Catskills via Columbia County.



Action Worksheet

1. Name of Jurisdiction: **Name of Haz. Mit. Plan:**	Town of Ghent Columbia County Multi-Jurisdictional Hazard Mitigation Plan	
Risk / Vulnerability		
2. Problem being Mitigated:	Hickory Hill Road washes out during heavy rain events on average twice a year. There is a section of a local creek that, in its current currently configuration, cannot contain the flow so the water jumps its banks. When this happens, the flow moves through a field until it reaches the road. It washes out the road and causes closure, forcing a 10-mile detour for local traffic. The costs incurred to the Town for repairs varies from $2,000 to $3,000+ per event, with road closures lasting up to one week for each incident. Particularly affected are two households whose structures are located near the washouts. See attached maps illustrating the project location.	
Potential Actions/Projects (not being Implemented at this time)		
3. Actions/Projects Considered with Summary Evaluation of Each:	Preferred: Realign the creek to incorporate cross vane weirs and/or J-hook vane structures, plus additional bio-engineering techniques. Alternative: Install detention-retention basin(s). It would be difficult to acquire the land necessary for constructing. Alternative: Road realignment/elevation, a costly option that may cause other problems.	
Action or Project Intended for Implementation		
4. Action/Project Number: **Name of Action or Project:**	PPL-38 Hickory Hill Road Reinforcement	
5. Action or Project Description:	Conduct an H&H study to develop detailed engineering analysis. Work will be performed by Town DPW and Contractor(s) after the study has been completed. Ghent Town DPW will work with NYSDEC and (if needed) USACE to secure permitting application(s) and address site preparation. Obtain permits, order project materials ordered, and stage them at the project site. Exact details of the stream alignment work to be completed will be determined by the engineering results.	
6. Summary of Evaluation[1] **Benefits (losses avoided)** **Estimated Cost** **Other Factors Considered** **(see STAPLEE Worksheet)**	**BENEFIT** **High.** • Mitigate future damages (washouts) to the road. • Eliminate cost of road repairs. • Reduce road closures, which run up to a week long after each event. • Eliminate potential damage to the two properties located near the site of washouts. These properties are valued at $1,575,812 per assessment records.	**COST** **Low.** $200,000+, including an H&H study, engineering work, permits, materials, labor, and equipment.
Plan for Implementation		
7. Responsible Organization:	Town of Ghent Superintendent of Public Works	
8. Action/Project Priority (STAPLEE Score):	18	
9. Timeline for Completion:	3 years	
10. Potential Fund Sources:	NYSDEC	
11. Local Planning Mechanisms to be Used in Implementation, if any:	Town Comprehensive Plan (http://townofghent.org/quicklinks/comprehensive-plan/), Flood Damage Prevention Code (https://www.ecode360.com/10599737)	
Progress Report		
12. Date of Status Report: **Report of Progress:** **Evaluation of Effectiveness:**	01/25/2018 – Project first discussed during a workshop during development of the Columbia County HMP	

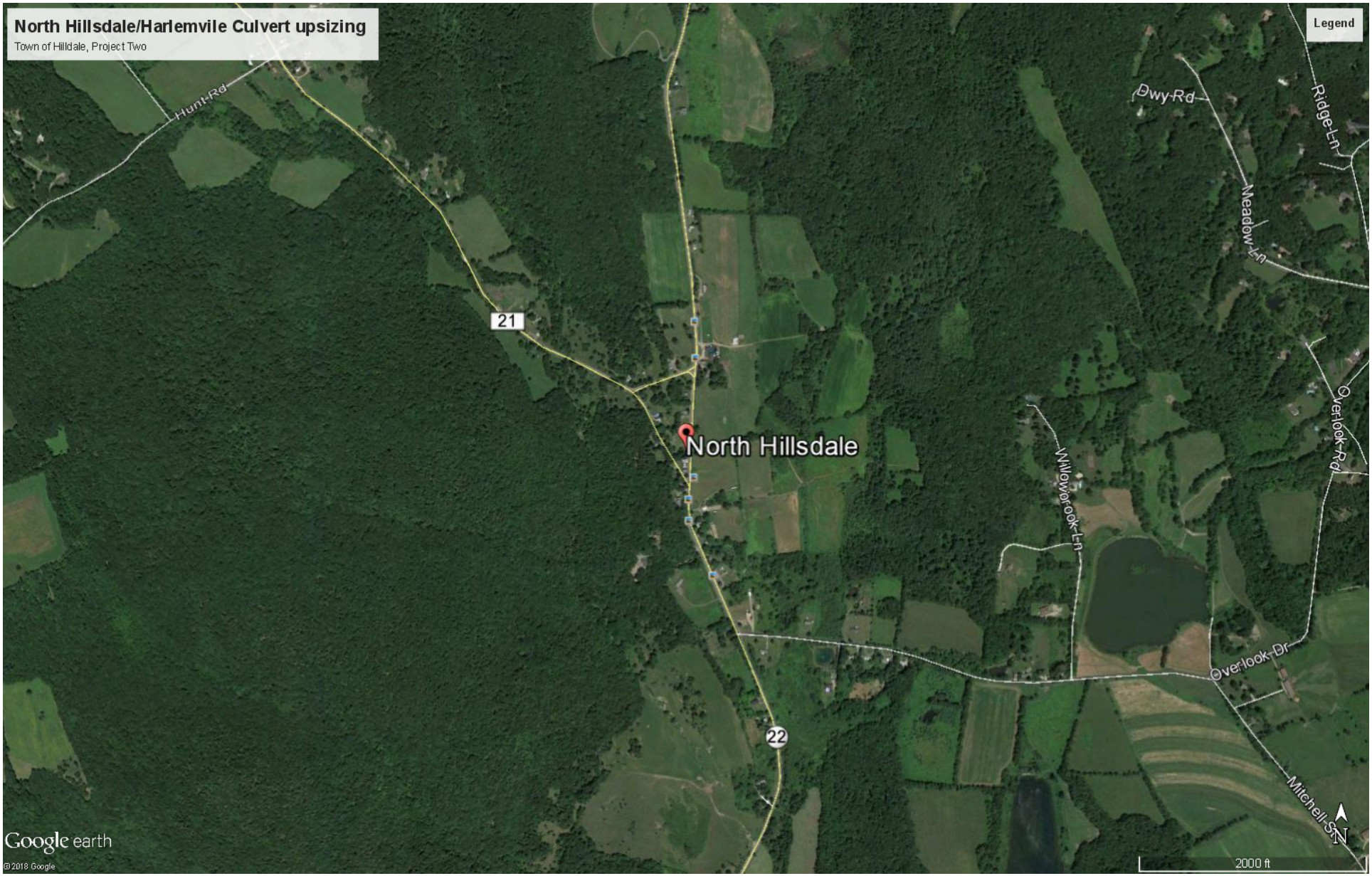
A text box superimposed over the Google map below highlights the route of Hickory Hill Road, which measures approximately one mile in length according to Google. The road runs through the Taconic Mountains of upstate New York. This topographic illustration shows that steep terrain lines both sides of the road, as well as the local stream bordered by the road.

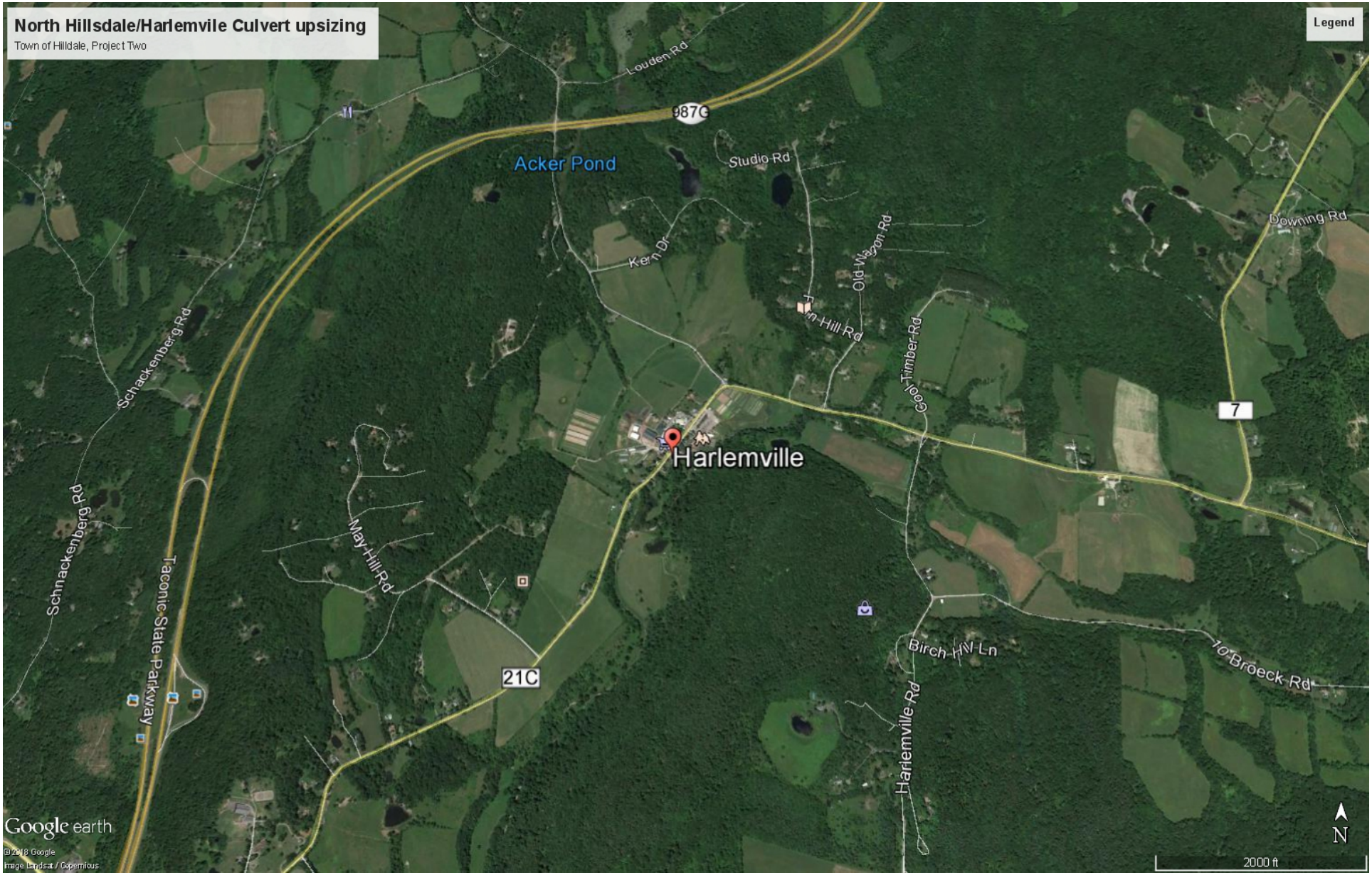


Action Worksheet

1. Name of Jurisdiction: **Name of Haz. Mit. Plan:**	Town of Hillsdale Columbia County Multi-Jurisdictional Hazard Mitigation Plan	
Risk / Vulnerability		
2. Problem being Mitigated:	Continual road flooding in North Hillsdale and Harlemville ***See map on the next pages showing the project locations.***	
Potential Actions/Projects (not being Implemented at this time)		
3. Actions/Projects Considered with Summary Evaluation of Each:	Preferred: Upsize culverts for better stormwater management. Alternative: Stream Restoration, a more complicated engineering project. Alternative: Road elevation, which will cost more and take longer to complete. Alternative: Re-direct the stream, involving significant environmental and logistical issues.	
Action or Project Intended for Implementation		
4. Action/Project Number: **Name of Action or Project:**	PPL-39 Culvert upsizing at North Hillsdale/Harlemville Road	
5. Action or Project Description:	Larger culverts in North Hillsdale & Harlemville will alleviate flooding on the town roads. The Town will commission a Phase 1 study to identify topographical issues creating flood conditions, and the level of storm protection needed for the project to be effective.	
6. Summary of Evaluation[1] **Benefits (losses avoided)** **Estimated Cost** **Other Factors Considered** **(see STAPLEE Worksheet)**	**BENEFIT** **High.** • Lessen instances of clearing roads of excess water • Lessen damage to roads and need for repairs • Reduce frequency and level of flooding affecting the basements of nearby houses • Reduce damage to trees that are affected by flood incidents • Keep major thoroughfare in operation, important for evacuation and emergency management	**COST** **Low.** $50,000 for the Phase 1 study.
Plan for Implementation		
7. Responsible Organization:	Town of Hillsdale Highway Department	
8. Action/Project Priority (STAPLEE Score):	18	
9. Timeline for Completion:	1-3 years	
10. Potential Fund Sources:	FEMA HMGP and PDM, NYS DOT, FHWA	
11. Local Planning Mechanisms to be Used in Implementation, if any:	Town Comprehensive Plan (https://hillsdaleny.com/planning-zoning-building/download-comprehensive-plan/) Sheriff's Office, Fire and Safety Operations (https://hillsdaleny.com/fire-and-safety/the-hillsdale-fire-company/)	
Progress Report		
12. Date of Status Report: **Report of Progress:** **Evaluation of Effectiveness:**	01/25/2018 – Project first discussed during a workshop during development of the Columbia County HMP.	

The following two Google Earth maps show the ***location of the North Hillsdale/Harlemvile Culvert upsizing projects*** proposed for the Town of Hillsdale.




North Hillsdale/Harlemvile Culvert upsizing
Town of Hilldale, Project Two
Legend
Louden Rd
987C
Acker Pond
Studio Rd
Kern Dr
Old Wagon Rd
Downing Rd
Schnackenberg Rd
Harlemville
Cool Timber Rd
7
Schnackenberg Rd
May Hill Rd
Taconic Slate Parkway
21C
Birch Hill Ln
10 Broeck Rd
Harlemville Rd
Google earth
© 2018 Google
Image Landsat / Copernicus
N
2000 ft

Action Worksheet		
1. Name of Jurisdiction: **Name of Haz. Mit. Plan:**	Town of Kinderhook Columbia County Multi-Jurisdictional Hazard Mitigation Plan	
Risk / Vulnerability		
2. Problem being Mitigated:	Flooding caused by overflow from rivers and creeks with higher than normal water levels, and from inadequate stormwater management.	
Potential Actions/Projects (not being Implemented at this time)		
3. Actions/Projects Considered with Summary Evaluation of Each:	Preferred: Develop program for ongoing review of floodplain ordinances. Alternative: Review ordinances after a major storm event. This option does not allow the Town to be proactive and address potential problems until an event has affected the community, possibly causing loss of life or property damage. Alternative: Review ordinances on a schedule set by the NYS DEC. CAV and CAC interactions with DEC do not take place frequently enough to "get a jump on" flood-related issues before a major incident occurs.	
Action or Project Intended for Implementation		
4. Action/Project Number: **Name of Action or Project:**	PPL-40 Review town ordinances governing floodplain zoning.	
5. Action or Project Description:	Create a program for review of floodplain zoning ordinances. The review will take place bi-annually and after a major storm or flood event. Ensure that current ordinances governing floodplain zoning and floodplain management are adequate for community needs. Recent shifts in the frequency and severity of local flooding show that early review of flood lines and proximity of water to nearby assets (homes businesses, infrastructure) will enable the Town of Kinderhook and its collocated villages to identify potentially critical situations sooner rather than after assets are affected.	
6. Summary of Evaluation[1] **Benefits (losses avoided)** **Estimated Cost** **Other Factors Considered** **(see STAPLEE Worksheet)**	**BENEFIT** Early identification of flood-related issues will improve living conditions and ensure the safety of residents and property.	**COST** Building Inspector's salary. Recruit an engineer for additional study if he detects problems requiring hydrological studies.
Plan for Implementation		
7. Responsible Organization:	The Building Inspector and Town Supervisor	
8. Action/Project Priority (STAPLEE Score):	23	
9. Timeline for Completion:	1 year	
10. Potential Fund Sources:	Town Budget, joint funding, FEMA HMGP funding	
11. Local Planning Mechanisms to be Used in Implementation, if any:	Floodplain Management Plan, Community Development Plan	
Progress Report		
12. Date of Status Report: **Report of Progress:** **Evaluation of Effectiveness:**	01/25/2018 – Project first discussed during a workshop during development of the Columbia County HMP.	

Action Worksheet

1. Name of Jurisdiction: **Name of Haz. Mit. Plan:**	Town of Stuyvesant Columbia County Multi-Jurisdictional Hazard Mitigation Plan	
Risk / Vulnerability		
2. Problem being Mitigated:	Flood damage to historic structures located within the FEMA Flood Plain along the Hudson River, including those located in the Nutten Hook Tidal Wetlands Area. Historic structures were affected by Hurricanes Lee, Irene and Sandy and identified by the Governor's Office of Storm Recovery for further consideration.	
Potential Actions/Projects (not being Implemented at this time)		
3. Actions/Projects Considered with Summary Evaluation of Each:	Preferred: Demonstrate successful renovation and elevation on property located at 41 Ferry Road to pave the way for successes with other historic properties. Alternative: Develop a project that includes all historic homes in one grant application. This is a complicated approach given the degree of research needed to describe the history and uniqueness of each property. Alternative: Raze homes that are not up to code. The structures are of important historical and cultural value and provide economic value given the number of tourists who visit the region to see its historic resources.	
4. Action/Project Number: **Name of Action or Project:**	PPL-41 Mitigate damage to homes located in the Hudson River Floodplain	
5. Action or Project Description:	This project was first mentioned in 2013 during New York Rising community meetings as #021-HA-51498-2013. The structure is identified as being of historic importance. Steps toward completion at this point include: • Review completed paperwork for structure located at 41 Ferry Road ***(see accompanying project map)*** • Ensure application is in keeping with the Town's "Flood Damage Prevention Local Law" (adopted in 1987 as Local Law #1) to modify existing structures to bring them into compliance. • Submit grant applications to GOSR, Raise New York and New York SHPO	
6. Summary of Evaluation[1] **Benefits (losses avoided)** **Estimated Cost** **Other Factors Considered** **(see STAPLEE Worksheet)**	**BENEFIT** **High.** • Preserve historic structures. • Contribute economically by maintaining the community's reputation as a bastion of historic preservation. • Protect those living on the property.	**COST** **Low.** $290,000 to address code and structural issues of property located at 41 Ferry Road See attached cost data included in building permit application and other project paperwork
Plan for Implementation		
7. Responsible Organization:	Town of Stuyvesant Building Department and Code Enforcement Officer	
8. Action/Project Priority (STAPLEE Score):	20	
9. Timeline for Completion:	2 years – first property Ongoing, depending on ability of property owners to secure funding to make improvements	
10. Potential Fund Sources:	New York Rising, Raise New York, NY SHPO	
11. Local Planning Mechanisms to be Used in Implementation, if any:	Local Law #1, 1987, Flood Damage Prevention Local Law, General Building and Historic Preservation Code	
Progress Report		
12. Date of Status Report: **Report of Progress:** **Evaluation of Effectiveness:**	Currently two structures have received building permits for the purposes of making improvements to address flooding issues, and to reduce the potential of future flooding.	



These Google maps show the location of the 41 Ferry Road property. The three-bedroom, 3,512 s/f home, built in 1880, is valued at $245,000 per Columbia County online Tax Assessment records. Renovation work would be completed in keeping with NFIP guidelines for historic property repair and renovation that allows historic structures to maintain pre-FIRM subsidized insurance rates; and minimize the adverse impact of requirements on structural historic integrity. The accompanying paperwork includes the building permit application and describes the work proposed for the project.



The Google measurement shown in the above map indicates that the structure is located 689 feet (1/10 mi.) from where Ferry Road meets the Hudson River. The map below shows that the property is only 370 feet from the water when measuring to the closest point on the river.



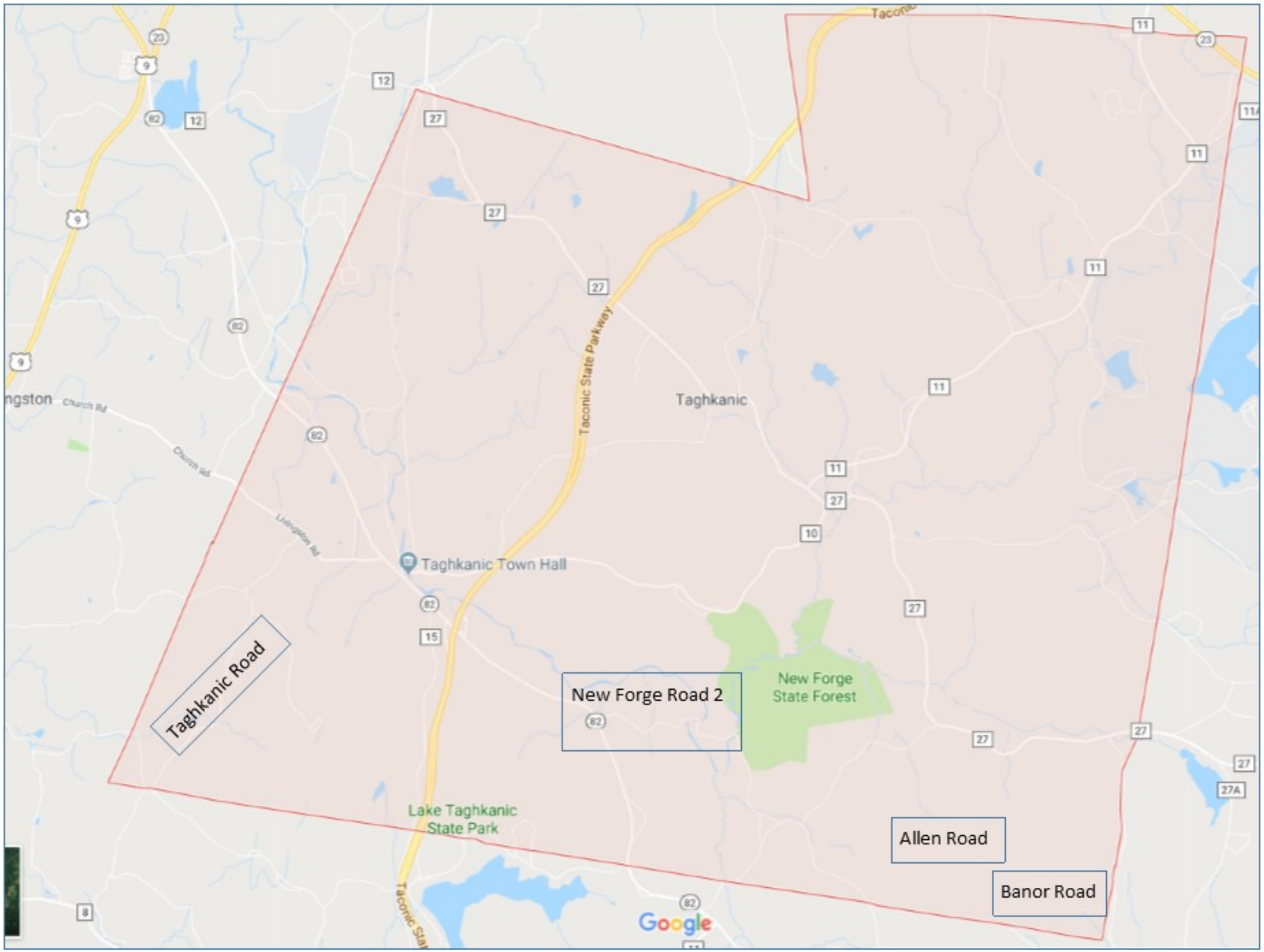
Action Worksheet

1. Name of Jurisdiction: **Name of Haz. Mit. Plan:**	Town of Stuyvesant Columbia County Multi-Jurisdictional Hazard Mitigation Plan	
Risk / Vulnerability		
2. Problem being Mitigated:	Flooding caused by overflow from rivers and creeks with higher than normal water levels, and from inadequate stormwater management.	
Potential Actions/Projects (not being Implemented at this time)		
3. Actions/Projects Considered with Summary Evaluation of Each:	Preferred: Develop program for ongoing review of floodplain ordinances. Alternative: Review ordinances after a major storm event. This option does not allow the Town to be proactive and address potential problems until an event has affected the community, possibly causing loss of life or property damage. Alternative: Review ordinances on a schedule set by the NYSDEC. CAV and CAC interactions with DEC do not take place frequently enough to "get a jump on" flood-related issues before a major incident occurs.	
Action or Project Intended for Implementation		
4. Action/Project Number: **Name of Action or Project:**	PPL-42 Review town ordinances governing floodplain zoning.	
5. Action or Project Description:	Create a program for review of floodplain zoning ordinances. The review will take place bi-annually and after a major storm or flood event. Ensure that current ordinances governing floodplain zoning and floodplain management are adequate for community needs. Recent shifts in the frequency and severity of local flooding show that early review of flood lines and proximity of water to nearby assets (homes businesses, infrastructure) will enable the Town of Kinderhook and its collocated villages to identify potentially critical situations sooner rather than after assets are affected.	
6. Summary of Evaluation[1] **Benefits (losses avoided)** **Estimated Cost** **Other Factors Considered** **(see STAPLEE Worksheet)**	**BENEFIT** **High.** Early identification of flood-related issues will improve living conditions and ensure the safety of residents and property.	**COST** **Low.** Building Inspector's salary. Recruit an engineer for additional study if he detects problems requiring hydrological studies.
Plan for Implementation		
7. Responsible Organization:	The Building Inspector/Code Enforcement Officer	
8. Action/Project Priority (STAPLEE Score):	23	
9. Timeline for Completion:	1 year	
10. Potential Fund Sources:	Town Budget, joint funding, FEMA HMGP funding	
11. Local Planning Mechanisms to be Used in Implementation, if any:	Floodplain Management Plan	
Progress Report		
12. Date of Status Report: **Report of Progress:** **Evaluation of Effectiveness:**	02/22/2018 – Project first discussed at the county and local levels during the development of the Columbia County HMP.	

Action Worksheet

1. Name of Jurisdiction: Name of	Town of Taghkanic Columbia County Multi-Jurisdictional Hazard Mitigation Plan
Risk / Vulnerability	
2. Problem being Mitigated:	Inadequate stormwater management from heavy rains and Taghkanic Creek overflow because of undersized culverts on Allen Road, Banor Road, New Forge Road 2, and Taghkanic Road.
Potential Actions/Projects (not being Implemented at this time)	
3. Actions/Projects Considered with Summary Evaluation of Each:	Preferred: Study each road to determine required engineering upgrades. Assess priorities based on hydraulic and structural conditions of each road. Alternative: Monitor and regularly clean debris from culverts in several locations. Costly & not a permanent solution, takes staff away from regular duties. Alternative: Monitor and regularly clean debris from culverts in several locations. Costly, not a permanent solution, takes staff away from regular duties.
Action or Project Intended for Implementation	
4. Action/Project Number: Name of Action or Project:	PPL-43 Culvert Upsizing on New Forge Road 2
5. Action or Project Description:	Several culverts must be replaced and enlarged to accommodate stormwater from heavy rain events and flooding from creek overflow. Top priority would be given to the culvert on New Forge Road 2 because it washed out after heavy rains in July 2013. Columbia County weather in was reported by the NOAA/UAlbany CSTAR program (http://cstar.cestm.albany.edu/PostMortems/CSTARPostMortems/2013/July_7_2013/7%20July%202013.htm).
6. Summary of Evaluation[1] Benefits (losses avoided) Estimated Cost Other Factors Considered (see STAPLEE Worksheet)	**BENEFIT** **High.** • Lessen risk of hazardous road conditions and closures on Allen, Banor, and Taghkanic Roads and New Forge Road 2. • For the New Forge Road 2 project, protect 11 residential properties valued at **$3,423,900.00** per County tax records. • Keep road open in the event of evacuation.
	COST **Low.** $25,000 for an engineering study for the New Forge Road 2 project. Estimated $25,000 for culvert replacement. Study findings will determine scope of subsequent projects on other roads.
Plan for Implementation	
7. Responsible	Town Highway Superintendent
8. Action/Project Priority	18
9. Timeline for	1 year for the New Forge Road 2 project
10. Potential Fund Sources:	New York State Department of State (DOS) – Long Term Community Recovery Strategy Grants (LTCR)
11. Local Planning Mechanisms to be Used in	Stormwater Management Program
Progress Report	
12. Date of Status Report: Report of Progress: Evaluation of Effectiveness:	01/25/2018 – Project first discussed during a workshop during development of the Columbia County HMP.

The Google map below shows the boundaries of the Town of Taghkanic and the approximate location of the four roads identified as needing larger culverts. The map shows that streams flow near each road, but New Forge Road 2 is particularly vulnerable because it roughly parallels the course of Claverack Creek and intersects the creek and its tributaries in three spots. A close-up of this road is shown on the following page.

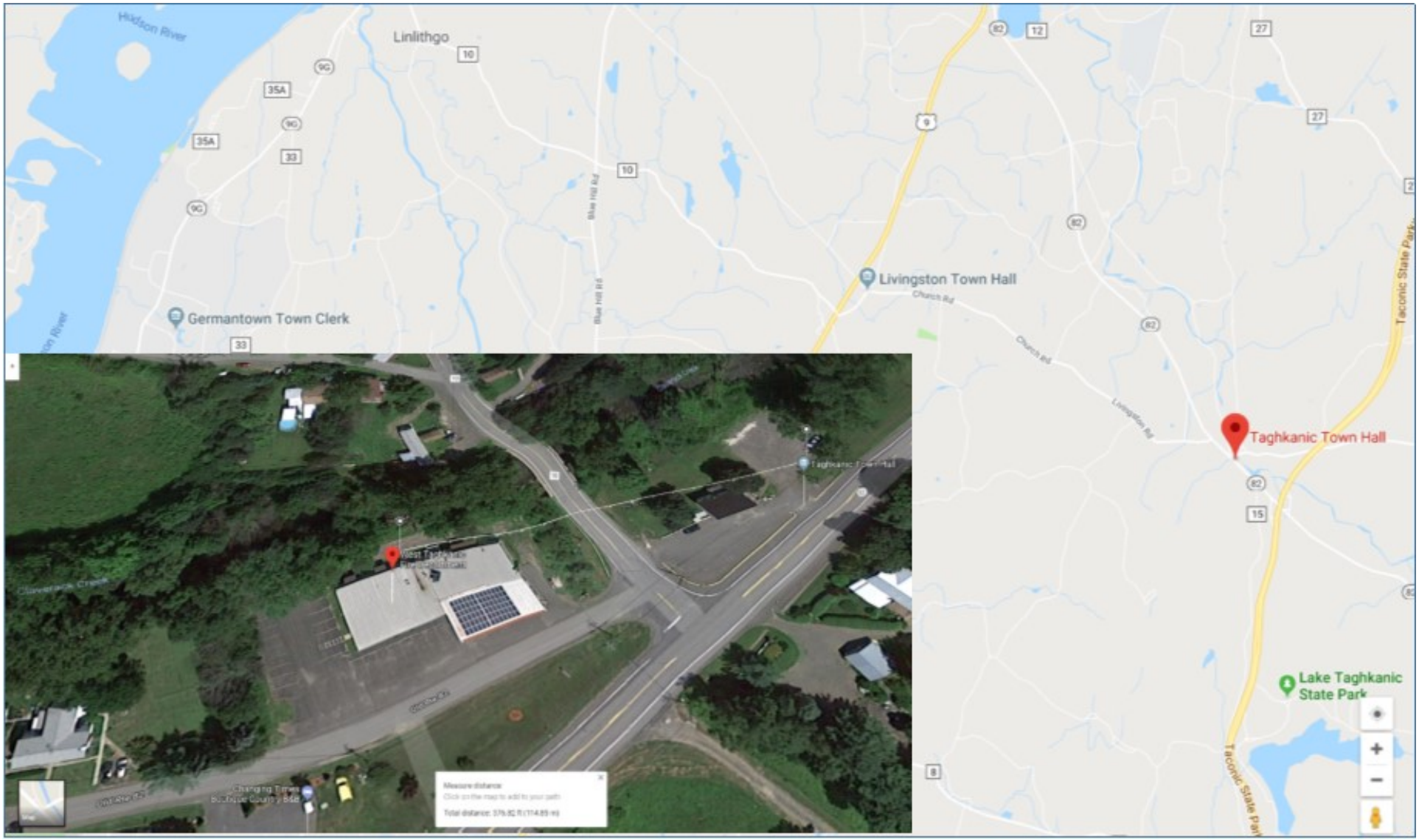



Claverack Creek
Claverack Creek
Claverack Creek
82
82
New Forge Road2
New Forge Road2
New Forge Road2
New Forge Road2
New Forge Road2
New Forge Rd

Action Worksheet

1. Name of Jurisdiction: **Name of HazMit Plan:**	Town of Taghkanic Columbia County Multi-Jurisdictional Hazard Mitigation Plan
Risk / Vulnerability	
2. Problem being Mitigated:	Flooding of Taghkanic Creek, which affects two critical facilities located near each other: Taghkanic Town Hall, located at Route 82 W, Ancram, NY; and the Taghkanic Fire Department Co. No. 1, on Old Route 82, Ancram. Flooding and the need to make road and stream improvement has been discussed in local media in recent years. https://www.columbiapaper.com/2012/09/by-diane-valden-512/ https://www.columbiapaper.com/2016/10/editorial-eyesore-save-life/#more-9924 Flooding has occurred as a result of major storms (Hurricanes Irene and Lee), as well as from lesser, but more frequent, heavy rain events.
Potential Actions/Projects (not being Implemented at this time)	
3. Actions/Projects Considered with Summary Evaluation of Each:	Preferred: Conduct an engineering study to best approach to protecting critical facilities. Alternative: Occasional removal of downed trees and debris from the creek, which is a tributary of Claverack Creek and part of the Hudson River Watershed. Time consuming and don't provide a permanent solution. Alternative: Elevate or relocate critical facilities. Both options are costly.
Action or Project Intended for Implementation	
4. Action/Project Number: **Name of Action or Project:**	PPL-44 Taghkanic Creek Engineering Study
5. Action or Project Description:	This two-phase project would begin with Phase 1: Hire an engineering firm to determine how to best control/reduce Taghkanic Creek flooding, especially in the area of the Fire Department and Town Hall. Phase 2 would entail carrying out the Phase 1 recommendations.
6. Summary of Evaluation[1] **Benefits (losses avoided)** **Estimated Cost** **Other Factors Considered** **(see STAPLEE Worksheet)**	**BENEFIT** **High.** • Maintain Town continuity of operations in the event of a disaster by ensuring that the two facilities remain unharmed. • Preserve the two structures, Town Hall (assessed value of $332,900) and the Fire Department (assessed value of $901,500). • Mitigate flood-related traffic problems on Route 82, which is heavily traveled by tourists driving to the Catskills.
	COST **Low.** Phase 1 – Engineering Study: $100,000 estimate Phase 2: Cost based on study results and project undertaken.
Plan for Implementation	
7. Responsible Organization:	Town Supervisor
8. Action/Project Priority (STAPLEE Score):	21
9. Timeline for Completion:	2 years
10. Potential Fund Sources:	NYSDEC
11. Local Planning Mechanisms to be Used in Implementation, if any:	Floodplain Management Program, Stormwater Management Program
Progress Report	
12. Date of Status Report: **Report of Progress:** **Evaluation of Effectiveness:**	01/25/2018 – Project first discussed during a workshop during development of the Columbia County HMP

This Google map shows the location of the Town of Taghkanic as part of the Hudson River Watershed. Between the Hudson River (far left) and Town Hall (far right) is a stretch of land criss-crossed by an unbroken series of intersecting and branching creeks and streams. This illustrates the vulnerability of the town's critical facilities as stemming from local creek flooding that is heavily affected by water overflow throughout the watershed. The map insert at bottom) shows the distance between Town Hall and the Fire Department as being 279 feet. The Claverack River is clearly labeled in the background behind each facility.







Above: Taghkanic Town Hall, Route 82, Ancram, NY.
Below: Taghkanic Volunteer Fire Co. No. 1, Old Route 82, Ancram, NY.
Right: Map showing the location of the two critical facilities in relation to each other and to Taghkanic Creek (Claverack Creek tributary).



Action Worksheet		
1. Name of Jurisdiction: **Name of Haz. Mit. Plan:**	Village of Kinderhook Columbia County Multi-Jurisdictional Hazard Mitigation Plan	
Risk / Vulnerability		
2. Problem being Mitigated:	Flooding caused by overflow from rivers and creeks with higher than normal water levels, and from inadequate stormwater management.	
Potential Actions/Projects (not being Implemented at this time)		
3. Actions/Projects Considered with Summary Evaluation of Each:	Preferred: Develop program for ongoing review of floodplain ordinances. Alternative: Review ordinances after a major storm event. This option does not allow the Village to be proactive and address potential problems until an event has affected the community, possibly causing property damage or loss of life. Alternative: Review ordinances on a schedule set by the NYS DEC. CAV and CAC interactions with DEC do not take place frequently enough to "get a jump on" flood-related issues before a major incident occurs.	
Action or Project Intended for Implementation		
4. Action/Project Number: **Name of Action or Project:**	PPL-45 Review Village ordinances that govern floodplain zoning.	
5. Action or Project Description:	Create a program for review of floodplain zoning ordinances. The review will take place bi-annually and after a major storm or flood event. Ensure that current ordinances governing floodplain zoning and floodplain management are adequate for community needs. Recent shifts in the frequency and severity of local flooding show that early review of flood lines and proximity of water to nearby assets (homes businesses, infrastructure) will enable the Village of Kinderhook and the collocated Town of Kinderhook to identify potentially critical situations sooner rather than after assets are affected.	
6. Summary of Evaluation[1] **Benefits (losses avoided)** **Estimated Cost** **Other Factors Considered** **(see STAPLEE Worksheet)**	**BENEFIT** **High.** Early identification of flood-related issues will improve living conditions and ensure the safety of residents and property.	**COST** **Low.** Building Inspector's salary. Recruit an engineer for additional study if problems are detected requiring a hydrological study.
Plan for Implementation		
7. Responsible Organization:	Building Inspector and the Mayor	
8. Action/Project Priority (STAPLEE Score):	23	
9. Timeline for Completion:	1 year	
10. Potential Fund Sources:	Village Budget, joint funding, FEMA HMGP funding	
11. Local Planning Mechanisms to be Used in Implementation, if any:	Floodplain Management Plan, Community Development Plan	
Progress Report		
12. Date of Status Report: **Report of Progress:** **Evaluation of Effectiveness:**	01/25/2018 – Project first discussed in a workshop during development of the Columbia County HMP.	

Action Worksheet

1. Name of Jurisdiction: **Name of Haz. Mit. Plan:**	Town of Stockport Columbia County Multi-Jurisdictional Hazard Mitigation Plan
Risk / Vulnerability	
2. Problem being Mitigated:	Flooding on County Route 25 along Kinderhook Creek. Heavy rains have resulted in 8 inches or more over a short period of time causing the creek to overtop and Route 25 to flood. Homeowners have experienced high costs of repair, and traffic is disrupted during road closures. ***See map on the next page showing the project location.***
Potential Actions/Projects (not being Implemented at this time)	
3. Actions/Projects Considered with Summary Evaluation of Each:	Preferred: Elevate vulnerable structure(s) along County Route 25. Safe, permanent solution. Alternative: Build a dam (discussed further in Action #2) Alternative: Explore options for retention ponds in surrounding areas.
Action or Project Intended for Implementation	
4. Action/Project Number: **Name of Action or Project:**	PPL-46 Property elevation along County Route 25
5. Action or Project Description:	Elevate homes along Park Place, in the Hamlet of Stottville (located in the Village of Stockport). The structures are near Claverack Creek, as shown on the accompanying map. • Collect cost estimates, photographs, maps, property information, and insurance claims history • Develop engineering designs that elevates homes above the base flood elevation in accordance with NYS building codes. • Evaluate historic losses to ensure cost effectiveness, as well as an evaluation of compliance with environmental policy and historic preservation standards.
6. Summary of Evaluation[1] Benefits (losses avoided) Estimated Cost Other Factors Considered (see STAPLEE Worksheet)	**BENEFIT** **High.** • Protect structure suffering repetitive loss. • Reduce risk to property and life. • Limit need for village/county personnel in response and recovery. • The program is voluntary, ensuring likelihood of social/political support.
	COST **Moderate/high.** Costs of elevations can vary significantly but would likely be in the range of $100k - $300k.
Plan for Implementation	
7. Responsible Organization:	Town Building Inspectors/Code Enforcement Officers
8. Action/Project Priority (STAPLEE Score):	20
9. Timeline for Completion:	2 years
10. Potential Fund Sources:	Town Budget, joint funding, FEMA HMGP/FMA/PDM funding
11. Local Planning Mechanisms to be Used in Implementation, if any:	Floodplain Management Plan, Planning and Zoning laws
Progress Report	
12. Date of Status Report: Report of Progress: Evaluation of Effectiveness:	01/25/2018 – Project first discussed during a workshop during development of the Columbia County HMP.



Above: View of Park Place from the intersection at Atlantic Avenue.
Below: This aerial map shows the layout of homes on Park Place.

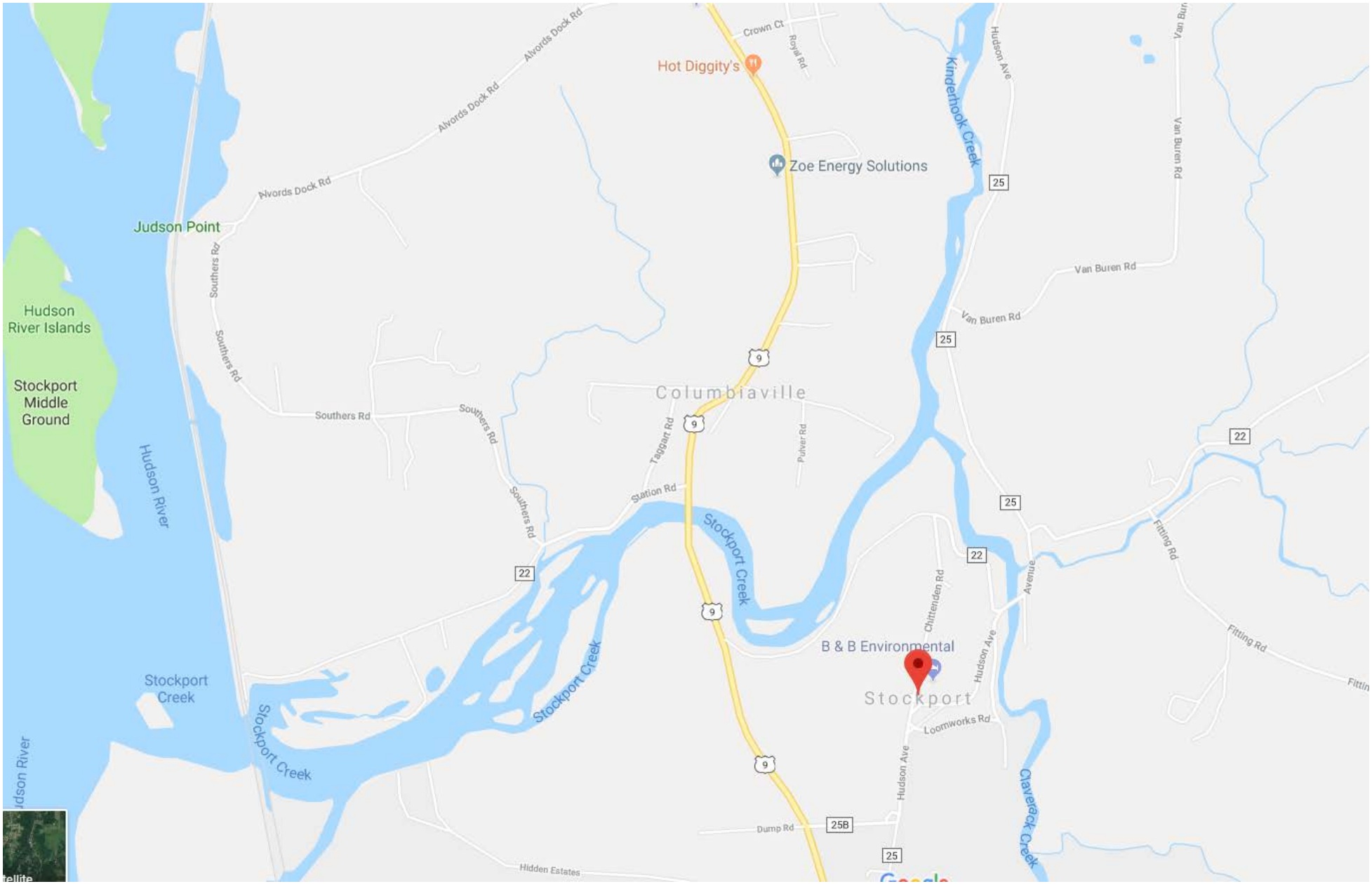


Action Worksheet

1. Name of Jurisdiction: **Name of Haz. Mit. Plan:**	Town of Stockport Columbia County Multi-Jurisdictional Hazard Mitigation Plan
Risk / Vulnerability	
2. Problem being Mitigated:	Flooding on County Route 25 along Kinderhook Creek. Heavy rains have resulted in 8 inches or more over a short period of time, causing the creek to overtop and Route 25 to flood. Homeowners have repeatedly incurred high costs of repair, and traffic is disrupted during road closures. Several dams have deteriorated over the years due to heavy rains, age, and lack of maintenance.
Potential Actions/Projects (not being Implemented at this time)	
3. Actions/Projects Considered with Summary Evaluation of Each:	Preferred: Build a dam. Alternative: Elevate vulnerable structure(s) along County Route 25. This would be cost-prohibitive and would not necessarily mitigate damage/flooding of roadways (further discussed in Action #1). Alternative: Explore options for retention ponds in surrounding areas. This could involve significant environmental issues, and acquisition of land.
Action or Project Intended for Implementation	
4. Action/Project Number: **Name of Action or Project:**	PPL-47 Reconstruct Dam(s) on Kinderhook Creek
5. Action or Project Description:	Studies will need to be conducted along Kinderhook Creek to determine feasibility and cost-effectiveness of reconstructing dams. Considerations include: specifying the dam's purpose; choosing the best location, site investigation, laboratory and field testing, hydrology studies, engineering design, seepage control design and slope stability. Once studies have been completed and appropriate design selected, activities needing to take place will include: permitting and coordination with DEC and USACE and Conditional Letter of Map Revision consultation.
6. Summary of Evaluation[1] Benefits (losses avoided) Estimated Cost Other Factors Considered (see STAPLEE Worksheet)	**BENEFIT** **Medium.** Controlling the flow of water along Kinderhook Creek will reduce flooding to roads and neighboring properties. • Reduce risk to property and life. • Limit need for village/county personnel in response and recovery for flood incidents. • The program is voluntary, ensuring likelihood of social/political support. The project would likely significantly impact on flood issues in neighboring, downstream communities, necessitating coordination with other communities.
	COST **Low.** Cost of study: $150,000 minimum Cost of construction: high
Plan for Implementation	
7. Responsible Organization:	Town Board; Highway Department
8. Action/Project Priority (STAPLEE Score):	15
9. Timeline for Completion:	1 – 2 years (study); Six months (construction)
10. Potential Fund Sources:	Town Budget, joint funding, FEMA HMGP funding; Advanced Assistance through HMA
11. Local Planning Mechanisms to be Used in Implementation, if any:	Comprehensive Emergency Management Plan; Zoning Plans/Ordinances
Progress Report	

12. Date of Status Report: **Report of Progress:** **Evaluation of Effectiveness:**	01/25/2018 – Project first discussed during a workshop during development of the Columbia County HMP.

This Google map of the Stockport community shows the interconnectedness of local waterways and Route 25 as it winds through the town. At right Kinderhook Creek flows into Claverack Creek to the south and Stockport Creek to the southwest. All of the creeks flow into the Hudson River. Farther north on Highway 25 are the historic home of 19th century President Martin Van Buren and other historic sites.



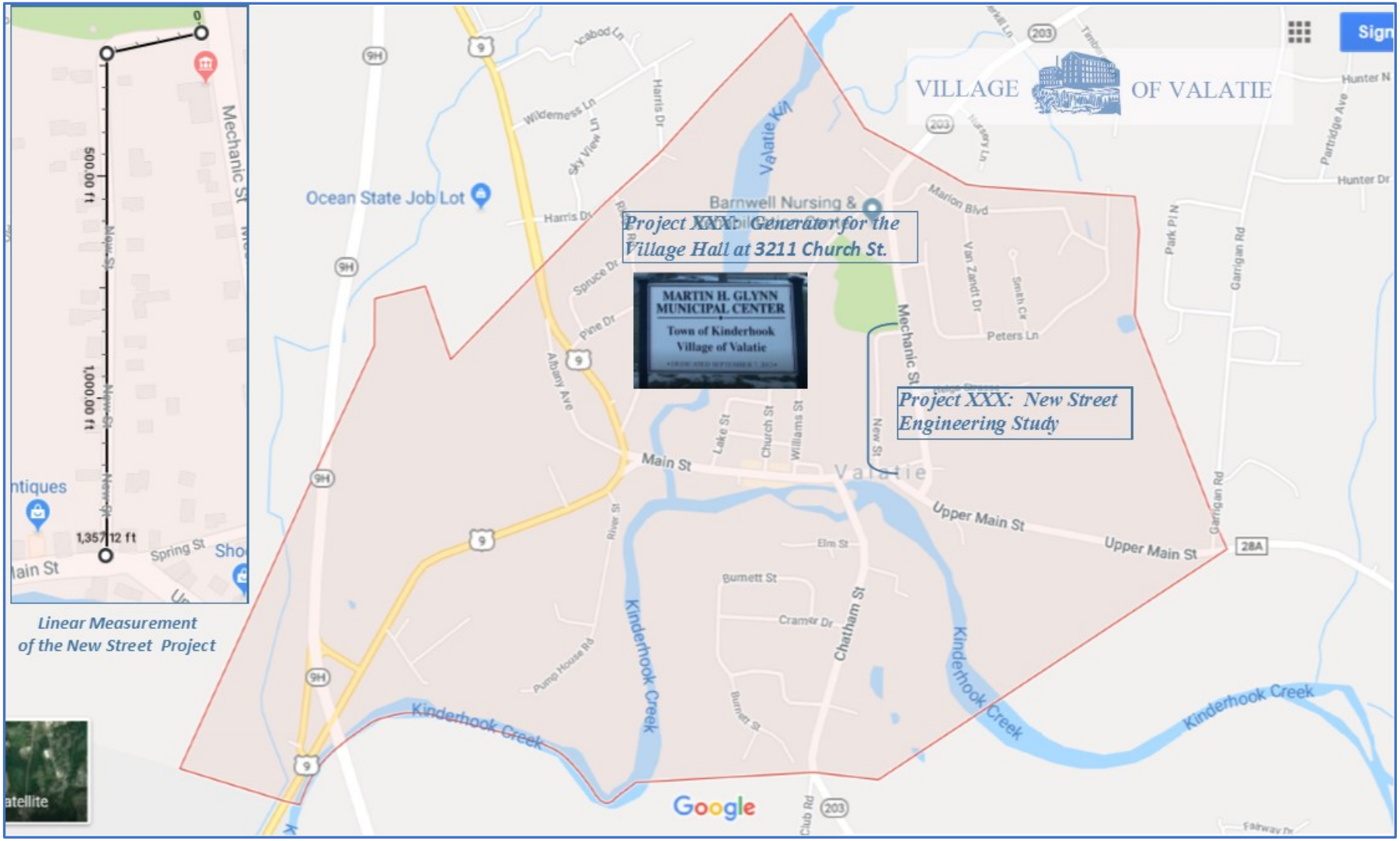
Action Worksheet

1. Name of Jurisdiction: **Name of Haz. Mit. Plan:**	Village of Valatie Columbia County Multi-Jurisdictional Hazard Mitigation Plan
Risk / Vulnerability	
2. Problem being Mitigated:	Flooding. There are 23 residential structures on New Street, most of which are single-family dwellings. Two are identified in Assessor Rolls as being duplexes, and the fourth is a commercial property of indeterminate use. The high-water table of an underground spring running through the neighborhood causes basement flooding. Many of the structures were built in the 1800s and are of historical value. The 22 residential properties have a total assessed value of $2,935,500. The village is concerned that ongoing weakening of foundations will eventually cause structural failure and the loss of a historic neighborhood.
Potential Actions/Projects (not being Implemented at this time)	
3. Actions/Projects Considered with Summary Evaluation of Each:	Preferred: Conduct an engineering study to determine a permanent solution to flooding. Alternative: Ensure that each home has a sump pump for use when there is flooding. This does not lessen flood-related property damage. Alternative: Acquire and demolish properties. There would be significant opposition to this action from property owners and historic preservationists. The homes, many of which have been restored, are overall in good shape and an important part of village history.
Action or Project Intended for Implementation	
4. Action/Project Number: **Name of Action or Project:**	PPL-48 New Street Engineering Study
5. Action or Project Description:	Improvements would take place in two phases. Phase 1 is an engineering study to identify a reasonable solution to the problem. Improvements made as part of Phase 2 would be identified during the study. ***A map of the neighborhood and measurements of the study area are shown on the next page. A linear measurement of the road is provided in the text box at right and shows the street length as roughly one-quarter of a mile.*** Conduct a hydrogeologic study of the underground stream running through the New Street neighborhood. Measure level of flooding in each structure to determine how seepage affects each property. Compile report and recommend solution that enhances the resiliency of each property and the neighborhood
6. Summary of Evaluation[1] **Benefits (losses avoided)** **Estimated Cost** **Other Factors Considered** **(see STAPLEE Worksheet)**	**BENEFIT** **High.** Save 22 homes (24 residences) with a total assessed value of nearly $32 million. Owners were assessed taxes of $18,000 in 2009 figures, the most recent figures available from the Assessor's Office. This money is critical village income and those living in the homes would lose their residences if they were destroyed from flood waters.
	COST **Low.** $50,000
Plan for Implementation	
7. Responsible Organization:	Mayor and the Building Inspector
8. Action/Project Priority (STAPLEE Score):	18
9. Timeline for Completion:	2 years
10. Potential Fund Sources:	Community Development Funding
11. Local Planning Mechanisms to be Used in Implementation, if any:	Community Improvement Plan
Progress Report	

12. Date of Status Report: **Report of Progress:** **Evaluation of Effectiveness:**	01/25/2018 – Project first discussed during a workshop during development of the Columbia County HMP.

Village of Valatie Proposed Mitigation Projects

The Google Map below shows the ***location of two projects*** proposed for the Village of Valatie. The location of the ***New Street Engineering Study*** is marked on the map to the right of center. A Google Map measurement (inset at left) indicates that the street is about one-quarter of a mile in length, a figure used to estimate project cost.



Village Hall is roughly in the center of the village and indicated sign for the Municipal Center. This is the site of the ***Proposed Generator Installation*** at this location is discussed in PES-24. In 2017, this property was valued at $2,565,420 in the online records of the Columbia County Tax Assessor

Columbia County, New York

Appendix D

Planning Process Materials

MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN

April 2018

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Appendix D Plan Process Materials

The following materials are provided to help document the planning process:

1. Columbia County Hazard Mitigation Planning Team Members
2. Hazard Mitigation Board of Supervisors Meeting 3/13/2013
    a. Meeting Notes
    b. Sign in Sheet
    c. Letter from Roy Brown, Chairman
3. Hazard Mitigation Advisory Committee Kickoff Meeting 3/14/2013
    a. Letter for invite from Henry Swartz, Deputy Director
    b. Sign In Sheet
    c. Agenda
    d. Meeting Notes
4. Hazard Mitigation Kickoff Meeting with Columbia County Planning Team 3/27/2013
    a. Meeting Notes
    b. Sign in Sheet
    c. Agenda
5. Hazard Mitigation Team Workshop for Data Collection 5/20/2013
    a. Meeting Notes
    b. Email invite from Dan Herrera, E&E
    c. Attachment for the invite
    d. Sign in Sheet
    e. Data Collection Worksheet (submitted separately)
6. Hazard Mitigation Team Workshop for Ranking Hazard and Mitigation Goals, Objectives, and Actions 8/28/2013
    a. Meeting Notes
    b. Sign In Sheet
    c. Agenda

1. Columbia County Hazard Mitigation Planning Team Members

Table 1-2 Columbia County Hazard Mitigation Planning Team

Team Members					
First Name	**Last Name**	**Title**	**Department**	**City/Town/Village**	**Municipality**
Arthur	Bassin	Town Supervisor	Town Board	Town of	Ancram
James	MacArthur	Highway Superintendent	Highway Department	Town of	Ancram
Jeffrey	Braley	Town Supervisor	Town Board	Town of	Austerlitz
Mary	Davis	Planning Board Clerk	Planning Board	Town of	Austerlitz
Bernhard	Meyer	Highway Superintendent	Highway Department	Town of	Canaan
Daryl	Shiffer	Deputy Highway Superintendent	Highway Department	Town of	Canaan
Richard	Keaveney	Town Supervisor	Town Board	Town of	Canaan
Tammy	Shaw	Supervisor's Secretary	Town Board	Town of	Chatham
Jesse	DeGroodt	Town Supervisor	Town Board	Town of	Chatham
Louis	Lamont	Highway Superintendent	Highway Department	Town of	Claverack
Robin	Andrews	Town Supervisor	Town Board	Town of	Claverack
Raymond	Staats	Town Supervisor	Town Board	Town of	Clermont
Gail	DiCosmo	County Clerk	Board of Supervisors	County	Columbia County
Paul	D'Onofrio	Deputy	Emergency	County	Columbia County

Table 1-2 Columbia County Hazard Mitigation Planning Team

Team Members					
First Name	**Last Name**	**Title**	**Department**	**City/Town/Village**	**Municipality**
		Director	Management		
David	Bartlett	Sheriff	Sheriff's Office	County	Columbia County
Larry	Proper	Town Clerk	Town Clerk/Tax Collector	Town of	Copake
William	Gregory	Highway Superintendent	Highway Department	Town of	Copake
Jeffrey	Nayer	Town Supervisor	Town Board	Town of	Copake
Thomas	Garrick	Town Supervisor	Town Board	Town of	Gallatin
Roy	Brown	Town Supervisor	Town Board	Town of	Germantown
Mike	Losa	Highway Superintendent	Highway Department	Town of	Ghent
Wendy	Shufet	Dog Control Officer	Town Clerk	Town of	Ghent
Lawrence	Andres	N/A	N/A	Town of	Ghent
Paul	McCreary	Highway Superintendent	Highway Department	Town of	Greenport
John	Porreca Sr.	Town Supervisor	Town Board	Town of	Greenport
Art	Baer	Town Supervisor	Town Board	Town of	Hillsdale
Vivian	DeGorges	Secretary	Planning Board	Town of	Hillsdale
William	Hughes	Supervisor	City Council	City of	Hudson
Lt. Lynn	Finn	Lieutenant	Police Department	City of	Hudson

Table 1-2 Columbia County Hazard Mitigation Planning Team

Team Members					
First Name	**Last Name**	**Title**	**Department**	**City/Town/Village**	**Municipality**
Eugene	Shetsky	Planning Board	Planning Board	City of	Hudson
Richard	Scalera	Mayor	Mayor	City of	Hudson
Sarah	Sterling	Superintendent	City Council	City of	Hudson
Ellen	Thurston	Council	City Council	City of	Hudson
Robert	Perry	Superintendent of Public Works	Public Works Department	City of	Hudson
Pat	Grattan	Town Supervisor	Town Board	Town of	Kinderhook
David	Booths	Superintendent of Public Works	Public Works Department	Village of	Kinderhook
David	Lyons	Highway Superintendent	Highway Department	Town of	Livingston
Kevin	McDonald	Town Supervisor	Town Board	Town of	Livingston
Eileen	Evans	Secretary	Town Board	Town of	New Lebanon
Kenneth	France	Highway Superintendent	Highway Department	Town of	New Lebanon
Michael	Benson	Town Supervisor	Town Board	Town of	New Lebanon
James	Soto	N/A	Bureau of EMS	New York State	EMO
Barbara	Augal	N/A	Village Trustees	Village of	Philmont
Matt	Murell	Town Supervisor	Town Board	Town of	Stockport
Tim	Thester	Highway Superintendent	Highway Department	Town of	Stockport
Ronald	Knott	Town	Town Board	Town of	Stuyvesant

Table 1-2 Columbia County Hazard Mitigation Planning Team

Team Members					
First Name	**Last Name**	**Title**	**Department**	**City/Town/Village**	**Municipality**
		Supervisor			
Elizabeth	Young	Town Supervisor	Town Board	Town of	Taghkanic
Larry	Kadish	Town Board	Town Board	Town of	Taghkanic
Thomas	Youhas	Highway Superintendent	Highway Department	Town of	Taghkanic
Dave	Argyle	Mayor	Mayor	Village of	Valatie

2. Hazard Mitigation Meeting with Board of Supervisors, 3/13/2013

To:	Henry Swartz, Deputy Director, Columbia County Emergency Management
From:	Dennis Lawlor, Mitigation Planner, Project Manager
CC;	Dan Herrera, Amy Mahl
Date:	3/13/2013
Subject:	Minutes from the Columbia County Mitigation Meeting with Columbia County Board of Supervisors

This document is a record of attendance and a summary of the topics discussed at the above meeting including an introduction to the hazard mitigation planning process, the eligibility requirements for participating jurisdiction, soliciting public input for the plan and the steps in the process, including data needs from the jurisdictions.

Lt. Thom Lanphear, with Columbia County Sheriff Office began the presentation by welcoming and thanking the attendees for the opportunity to be able to present about the Columbia County Multi-Jurisdictional Plan update process.

Mr. Dennis Lawlor presented a power point presentation on the purpose and requirements of the Disaster Mitigation Act of 2000. The presentation addressed the benefits of mitigation, the planning process, and eligibility for certain federal mitigation grants. He also described the different types of eligible projects that could be funded through this process.

Mr. Lawlor also described the role of the Hazard Mitigation Planning Team. Jurisdiction participation in the committee requirements:

- Designation of a representative to serve on the Columbia County Hazard Mitigation Planning Team, which will meet three times during the planning process.
- Assist in the development of risk assessment and mitigation actions (at least one) specific to the jurisdiction
- Inform the public, local officials, and other interested parties about the planning process and provide opportunity for them to comment on the plan, and
- Formally adopt the mitigation plan.

Mr. Lawlor also gave the project timeline that this plan will be submitted to New York Emergency Management Office by November 2013.

Supervisors,

The Office of Emergency management needs contact information for you and your Highway Superintendent in order to complete our update of the County's Hazardous Mitigation Plan Grant.

Please forward to Lt. Thom Lanphear your email contact information, a daytime phone number and a cell phone number and provide the same information for your Highway Superintendent.

If you choose to not be the contact person from your town for this informational update, please provide us the name and contact info for that person.

The Office of Emergency management needs this information no later than February 22, 2013.

This update process is something that we all have to do. The framework is in place and the EMO with your cooperation can complete this task in a timely fashion. This update will affect future reimbursement from FEMA for your town if we do not update your information.

Again, please provide the contact information requested by February 22, 2013. The EMO will be contacting you shortly to work with you to update your town information for the County's Hazardous Mitigation Plan.

Best regards,

Roy D. Brown, Chairman
Columbia County Public Safety Committee

3. Hazard Mitigation Meeting with Hazard Mitigation Advisory Team, 3/14/2013

Good Afternoon,

The Columbia County Hazard Mitigation Plan is a critical item for securing federal emergency management funding. After a successful update in 2008, it is once again time to begin the plan update process.

You are receiving this email either because you were part of the last update process, or because you have been identified as a beneficial participant for the new update cycle. This email is to invite you to the upcoming Hazard Mitigation Kick-Off Meeting scheduled for Thursday, March 14, 2013 from 10:00 a.m. to approximately 12:00 a.m. The meeting is scheduled to be held at 85 Industrial Tract, Hudson, New York.

As a member of the Columbia County Hazard Mitigation Team (CCHMT) your assistance will be crucial for meeting the goals of the update process. The Kick-Off meeting will provide CCMPT participants with information on the update process for the Columbia County Hazard Mitigation Plan. Participants will receive copies of the 2008 plan in order to facilitate review and understanding of the plan. However, in order to prepare for this meeting, the following web link will provide you access to the current plan: http://www.columbiacountyny.com/documents/misc/columbia_hazard_mitigation_plan.pdf

Throughout the update process CCHMPT participants will also:

- Provide data to help update the 2013 plan. Examples of data that will need to help assist in updating the plan will be the following:
  - ✓ List of Naturals Hazard events that have occurred since last plan update
  - ✓ GIS information regarding your community (include critical facilities, businesses, historic, cultural, and natural resources)
  - ✓ Dollar value in losses and people effected in Natural Hazard disasters since last plan update
  - ✓ CDBG Supplement Awards since 2008
  - ✓ State Critical Facilities
  - ✓ Permitted Dams Structures and Emergency Plans
- Review hazard mitigation projects and initiatives to ensure there are no potential conflicts with ongoing County or agency initiatives
- Review hazard mitigation projects and initiatives to ensure they complement the Multi-Jurisdictional mitigation strategy
- Review existing Columbia County programs to ensure that we are taking full advantage of possible funding sources in implementing the Columbia County state hazard mitigation program

If you feel that other individuals in your agency may be able to better provide data for the update of the plan, please forward them this email inviting them to this Kick-Off meeting or contact me at henryswartz25@gmail.com or at (518) 858-1509 to make sure these people receive an invitation. This meeting will explain the data needed and its importance for this plan update.

Please RSVP at this site or via reply email.

Sincerely

Henry Swartz,
Columbia County Emergency Management Agency

To: Henry Swartz, Deputy Director, Columbia County Emergency Management
From: Dennis Lawlor, Mitigation Planner, Project Manager
CC; Dan Herrera, Amy Mahl
Date: 3/14/2013
Subject: Minutes from the Columbia County Mitigation Meeting with Columbia County Hazard Mitigation Plan Advisory Committed

This document is a record of attendance and a summary of the topics discussed at the above meeting including an introduction to the hazard mitigation planning process, the eligibility requirements for participating jurisdiction, soliciting public input for the plan and the steps in the process, including data needs from the jurisdictions.

Lt. Thom Lanphear, with Columbia County Sheriff Office began the presentation by welcoming and thanking the attendees for the opportunity to be able to present about the Columbia County Multi-Jurisdictional Plan update process.

Mr. Dennis Lawlor presented a power point presentation on the purpose and requirements of the Disaster Mitigation Act of 2000. The presentation addressed the benefits of mitigation, the planning process, and eligibility for certain federal mitigation grants. He also described the different types of eligible projects that could be funded through this process.

Mr. Lawlor also described the role of the Hazard Mitigation Planning Team. Jurisdiction participation in the committee requirements:

- Designation of a representative to serve on the Columbia County Hazard Mitigation Planning Team, which will meet three times during the planning process.
- Assist in the development of risk assessment and mitigation actions (at least one) specific to the jurisdiction
- Inform the public, local officials, and other interested parties about the planning process and provide opportunity for them to comment on the plan, and
- Formally adopt the mitigation plan.

Mr. Lawlor also gave the project timeline that this plan will be submitted to New York Emergency Management Office by November 2013.

4. Hazard Mitigation Meeting Hazard Mitigation Planning Teams, 3/27/2013

To:	Henry Swartz, Deputy Director, Columbia County Emergency Management
From:	Dennis Lawlor, Mitigation Planner, Project Manager
CC;	Dan Herrera, Amy Mahl
Date:	3/14/2013
Subject:	Minutes from the Columbia County Mitigation Meeting with Columbia County Hazard Mitigation Planning Team

This document is a record of attendance and a summary of the topics discussed at the above meeting including an introduction to the hazard mitigation planning process, the eligibility requirements for participating jurisdiction, soliciting public input for the plan and the steps in the process, including data needs from the jurisdictions.

Lt. Thom Lanphear, with Columbia County Sheriff Office began the presentation by welcoming and thanking the attendees for the opportunity to be able to present about the Columbia County Multi-Jurisdictional Plan update process.

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- Assist in the development of risk assessment and mitigation actions (at least one) specific to the jurisdiction
- Inform the public, local officials, and other interested parties about the planning process and provide opportunity for them to comment on the plan, and
- Formally adopt the mitigation plan.

Mr. Lawlor discussed the four phases of the Hazard Mitigation Planning Process:

Phase I:	Organize the Resources
Phase II:	Hazard Identification and Risk Assessment
Phase III:	Develop a Mitigation Plan, and
Phase IV:	Plan Adoption and Implementation.

Mr. Lawlor presented information about the hazard profiles in the plan and introduced the committee to the elements of probability, magnitude, warning time, and duration to rank the hazards. The group reviewed the lists of hazards identified in the Columbia County Hazard Plan that could affect the planning team.

The attendees were then asked to complete their jurisdiction's data collection guide and to talk with other staff that may be knowledgably about needed data. These data collection guides are due back to E&E by April 12, 2013. The next meeting of the Hazard Mitigation Planning Team will be in late May. The date and time will be announced as the need for data collection assistance is needed.

7. Hazard Mitigation Meeting with Hazard Mitigation Planning Teams, 5/20/2013

To:	Henry Swartz, Deputy Director, Columbia County Emergency Management
From:	Dennis Lawlor, Mitigation Planner, Project Manager
CC;	Dan Herrera, Amy Mahl
Date:	5/20/2013
Subject:	Minutes from the Columbia County Mitigation Workshop regarding Data Collection Worksheets

This document is a record of attendance and a summary of the topics discussed at the above meeting including an introduction to the hazard mitigation planning process, the eligibility requirements for participating jurisdiction, soliciting public input for the plan and the steps in the process, including data needs from the jurisdictions.

During the previous hazard mitigation meeting the data collection guide were disseminated to the group for completion. However, as the worksheets were being submitted, more information and guidance was needed for the communities, it was decided to have an open house workshop, where communities could come to Columbia County Emergency Operations Center either in the morning or in the afternoon and get one-on-one assistance to complete the forms. The sessions started with Mr. Lawlor providing a quick overview of the purpose and the goals of the data collection. After the formal discussion each community spent time with folks from E&E to help completed the data worksheets.

8. Hazard Mitigation Meeting with Hazard Mitigation Planning Team, 8/28/2013

To: Henry Swartz, Deputy Director, Columbia County Emergency Management
From: Dennis Lawlor, Mitigation Planner, Project Manager
CC; Dan Herrera, Amy Mahl
Date: 8/28/2013
Subject: Minutes from the Columbia County Mitigation Workshop regarding Data Collection Worksheets

Mr. Henry Swartz, Deputy Director Columbia County Emergency Management Agency, began the meeting by welcoming and thanking the attendees. The attendees introduced themselves and the jurisdiction they were representing, including the consulting firm, Ecology and Environment, hired to assist in the development of the Columbia County multi-jurisdictional hazard mitigation plan.

Mr. Lawlor presented review information on the purpose and requirements of the Disaster Mitigation Act of 2000. The presentation addressed the benefits, including eligibility for federal funding programs, for local governments and districts participating in the mitigation plan. Mr. Lawlor also reviewed the following participation requirements:

- Designation of a representative to serve on the Columbia County Hazard Mitigation Planning Team, which will meet three times during the planning process.
- Assist in the development of risk assessment and mitigation actions (at least one) specific to the jurisdiction
- Inform the public, local officials, and other interested parties about the planning process and provide opportunity for them to comment on the plan, and
- Formally adopt the mitigation plan.

Mr. Lawlor provided an overview of the hazards in the plan. He presented the HIRA-NY results for each of the hazards. Previously, during discussions with the Henry Swarzt, there was some concern that the HIRA-NY results were not ranking the hazards correctly for Columbia County. To help define the high hazards, each team member was given three different color stickers to rank the hazards as high, medium, or low. Through this process the ranking did result additional hazards that the HIRA-NY ranked lower than the County. The results can be found in Chapter 1.

After the ranking of the hazards, Mr. Lawlor provided samples of goals obtained in the previous plan and the group came a consensus that the goals from the previous plan are still valid and they do not need to change or be modified. Mr. Lawlor then led a discussion regarding the objectives in the previous plan to see if some needed to be deleted, modified, or changed. After some discussion it was decided that they are still valid today and none of them need to be changed. Then Mr. Lawlor led a discussion regarding the mitigation actions. He provided different

examples and also included the actions from the previous plan. He then proceeded to discuss the STAPLEE process and that each action must have a STAPLEE form. Mr. Lawlor went through each of the sections describing how it should be completed. The committee also provided additional information regarding how to report the cost-effectiveness or benefit of each proposed action.

Mr. Lawlor discussed the requirements for the plan to provide a formal plan maintenance process to ensure that the mitigation plan remains an active and relevant document. The following plan maintenance process was proposed by the Columbia County Emergency Management Office and agreed to by the planning committee:

- Columbia County Emergency Management Agency will be responsible to maintain the plan
- HMPT will meet annually to review/update the plan
- Will be in conjunction with the Countywide Emergency Operations Plan
- Must be updated/re-submitted to FEMA every 5 years

The Plan document which will be adopted by the governing body of each participating jurisdiction will emphasize that each jurisdiction should incorporate this plan into other planning mechanisms within their jurisdiction.

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Regular _____ Call to Order _____

Special _____ Adjourned _____

Informational _____ Date: 3-13-13

SUPERVISOR	S. MAJ.	PRESENT	ABSENT	AYE	NAYE	TOWN
BASSIN	87	✓				ANCRAM
R. ANDREWS	349	✓				CLAVERACK
GRATTAN	433	✓				KINDERHOOK
L. ANDREWS	293	✓				GHENT
STAATS	99	✓				CLERMONT
KEAVENEY	104					CANAAN
NAYER	186	✓				COPAKE
DEGROODT	239	✓				CHATHAM
GARRICK	86	✓				GALLATIN
PORRECA	235					GREENPORT
BROWN	116	✓				GERMANTOWN
BAER	100					HILLSDALE
BRALEY	84	✓				AUSTERLITZ
STERLING	51	✓				HUDSON 1ST WARD
CROSS	85	✓				HUDSON 2ND
THURSTON	112	✓				HUDSON 3RD
HUGHES	48	✓				HUDSON 4TH
SCALERA	136					HUDSON 5TH
MCDONALD	195	✓				LIVINGSTON
BENSON	140	✓				NEW LEBANON
MURELL	167		✓			STOCKPORT
KNOTT	125	✓				STUYVESANT
YOUNG	65	✓				TAGHKANIC
TOTAL	3535					

S. MAJ. _____ 1768 ADOPTION/QUORUM

GAIL A. DICOSMO
CLERK OF THE BOARD

COMBINED SUMMARY OF MEETINGS HELD IN COLUMBIA COUNTY 3/13/13, 3/14/13, AND 3/27/13 WITH STAKEHOLDERS TO DISCUSS HAZARD MITIGATION PLANNING

Attendees: See Sign-in Sheets

Current Status: 50% Complete

Introductions

- E & E consulting team and Columbia County project team introduced

Slide Presentation

- E & E delivered a PowerPoint presentation that outlined the following:
  - What is hazard mitigation planning?
  - Why is it needed?
  - How is funding handled?
  - What is the history of it both nationally and locally?
  - How is a plan put together?
  - How is data obtained?

Key Points

- Many municipalities do not understand what Hazard Mitigation Plans (HMP) are or how they can impact funding from the federal government in the event of a disaster. Additionally, many of these municipalities do not know about the associated Hazard Mitigation Grant Program (HMGP) funding which will allow them to potentially pay for useful infrastructure improvements.
- Stakeholders would like to see a list of projects and types of projects that can be completed by via the HMGP funding source
- Throughout the process of creating a plan, stakeholders are welcome to involve any group or organization they feel may be helpful, however it is asked that a single data point of contact be named so that information may flow to the consulting team from a limited source
- Hazard Mitigation Grant Program is of particular interest to the stakeholders as many communities appear to have potential projects they could use the funding for already determined. These include culvert resizing, bridge repair, and dam repair projects.
- The current timeline for data collection on the project asks that all data be returned to the consultants by 4/19/13. Deadlines may be adjusted in the future; however a strict approach to deadlines will be maintained throughout the projects.
- Mitigation determinations are made through discussion with key expert stakeholders in each community so that effective and more importantly useful mitigation efforts may be incorporated into the plan
- HMGP funding is especially useful when used in conjunction with other federal grants and thereby lends itself to such action. E & E is able to help potential clients work through the complications involved in going after multiple grants in tandem however that would have to be under a new contract and not the existing one with Columbia County
- The more local and municipal experts that can be involved in the planning process, the more useful the resulting plan will likely be to individual communities.

Upcoming Deadlines

- 4/9 – Consulting team to produce hazard analysis using available data from HAZUS

- 4/13 – Designated data points of contact to receive spreadsheets for data collection along with directions for filling them out. Included in this will be a hazard analysis performed using available data from HAZUS
- 4/19 – Municipalities to return filled in data request spreadsheets. Given the short turnaround nature of this deadline, it may be extended up to two weeks, this will only occur on a case by case basis
- May-June – Meeting to be scheduled with stakeholders to discuss mitigation strategies and final planning needs
- June-July – Draft plan completed
- August – Review and Comment
- September – Submit plan to FEMA

COLUMBIA COUNTY HAZARDOUS MITIGATION PLANNING GRANT

Meeting Host: Ecology & Environment Inc		**Meeting Date:**	March 14, 2013
County:	Columbia	**Place/Room:**	County EOC

Name	Title	Agency	Phone	E-Mail
Daniel Herrera		Ecology & Environment	212-742-1713	dherrera@ene.com
DAVID BARTLETT	CAPTAIN	CCSO	518-828-0601 X1403	DAVID.BARTLETT@COLUMBIACOUNTYSHERIFF.US
Kevin J. Boehme	Chief	Chathampd	518 392 3451	chathampd@fairpoint.net
Amy Mahl		E+E	(518) 928-7662	amahl@ene.com
Ray Brown		BOS	598-3919	roybrown1957@gmail.com
Henry Swantz	Deputy Dir.	EMO	858-1509	henryswantz25@gmail.com
PAUL B. D'ONOFRIO	DEPUTY DIR.	EMO	821-3343	asti24@mhcable.com
Lt Thomas H. Lanphear	Lt	CCSO/EMO	697-0116	thom.lanphear@columbiacountysheriff.us

COLUMBIA COUNTY HAZARDOUS MITIGATION PLANNING GRANT

Meeting Host: Ecology & Environment Inc		**Meeting Date:**	March 14, 2013
County:	Columbia	**Place/Room:**	County EOC

Name	Title	Agency	Phone	E-Mail
Angella Timothy	Public Health Director	CCDOH	828-3358 Ext 1240	Angella.Timothy@ColumbiaCountyNy.com
Chuck Kaiser	PHEP Coordinator	CCDOH	828-3358 Ext 1247	Chuck.Kaiser@columbiacountyny.com
Kelly Sackett	Intern w/ PHEP Coordi.	CCDOH	828-3358 1327	Kelly_Sackett@racketmail.com
Jim Mick	Dir of Environmental Health	CCDOH	828-3358 x1208	James.Mick@columbiaCountyNy.com
John Howe	FIRE COORDINATOR	County Fire	821-7314	JohnHowe@columbiaCountyNy.com
Craig Guy	Zone Sergeant	NYSP	5188512916	Craig.Guy@Troopers.NY.Gov
Robert Lopez	DIRECTOR OF 911 DEPUTY DIRECTOR OF EMO	911/EMO	518 697 0198	Robert.Lopez@ColumbiaCountyNy.com
Nadine Macura	New York State Office of Emergency Mgt.	Regional Coordinator	845-646-7450	nmacura@dhses.ny.gov

COLUMBIA COUNTY
EMERGENCY MANAGEMENT

85 INDUSTRIAL TRACT HUDSON, NY 12534
Phone: 518-828-1212 Fax: 518-828-2790

AGENDA

Columbia County
Multi-Hazard Mitigation Planning Project
Kickoff Meeting

HAZARD MITIGATION PLANNING COMMITTEE MEETING (HMPC) #1
10:00 – 12:00pm, March 14, 2013
Columbia County Emergency Operations Center
85 Industrial Tract
Hudson, NY 12534

1. Opening Remarks
2. Introductions
3. Local Hazard Mitigation Plan Purpose and Requirements
4. Multi-Jurisdictional Participation and the Hazard Mitigation Planning Committee
5. Hazard Identification and Data Collection Needs
6. Planning for Public Involvement
7. Next Steps

Dear Columbia County Multi-Jurisdictional Hazard Mitigation Team Members,

After a successful update in 2008, it is once again time to begin the plan update process for the Columbia County Multi-Jurisdictional hazard mitigation plan.

You are receiving this email either because you were part of the last update process, or because you have been identified as a beneficial participant for the new update cycle. This email is to invite you to the upcoming Hazard Mitigation Kick-Off Meeting scheduled for **Thursday, March 14, 2013 from 10:00 a.m. to approximately 12:00 a.m. The meeting is scheduled to be held at 85 Industrial Tract, Hudson, New York.**

As a member of the Columbia County Multi-Jurisdictional Hazard Mitigation Team (HMT) member your assistance will be crucial for meeting the goals of the update process. The Kick-Off meeting will provide HMT participants with information on the update process for the Columbia County Multi-Jurisdictional Hazard Mitigation Plan. Participants will receive copies of the 2008 plan in order to facilitate review and understanding of the plan. Participants will also receive a Columbia County Worksheet that needs to be completed. It has eleven tabs. This is also attached to this email. We have also included a Columbia County Worksheet Example of Canaan. This is for an example and the information is only for the purposes of fictitious information to help everyone understand the information that will be needed to complete the planning process. In order to prepare for this meeting, the following web link will provide you access to the current plan: 2008 Plan. Throughout the update process HMPT participants will also:

- Provide data to help update the 2013 plan. Examples of data that will need to help assist in updating the plan will be the following:
  - ✓ Identify the hazard in your community
  - ✓ Identify the number and type of structures that have been damaged in disasters
  - ✓ Community Inventory of the Assets
  - ✓ Critical Facilities that have been damaged in natural disasters
  - ✓ Community's capability assessments
- Review hazard mitigation projects and initiatives to ensure there are no potential conflicts with ongoing agency initiatives
- Review hazard mitigation projects and initiatives to ensure they complement the statewide mitigation strategy
- Review existing state/federal programs to ensure that Missouri is taking full advantage of possible funding sources in implementing the state hazard mitigation program

If you feel that other individuals in your agency may be able to better provide data for the update of the plan, please forward them this email inviting them to this Kick-Off meeting or contact Dan Herrera at dherrera@ene.com or 212-742-1713 to make sure these people receive an invitation. This meeting will explain the data needed and its importance for this plan update.

If you have any questions, problems, or concerns please do not hesitate to email me at henryswartz25@gmail.com or at (518) 858-1509.Sincerely,

Henry Swartz

Deputy Director
Columbia County Emergency Management

In Attendance

COLUMBIA COUNTY HMPG

Meeting Host: Emergency Management		**Meeting Date:**	March 27, 2013
County:	Columbia	**Place/Room:**	Room 612 CGCC

Name	Title	Agency	Phone	E-Mail
DAVID BOOTH	ASSNT. SUPT.	VILLAGE OF KINDERHOOK	(518)758-9882	OKvillagehall@fairpoint.net
Bernie Kelleher	Director of Highways	Col. Co DPW	828-7011	bernie.kelleher@ColumbiaCountyNY.com
Joel Craig	Dept Supv	Town of Germantown	821-6548	jcraig@stel.net
Roy Brown	Supv	Town of Germantown		
JAMES DOTO	Regional Director Safety -	SWA Dept Emergency	845-554-4795	jodo@DHSES.NY.GOV
Tammy Shaw	Cons. Secretary Super/HwySup.	Town of Chatham	794-7281	Chathamhwy@fairpoint.net
Daryl Schiffer	clerk	Town of Canaan Highway	781-4455	canaanhighway@fairpoint.net
LARRY PROPER	Town Clerk	Town of Copake	329-1234 Ext. #2	TownofCopake@Fairpoint.net
Bill Gregory	Hwy Supr	T/o copake	325 4222	bgregory6161@gmail.com
ART BASSIN	ANCRAM Supervisor	ANCRAM	329-651246	abassin@aol.com
Ray Staats	Clermont Supervisor	Clermont	537-6868	raymond.staats@yahoo.com
BERNHARD F. MEYER	HIGHWAY SUPT	TOWN OF CANAAN	781-4455	CANAANHIGHWAY@FAIRPOINT.NET
Amy Mahl		E2E	(518)459-1980	amahl@ene.com

In Attendance

COLUMBIA COUNTY HMPG

Meeting Host: Emergency Management		**Meeting Date:**	March 27, 2013
County:	Columbia	**Place/Room:**	Room 612 CGCC

Name	Title	Agency	Phone	E-Mail
Tom Youhas	Highway Supt.	Town of Taghkanic	518 851-7806	youhas@live.com
Rich Keaveney	Canaan Town Supervisor	Canaan	518 781-3144	supervisor@canaan newyork.org
Art Baer	Hillsdale Town Supervisor	Hillsdale	518 325-5145	baer@fairpoint.net
Brian Laurange	~~Foreman~~ Equip-operator	Greenport	929-5110	
MARK A GAYLORD	Highway Super	Greenport	929-4800	highwaysuper@Town of Greenport.com
Paul S. McCreary	Sr. Engineer Morris Assoc.	Greenport	828-3300	PMcCreary@morrsengineers.com
John Mahoney	Water & Sewer Superintendent	Greenport	828-3460	waterandsewer@TownofGreenport.com
Dave D Argyle	Mayor	Valatie	758-9806	
Robin Andrews	Supervisor	Claverack	672-4511	supervisor@townofclaverack.com
Tabby Blass		Ancram	329-6190	
Mark Fountain		E&E	518 459-1980	~~MF~~ mfountain@ene.com
Dennis Lawlor		E+E	(716)684-8060	dlawlor@ene.com

COLUMBIA COUNTY HMPG

Meeting Host: Emergency Management	**Meeting Date:** March 27, 2013
County: Columbia	**Place/Room:** Room 612 CGCC

Name	Title	Agency	Phone	E-Mail
Jesse DeGroodt	Supervisor	Town of Chatham	392-0044	Chathamsuper@gmail.com
Jimmy Potts	Highway Super	Clermont	537-6869	JimmyPottsgal@gmail.com
DAVID BOICE	ANGram FIRE CHIEF	ANGram FIRE DISTRICT	329-3430	BOICEhomeCare@FAIRPOINT.NET
DAVID LYONS	Hwy Supervisor	Town of Livingston	965-6147	
Louie Lamont	Hwy Super	Claverack	851-7533	lamontG mhcable.com
(Clarence) Skip Speed	Mayor	Village of Philmont	672-7032	vlgphl@mhcable.com (?)
John Molgnacki	water + sewer Supt.	Greenport	518-828-3460	WATERsuper@TOWNOFGreenport.com
John Porreca	TOWN Supervisor	Greenport	518-828-4656	Supervisor@TOWNOFGreenport.com
DAVID BOOTH	ASSOT Sup.	Village of Kinderhook	518/822-4059	dcbooth40@yahoo.com
PAUL B. DONOFRIO	DPTY DIR	CCEMO		

Not in attendance - add to distribution list

COLUMBIA COUNTY HMPG

Meeting Host: Emergency Management		**Meeting Date:**	March 27, 2013
County:	Columbia	**Place/Room:**	Room 612 CGCC

Name	Title	Agency	Phone	E-Mail
Mike AOSA	Area Superintendent	Town of Ghent	392-2651	
Larry Van Brunt	Deputy Supervisor	Town Ghent	392-4641	
Ken McDonald	Sup.	Livingston	851-3607	
Jim MACARTHUR	Area Hwy Supv	Ancram	329-6190	Jm Jmackancramtwp@hotmail
Rich Jennings	Hwy Superintendent	Town of Germantown	537-1687	(~~work e-mail~~ email address we have from Roy)

Not in attendance - add to distribution

COLUMBIA COUNTY
EMERGENCY MANAGEMENT

85 INDUSTRIAL TRACT HUDSON, NY 12534
Phone: 518-828-1212 Fax: 518-828-2790

AGENDA

Columbia County
Multi-Hazard Mitigation Planning Project
Kickoff Meeting

HAZARD MITIGATION PLANNING TEAM MEETING (HMPC) #1
9:00 – 11:00pm, March 27, 2013
Columbia Green Community Room 612
PAC Building, Route 23
Hudson, NY 12534

1. Opening Remarks
2. Introductions
3. Local Hazard Mitigation Plan Purpose and Requirements
4. Multi-Jurisdictional Participation and the Hazard Mitigation Planning Committee
5. Hazard Identification and Data Collection Needs
6. Planning for Public Involvement
7. Next Steps

COLUMBIA COUNTY EMERGENCY MANAGEMENT

85 INDUSTRIAL TRACT HUDSON, NY 12534
Phone: 518-828-1212 Fax: 518-828-2790

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You are receiving this email either because you were part of the last update process, or because you have been identified as a beneficial participant for the new update cycle. This email is to invite you to the upcoming Hazard Mitigation Kick-Off Meeting scheduled for Wednesday**, March 27, 2013 from 9:00 a.m. to approximately 11:00 a.m. The meeting is scheduled to be held at the Columbia Greene Community College Room 612 in the PAC Building on Route 23, Hudson, New York.**

As a member of the Columbia County Multi-Jurisdictional Hazard Mitigation Team (HMT) member your assistance will be crucial for meeting the goals of the update process. The Kick-Off meeting will provide HMT participants with information on the update process for the Columbia County Multi-Jurisdictional Hazard Mitigation Plan. Participants will receive copies of the 2008 plan in order to facilitate review and understanding of the plan. Participants will also receive a Columbia County Worksheet that needs to be completed. It has eleven tabs. This is also attached to this email. We have also included a Columbia County Worksheet Example of Canaan. This is for an example and the information is only for the purposes of fictitious information to help everyone understand the information that will be needed to complete the planning process. In order to prepare for this meeting, the following web link will provide you access to the current plan: 2008 Plan. Throughout the update process HMPT participants will also:

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COLUMBIA COUNTY EMERGENCY MANAGEMENT

85 INDUSTRIAL TRACT HUDSON, NY 12534
Phone: 518-828-1212 Fax: 518-828-2790

If you have any questions, problems, or concerns please do not hesitate to email me at henryswartz25@gmail.com or at (518) 858-1509.

Sincerely,

Henry Swartz
Deputy Director
Columbia County Emergency Management

Attached is the current participant list. Please review and notify us of any changes you would like.

Meeting Host: Columbia County EMO/E & E Inc	**Meeting Date:** May 20, 2013 – AM
County: Columbia	**Place/Room:** EOC

Name	Title	Agency	Phone	E-Mail
David Lyons	Superintendent	Highway Livingston	518-851-7519	
Kevin McDonald	Town Sup	Livingston	518-851-3607	kpmcdonald@verizon.net
Eugene E. Shetsky	Mayor's Aide	Hudson	518-828-7217	hudsonmayor@valstar.net
LT. LYNNE M. FINN	LIEUTENANT	HUDSON	518-828-3388	Lfinn@hudsonpolicny.org
Mike Losa	Superintendent of Highways	Ghent	518-821-1922	
Wendy Shufelt	Sec. for Ghent Highway	Ghent	518-392-2651	
Nadine Macura	NYSOEM	NYSOEM	518-292-2423	nmacura@dhses.ny.gov
Bill Gregory	Highway Superintendent	T/o Copake	518 325 4222	copakehighwaydept@yahoo.com
Larry Progen	Town Clerk	Copake	518-329-1234	Townofcopake@taconic.net * Email to which everything should go
Ron Krotz	Supervision	Stuyvesant	518-365-9331	Supervisor@stuyvesantny.us
Matt Murell	Supervisor	Stockport	518 828-9389	Matt.Murell@yahoo.com
Tim Boster	Superintendent	Stockport	518-828-6167	sthpkw@mhcable.com
				Stkphw@mhcable.com
Roy Brown	Supervisor	Germantown	518-537-6687	roybrown1957@gmail.com

resend populated spreadsheets

Meeting Host: Columbia County EMO/E & E Inc	**Meeting Date:** May 20, 2013
County: Columbia	**Place/Room:** EOC - PM

Name	Title	Agency	Phone	E-Mail
Town of Greenport Paul M'Creary	Engineer	Greenport	828-2301	pmccreary@mornsengineers.com (pmccreary)
Louis C LaMont	Highway Super	Claverack	851 7533	LaMont@Mhcable.com
LARRY KADISH	Town Bd.	TACONIC	851 9675	LKADISH@LIVE.COM
Darryl Schiffer	clerk	Canaan	781-4455	canaanhighway@fairpoint.net
BERNHARD F. MEYER	HIGHWAY SUPT	CANAAN	755-2452 781-4455	SAME AS ABOVE
THOMAS S. YOUHAS	HIGHWAY SUPT	TACONIC	851-1806	YOUHAS@LIVE.COM ** add to distribution list
Matthew Larabee	Emergency Mgmt Director	New Lebanon	528-5481	Mlarabee@townofnewlebanon.com

Hello Columbia County Hazard Mitigation Planning Team

In response to a number of requests for assistance with completing the hazard mitigation worksheets, below is some additional guidance. Also, we will be holding a workshop on May 20 from 9:30AM-11:30AM and from 1:30PM-3:30PM where Ecology and Environment (E & E) staff will be available to work with you individually to address specific parts of the worksheets that you may be struggling to complete.

As you are going through the process of collecting and documenting hazard information, remember our ultimate goal- **to identify specific projects which will help to mitigate damages**. Examples include identifying specific bridges which should be raised to mitigate flood damages and maintain the roads passable, or building a safe room to mitigate human injury during events.

Tips for completing the worksheets

1. On April 13 you were emailed three worksheets. One was *SEMO Worksheets Example_[your jurisdiction].xls* for reference. The other two were pre-populated with NOAA data specific to your jurisdiction for your review and addition of any missing information. The file *HAZARD MITIGATION [your jurisdiction] 1.xls* contains data about all hazards and *HAZARD MITIGATION [your jurisdiction] 2.xls* contains flood specific data as this is a hazard which has a significant history of events in the county.
2. Please prepare to complete and return both of the HAZARD MITIGATION files. You may not have the information available to fill in every field- this is expected.
3. Focus on Natural Hazard incidents and damages which have occurred in the past five years (since 2008).
4. On the *HAZARD MITIGATION [your jurisdiction] 1.xls* spreadsheet scroll over to column S and review all events for which the Cost of Event is listed as $0. <u>If you agree that this is accurate, you need not complete any of the other data fields for this event.</u>
5. Again, the data which have been pre-populated for your jurisdiction were taken from a NOAA database. Other sources of information which you may have and may be useful in completing the spreadsheets include:
    - Flood plain maps and other documents which provide:
        - Critical infrastructure within the floodplain
        - Value of structures within the floodplain
    - Land use maps
    - Tax maps including real property values
    - Formal or informal reports or investigation from hazard events or incidents
        - Damage assessments
        - Insurance claims
    - Newspapers and other media which report about events and incidents
    - Geologic maps and information
    - Local government budgets which include costs of damage from incidents
    - Information on infrastructure and critical facilities

- Residential units, single family homes, multiple units
- Public and private schools
- Transportation infrastructure (bridges, roads, park and ride lots, transit operations, railroads, yards, etc.)
- Businesses
- Fire and EMS services buildings, garages and facilities
- Law Enforcement buildings, garages and facilities
- Public Works buildings and garages
- Community centers
- Emergency shelters
- Other County and town buildings
- Post offices
- Communications systems, buildings and towers
- Chemical production and storage facilities
- Dams or water holding facilities, water pumping and sewage treatment facilities
- Financial service facilities, banks, service centers
- Commercial districts and shopping areas
- Information technology facilities
- Healthcare facilities
- Food processing and storage facilities
- Energy production (generation, pipelines, transmission)
- Defense or military operations
- Other

6. Determine if the following plans and ordinances have been passed in your jurisdiction:
    - **Master Plan**
    - **Zoning ordinance**
    - **Subdivision ordinance**
    - **Growth management ordinance**
    - **Floodplain ordinance**
    - **Other special purpose ordinance (stormwater, steep slope, wildfire)**
    - **Building code**
    - **Fire department ISO rating**
    - **Erosion or sediment control program**
    - **Stormwater management program**
    - **Site plan review requirements**
    - **Capital improvements plan**
    - **Economic development plan**
    - **Local emergency operations plan**
    - **Other special plans (i.e. flood mitigation plan)**
    - **Flood insurance study or other engineering study for streams**
    - **Elevation certificates**

About the workshop

The workshop will be an opportunity for individual assistance in completing remaining gaps in your spreadsheets. In preparing for the workshop:

1. Complete as much of the worksheets as you are able. Bring a copy with you.
2. Collect and bring with you as many data sources as you are able to collect.
3. Identify individuals who should attend. These would be personnel who have jurisdiction-specific knowledge about historic events, damages, and data.
4. Think about projects which would help mitigate damages identified through data collection on historic damages. Remember that it will be essential to justify that the costs of any project are outweighed by the costs of ongoing damage from a hazard.

HMPG MEETING

Meeting Host: EMO

Meeting Date: 8/28/2013

County: Columbia

Place/Room: EOC

Name	Title	Agency	Phone	E-Mail
matt Landau	Emergency Mgmt Director	town of new Lebanon	518-528-5481	Mlandau@townofnewlebanon
Barbara Hagal	Village trustee	Philmont	518-672-7032	pherly@mhcable.com
Robin Andrews	Supervisor	Claverack	518-672-4399	supervisor@townofclaverack.com
Paul McEvoy	Morris Assoc. Engineer	Coeymans	518-828-2300	pmcevoy@morrisengineers.com
Linda Swartz		Taghkanic	518-851-8982	tomandlinda@mhcable.
LARRY KADISH	Council	Taghkanic	518 851 9675	L KADISH@LIVE.COM
Kevin McDonald	Town Supervisor	Livingston	518 851-3607	kpmcdonald@verizon.net
Matt Mundell	Town Supervisor	Stockport	518 828-7389 / 858-0224	MattMundell@yahoo.com
James C Potts Jr	Highway superintendent	Clermont	518 537 6869	Gtownny@valstar.net
Ray D. Brown	Town Supervisor	Germantown	518-537-6687	
Lt. LYNNE M. FINN	LIEUTENANT	HUDSON POLICE	518 828-3388	Lfinn@hudsonpoliceny.org
Sgt. Anthony Moon	Sergeant	Hudson Police	518-828-3388	amoon@hudsonpoliceny.org
THOMAS M. GARRICK	SUPERVISOR	TOWN OF GALLATIN	518-398 66 11	tomgarrick2003@yahoo.com

HMPG MEETING

Meeting Host: EMO			**Meeting Date: 8/28/2013**
County:	Columbia		**Place/Room: EOC**

Name	Title	Agency	Phone	E-Mail
Henry Swanta	Deputy Director	C.C. EMO	858-1509	henryswanta25@ymail.com
Daniel Herrera	Contract Support	Ecology + Environment Inc.	(212) 743-1713	dherrera@ene.com
Dennis Lawlor	"	"	(913) 339-9519	dlawlor@ene.com
Amy Mahl	"	"	(518) 459-1980	amahl@ene.com

COLUMBIA COUNTY
EMERGENCY MANAGEMENT

85 INDUSTRIAL TRACT HUDSON, NY 12534
Phone: 518-828-1212 Fax: 518-828-2790

AGENDA

Columbia County
Multi-Hazard Mitigation Planning Project
Kickoff Meeting

HAZARD MITIGATION PLANNING COMMITTEE MEETING (HMPC)
9:00 – 11:00pm, August 28, 2013
Columbia County Emergency Operations Center
85 Industrial Tract
Hudson, NY 12534

1. Opening Remarks
2. Introductions
3. Local Hazard Mitigation Plan Purpose and Requirements
4. Multi-Jurisdictional Participation and the Hazard Mitigation Planning Committee
5. Hazard Rankings
6. Break
7. Review Plan Goals and Objectives
    a. Submitted Action Ideas
    b. Additional Action Ideas
8. Developing Mitigation Actions
9. Determining Cost-Effectiveness of Mitigation Actions
10. Prioritizing Mitigation Actions/STAPLEE Worksheet
11. Plan Maintenance Strategy

Columbia County, New York

Appendix E

Hazard Identification Results

MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN

April 2018

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Appendix E: Hazard Identification - Municipal Voting Results

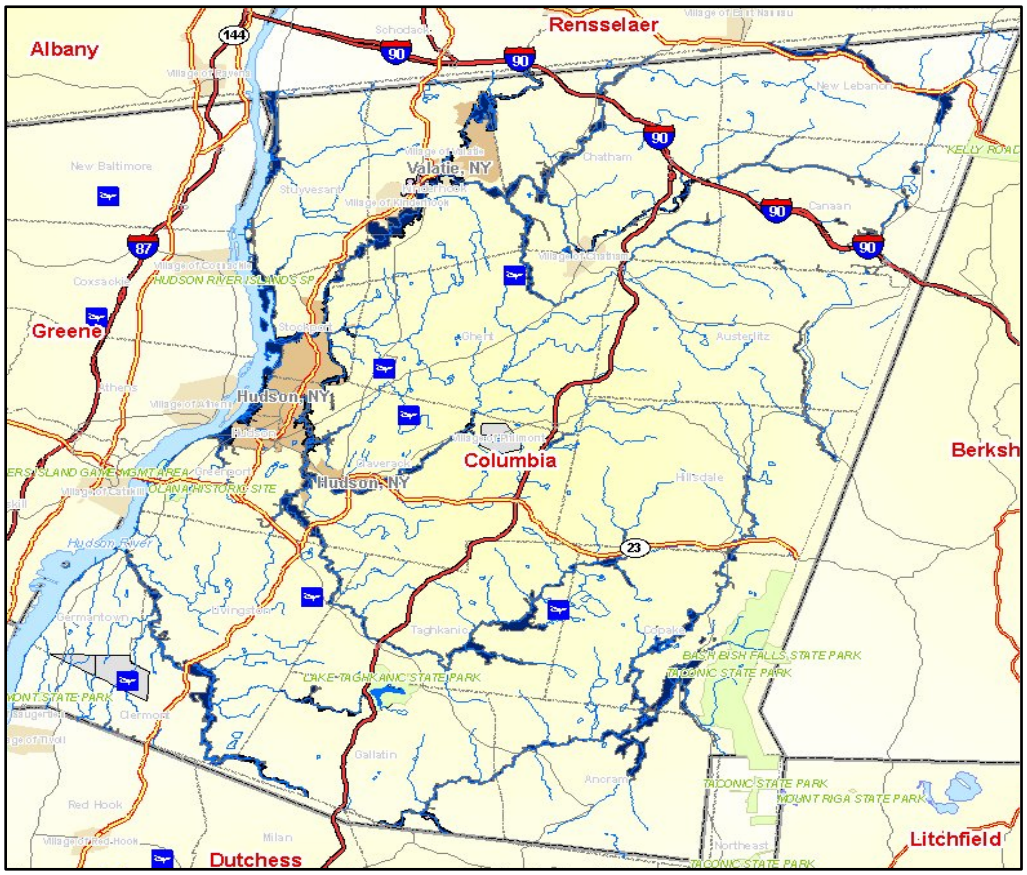
Hazard	Jurisdictions (C) = City, (T) = Town, (V) = Village																							
	Columbia County	Ancram (T)	Austerlitz (T)	Canaan (T)	Chatham (T)	Chatham (V)	Claverack (T)	Clermont (T)	Copake (T)	Gallatin (T)	Germantown (T)	Ghent (T)	Greenport (T)	Hillsdale (T)	Hudson (C)	Kinderhook (T)	Kinderhook (T)	Livingston (T)	New Lebanon (T)	Philmont (V)	Stockport (T)	Stuyvesant (T)	Taghkanic (T)	Valatie (V)
Coastal Erosion											●	●					●		●	●	●			●
Coastal Storm	●										●				●					●	●		●	
Dam Failure		●									●	●				●	●						●	
Drought	●	●								●	●					●	●	●		●			●	●
Earthquake	●	●	●		●			●		●	●				●	●	●							
Epidemic	●	●									●					●	●							
Extreme Heat	●	●								●	●					●	●	●		●				●
Extreme Temps		●						●		●	●		●			●	●	●	●	●	●	●	●	●
Flood	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●		●	●	●
Ice Storm	●	●	●		●					●	●		●	●	●	●	●	●		●	●	●	●	●
Hailstorm	●	●	●	●	●					●	●		●	●	●	●	●	●	●	●	●	●	●	●
Hurricane	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●				●		
Infestation	●	●									●					●	●							

Appendix E - Hazard Identification - Voting Results

Hazard	Jurisdictions (C) = City, (T) = Town, (V) = Village																						
	Columbia County	Ancram (T)	Austerlitz (T)	Canaan (T)	Chatham (T)	Chatham (V)	Claverack (T)	Clermont (T)	Copake (T)	Gallatin (T)	Germantown (T)	Ghent (T)	Greenport (T)	Hillsdale (T)	Hudson (C)	Kinderhook (T)	Kinderhook (T)	Livingston (T)	New Lebanon (T)	Philmont (V)	Stockport (T)	Stuyvesant (T)	Taghkanic (T)	Valatie (V)
Land Subsidence		●										●	●			●	●							
Landslide	●	●								●	●	●	●			●	●		●	●		●	●	●
Severe Storm	●	●	●	●			●	●	●	●	●		●			●	●	●	●	●	●	●	●	●
Winter Storm (Severe)	●	●	●	●	●	●	●	●	●	●	●		●	●	●	●	●	●		●		●	●	●
Tornado	●	●		●	●			●		●	●		●		●	●	●	●						
Wildfire	●	●		●							●					●	●			●	●	●	●	●
Windstorm	●	●	●	●	●					●	●	●		●	●	●	●	●						

Source: 2012-2013 Columbia County Data Collection

E2: Flood Zones within Columbia County



Legend

Airports

Major Roads

Other

Road Classification

Limited Access Highway

Highway

Local Roads

Ramps

Major Roads BG

Road Classification

Limited Access

Highways

Secondary Roads

Other

Highway Ramp

Streams

Rivers and Streams

Park

Lakes and Reservoirs

Q3 Flood Zones

ZONE

D - An area of undetermined but possible flood hazards.

A - An area inundated by 100-year flooding, for which no BFEs have been determined.

AE - An area inundated by 100-year flooding, for which BFEs have been determined.

X500 - An area inundated by 500-year flooding, an area inundated by 100-year flooding with average depths of less than 1 foot

ANI - An area that is located within a community or county that is not mapped on any published FIRM.

Villages

Cities and Towns

Urbanized Areas

Counties

Columbia County, New York

Appendix F

NFIP and Historic Hazard Events Data

MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN

April 2018

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Appendix F – NFIP Participation and Historical Hazard Events

F1: Municipality Participation in the National Flood Insurance Program

Community	Entry Date	Current Effective FIRM	FIS Date
ANCRAM, TOWN OF	11/15/1974	06/05/1985	N/A
AUSTERLITZ, TOWN OF	12/27/1974	06/05/1985	N/A
CANAAN, TOWN OF	11/1/1974	07/03/85	N/A
CHATHAM, TOWN OF	06/10/1977	09/15/1993	09/15/1993
CHATHAM, VILLAGE OF	12/6/1974	12/15/1982	12/15/1982
CLAVERACK, TOWN OF	05/03/1974	09/06/1989	09/06/1989
CLERMONT, TOWNSHIP OF	11/8/1974	09/05/1984	09/05/1984
COPAKE, TOWN OF	05/24/1974	06/19/1985	N/A
GALLATIN, TOWN OF	10/25/1974	10/16/1984	10/16/1984
GERMANTOWN, TOWN OF	11/15/1974	05/11/1979	N/A
GHENT, TOWN OF	10/18/1974	01/01/1988	N/A
GREENPORT, TOWN OF	11/1/1974	11/15/1989	11/15/1989
HILLSDALE, TOWN OF	01/03/1975	05/15/1985	N/A
HUDSON, CITY OF	11/15/1974	09/29/1989	09/29/1989
KINDERHOOK, TOWN OF	10/25/1974	12/1/1982	12/1/1982
KINDERHOOK, VILLAGE OF	10/25/1974	12/1/1982	12/1/1982
LIVINGSTON, TOWN OF	05/24/1974	05/11/1979	N/A
NEW LEBANON, TOWN OF	04/12/1974	06/05/1985	N/A
STOCKPORT, TOWN OF	10/18/1974	01/19/1983	01/19/1983
STUYVESANT, TOWN OF	10/18/1974	09/14/1979	N/A
TAGHKANIC, TOWN OF	12/20/1974	01/03/1986	N/A
VALATIE, VILLAGE OF	09/26/1975	12/1/1982	12/1/1982

F2: Historical Hazard Events and Estimated Losses over $10,000 in Columbia County

Date	Location and Extent	Impact	Estimated Loss
Floods			
30 September 2015	Countywide flooding	Widespread heavy rain inundated roadways, and caused localized evacuations	**Columbia County:** Unknown
28 August 2011	Hurricane Irene caused countywide flooding	Heavy rains associated with Hurricane Irene resulted in widespread flooding, major transportation routes closed for approximately 1 month due to washouts and flooding.	**Columbia County:** $2,523,411.91
29 July 2009	Flash flooding in the Town of Stuyvesant	Flash flooding over Kinderhook Creek, numerous roadways closed. Novak Road in Kinderhook and Reed Road in Ghent were washed out. Campers were stranded by high water.	**Stuyvesant:** $4,500,000
11 August 2008	Flooding in the Town of Chatham	Several roadways closed due to flooding.	**Chatham:** $45,000
1 June 2007	Flooding in the Town of Ancram	Road erosion on Hall Hill Road.	**Ancram:** $44,705
April 2007	Flooding in the Town of Stuyvesant	Debris and road damage.	**Stuyvesant:** $50,040
15 April 2007	Flooding in the Village of Kinderhook	Widespread flooding of small streams led to numerous road closures, private basement flooding.	**Kinderhook:** $2,000,000
1 June 2006	Flooding in the Town of Canaan, Flat Brook	Roads washed out and fallen trees.	**Canaan:** $24,000
2 April 2005	Flooding in western Columbia County	Claverack Creek overflowed banks, road erosion on Dam road in the Town of Ancram.	**Western Columbia County:** $240,989 **Ancram:** $17,011
29 March 2005	Flooding in western Columbia County	Road closures due to flooding, private basement flooding.	**Western Columbia County:** $100,000
30 August 2004	Flooding in the Town of Canaan	Washed out roads and fallen trees west of County Route 5 and portions of SR-295.	**Canaan:** $280,000
11 August 2003	Flash flooding in the Town of Ghent	Route 66 and Slateville Road flooded; the intersection of Route 9G and Merino Road flooded and closed for an extended period of time; and private basement flooding.	**Ghent:** $20,000
27 May 2002	Flooding in the Town of Canaan, Flat Brook	Roads washed out, fallen trees, and six injuries.	**Canaan:** $78,800
30 March 2001	Flooding in the Town of Claverack	Rain and snow produced rapid runoff from Claverack Creek flooding Webb Road.	**Claverack:** $15,000

Date	Location and Extent	Impact	Estimated Loss
17 December 2000	Countywide flooding	Flooding throughout the region and local states of emergency declared in the Towns of Germantown and Canaan.	**Columbia County:** $100,000
15 July 2000	Countywide flooding	Multiple streams overflowed causing wide-spread road and bridge closures. Residents became trapped by swift water. Flood waters damaged an animal hospital in Kinderhook as well as houses, cars, and farms in Ghent and Austerlitz. In Chatham, flood waters washed away a commercial building and farm foundation, and destroyed 5.5 miles of roadways. Four roads were washed out in Hillsdale.	**Columbia County:** $1,500,000
6 June 2000	Countywide flooding	Route 9G, Spook Rock Road, County Route 7, Webb Road, Pine Wood Road, Lockwood Road, and many low lying regions flooded.	**Columbia County:** $75,000
2 June 200	Flash flooding in the Town of New Lebanon	Unspecified flood damage.	**New Lebanon:** $18,000
16 September 1999	Countywide flooding associated with Hurricane Floyd	Unspecified flood damage.	**Columbia County:** $600,000
28 April 1999	Flooding in the Town of Canaan, Flat Brook	Roads washed out and fallen trees, one injury.	**Canaan:** $65,000
6 May 1998	Flash flooding in the northwest portion of Columbia County	Mudslide over Conrail tracks and State Highway 9J; roads flooded in Stockport, Stuyvesant, West Ghent and Greenport; and private basement flooding.	**Northwest Columbia County:** $50,000
13 July 1996	Flooding in Western Columbia County and a flash flooding in the Town of Claverack	Unspecified damages.	**Western Columbia County:** $4,000,000 **Claverack:** $20,000
8 June 1996	Flash flooding in the Town of Taghkanic	Unspecified damages.	**Lake Taghkanic:** $200,000
19 January 1996	Flooding in the Columbia County	Road washouts, heavy damage in the towns of Hillsdale, Austerlitz, and Canaan; 12 families evacuated, debris and road damage in Stuyvesant; damage to sewer plant in Greenport; and damage to boat launch and Amtrak track in Hudson.	**Columbia County:** $3,925,245 **Stuyvesant:** $74,755
13 July 1994	Flash flooding in the Town of Ancram	Several roads washed out, one injury (lightning strike).	**Ancram:** $50,000
29 March 1993	Countywide flooding	Unspecified damages.	**Columbia County:** $500,000

Appendix F. NFIP Participation and Historical Hazard Events

Date	Location and Extent	Impact	Estimated Loss
1 June 1987	Flooding in the Town of Canaan, Flat Brook	Roads washed out and fallen trees, one injury, and three deaths.	**Canaan:** $45,000
Severe Storms			
20 April 2015	Windstorm in towns of Chatham, Caanan, New Lebanon, Ancram, Hillsdale, and Copake.	Downed trees and powerlines.	**Columbia County:** $10,000
26 August 2011	Severe storm (Hurricane Irene) caused countywide flooding	Impassable roads; roads, culverts and bridge damage; flooding and debris. Erosion under Mountain and Weed Mine Roads (Town of Ancram), bridge and culvert washout on Near Road (Town of Gallatin).	**Columbia County:** $2,523,411.91
7 December 2008	Windstorm in the Town of Hillsdale	Impassable roads.	**Hillsdale:** $12,000
11 August 2008	Lightning storm in the Town of Livingston	Lightning strike caused damage from flying debris to nearby homes and cars.	**Livingston:** $15,000
16 June 2008	Hail storm in the Village of Kinderhook	Primary damage to tree fruits, berries, and vegetable crops.	**Kinderhook:** $5,000,000
29 June 2007	Severe storm flooded the Towns of Ancram and Gallatin	Erosion and washouts on numerous roads. Erosion on Altenburg, Chase, Cottontail, Doodletown, Niver, Poole Hill, Rothvoss, Shepard, Skyline, Winchell Mountain, Westfall, Finkle and Dam roads (Town of Ancram).	**Ancram:** $30,100 *Losses to Gallatin were not estimated*
15 April 2007	Severe storm flooded Kinderhook	Unspecified Impacts	**Kinderhook**: $2,000,000
2 April 2005	Severe Storm flooded the Towns of Gallatin and Stuyvesant	Road erosion and debris removal.	**Stuyvesant:** $51,308 *Losses to Gallatin were not estimated*
30 August 2004	Flooding and flash flooding	Erosion and flooding	**Columbia County:** $280,000
23 July 2002	Thunder and wind storm in the Town of Hillsdale	Downed trees and wires. Tree fell on a car.	**Hillsdale:** $15,000
5 June 2002	Thunder and wind storm in the Village of Kinderhook	Downed trees and power lines.	**Kinderhook:** $11,000
31 May 2002	Thunder and wind storm in the Town of Claverack	Downed trees and power lines.	**Claverack:** $12,000
30 June 2001	Thunder and wind storm in the Town of Claverack	Downed telephone poles, wires, and tree limbs.	**Claverack:** $55,000
20 June 2001	Hail storm in the Town of Stockport	Two-inch hail and wind damage.	**Stockport:** $20,000
3 June 2001	Thunder and wind storm in the Town of Clermont	High winds destroyed a 4,200 square-foot shed and ripped roofs off of two barns.	**Clermont:** $100,000
28 May 2001	Hail storm in the Town of Stockport	Unspecified impacts.	**Stockport:** $11,000

Date	Location and Extent	Impact	Estimated Loss
9 August 2000	Thunder and wind storm in the Town of Gallatin	Unspecified impacts.	**Gallatin:** $22,000
3 August 2000	Lightening in the Town of Kinderhook	Lightning struck a tree and set nearby structures on fire.	**Kinderhook:** $40,000
25 June 2000	Thunderstorm in the Town of Livingston	Fallen trees and power outages.	**Livingston:** $24,000
2 June 2000	Thunder and hail storms in the Towns of Livingston and New Lebanon	A large number of trees were snapped or uprooted, four downed utility poles, roof peeled off one house, chimney destroyed, damage to fruit crops, and power outages.	**Livingston:** $1,185,000 **New Lebanon:** $24,000
15 May 2000	Thunder and wind storm in the Towns of Austerlitz, Claverack, Gallatin, Livingston, and Taghkanic	Unspecified impacts.	**Austerlitz:** $25,000 **Claverack:** $21,000 **Gallatin:** $95,000 **Livingston:** $20,000 **Taghkanic:** $15,000
7 June 1999	Thunder and wind storm in the Town of Hillsdale	A large number of fallen trees along Old Town and Collins Road that damaged cars, power lines, and buildings.	**Hillsdale:** $100,000
31 May 1998	Thunder, wind and hail storms in the Towns of Stuyvesant, Chatham, and Kinderhook	Widespread power outages and unspecified impacts.	**Stuyvesant:** $204,000 **Chatham:** $15,000 **Kinderhook:** $20,000
29 May 1998	Thunder and wind storm in the Town of Kinderhook	Widespread power outages and unspecified impacts.	**Kinderhook:** $15,000
23 August 1996	Lightening in the Town of Claverack	Lightening caused a fire that destroyed a barn.	**Claverack:** $15,000
15 July 1996	Strong winds countywide	Unspecified impacts.	**Columbia County:** $15,000
21 October 1995	High winds countywide	Unspecified impacts.	**Columbia County:** $30,000
15 July 1995	Thunder and wind storms in Kinderhook and countywide	Unspecified impacts.	**Kinderhook:** $20,000 **Columbia County:** $50,000
4 April 1995	Thunder and wind storms in the Towns of Germantown and Livingston	Fallen trees that damaged homes.	**Germantown:** $300,000 **Livingston:** $300,000
Severe Winter Storms			

Date	Location and Extent	Impact	Estimated Loss
13 April 2011	Ice storm in the Town of Ancram and Gallatin	Downed trees and utility wires on roadways.	**Ancram:** $15,107 *Losses to Gallatin were not estimated*
5 February 2011	Severe winter storm in the Town of Hillsdale	Roads impassable.	**Hillsdale:** $22,000
26-27 December 2010	Severe winter storm in the Town of Hillsdale, Stuyvesant, and Livingston	Roads closures, snow removal, and power outages for two days.	**Hillsdale:** $50,630.57 **Stuyvesant:** $17,727 **Livingston:** $60,000
16 February 2010	Severe winter storm in the Town of Hillsdale	Roads impassable.	**Hillsdale:** $23,000
25 December 2009	Severe winter storm in the Town of Hillsdale	Roads impassable.	**Hillsdale:** $17,000
11-31 December 2008	Severe winter and ice storms in the Towns of Hillsdale and Stuyvesant	Roads impassable and debris removal.	**Hillsdale:** $ 221,564 **Stuyvesant:** $121,535
8 December 2008	Snow storm in the Towns of Ancram, Livingston, and Gallatin	Downed trees and utility wires on roadways caused power outages.	**Ancram:** $25,250 **Livingston:** $72,166 *Losses to Gallatin were not estimated*
February 2008	Severe winter and ice storms in the Town of Hillsdale	Washed out and impassable roads.	**Hillsdale:** $154,300
January 2008	Severe winter storms in the Town of Hillsdale	Roads impassable.	**Hillsdale:** $39,000
24 December 2002	Snow storm in the Town of Stuyvesant	Snow removal.	**Stuyvesant:** $15,594
Tornadoes			
21 July 2003	F2 tornado with two touchdowns confirmed in the Town of Kinderhook, the Newtown Hook section in the Town of Stuyvesant and the Town of Niverville	A barn, garage and hay wagons were destroyed, cars were displaced, and roofs, trees and utility lines were damaged. One resident was injured.	**Kinderhook:** $370,000 **Stuyvesant:** $10,000
3 July 1997	F1 and F2 tornado in the Town of Canaan and Copake Falls	Extensive damage to several residences between Beebe Pond and Berkshire County, Massachusetts.	**Canaan:** $720,000 **Copake Falls:** $60,000
29 May 1995	Tornado of unknown magnitude in the City of Hudson	Five Injuries.	**Hudson:** $10,000,000
10 July 1978	Tornado of unknown magnitude in Columbia County	Unspecified impact.	**Columbia County:** $25,000
20 September 1975	Tornado of unknown magnitude in Columbia County	Two Injuries.	**Columbia County:** $25,000
28 August 1973	Tornado of unknown magnitude in Columbia County	Unspecified impact.	**Columbia County:** $25,000

NFIP Properties with Multiple Claims since 1978							
Data as of 4/30/15							
Jurisdiction	Number of Claims	Total Payments 1978 to Date	Date of Latest Claim	Number of Single Family Residences	Number of Other Residences	Number of Non-Residences	Total Number of Properties
Ancram, T	2	$ 4,057	8/28/2011	1	0	0	1
Copake, T	6	$ 70,879	3/6/2011	3	0	0	3
Hillsdale, T	3	$ 11,259	1/19/1996	1	0	0	1
Hudson, City	6	$ 33,172	7/30/2009	3	0	0	3
Kinderhook, T	4	$ 368,286	7/29/2009	0	0	2	2
Livingston, T	2	$ 12,860	8/28/2011	1	0	0	1
New Lebanon, T	47	$ 888,937	8/28/2011	2	0	3	5
Stockport, T	9	$ 149,486	3/6/2011	0	2	1	3
Stuyvesant, T	9	$ 395,986	8/28/2011	4	0	0	4
Valatie, V	4	$ 35,277	7/15/2000	1	1	0	2
Total	92	$ 1,970,200		16	3	6	25

Columbia County, New York

Appendix G

Asset Inventory

MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN

April 2018

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APPENDIX G - Asset Inventory

Appendix G1 - Population and Building Exposure by Jurisdiction

Jurisdiction (Population)	Building Type	Number of Structures	Building Value
Ancram (1,573)	Residential	910	$155,536,000
	Commercial	37	$21,694,000
	Industrial	11	$3,787,000
	Agricultural	17	$5,266,000
	Religious/Non-Profit	2	$1,202,000
	Government	2	$1,900,000
	Education	2	$1,206,000
	Total	**981**	**$190,591,000**
Austerlitz (1,654)	Residential	1062	$217,918,000
	Commercial	64	$51,274,000
	Industrial	28	$11,014,000
	Agricultural	10	$2,250,000
	Religious/Non-Profit	5	$4,812,000
	Government	4	$9,295,000
	Education	2	$718,000
	Total	**1175**	**$297,281,000**
Canaan (1,710)	Residential	880	239,321,579
	Commercial	18	10,066,350
	Industrial	1	238,280
	Agricultural	19	4,241,699
	Religious/Non-Profit	15	7,587,230
	Government	7	1,510,390
	Education	52	34,302,800
	Total	**992**	**$297,268,328**
Chatham (4,128)	Residential	2378	$434,258,000
	Commercial	139	$103,204,000
	Industrial	35	$30,542,000
	Agricultural	23	$8,410,000
	Religious/Non-Profit	11	$25,160,000
	Government	7	$6,241,000
	Education	6	$5,538,000
	Total	**2599**	**$613,353,000**
Claverack	Residential	2942	$586,072,000

Appendix G1 - Population and Building Exposure by Jurisdiction

Jurisdiction (Population)	Building Type	Number of Structures	Building Value
(6,021)	Commercial	157	$172,956,000
	Industrial	55	$90,533,000
	Agricultural	21	$9,214,000
	Religious/Non-Profit	16	$19,264,000
	Government	15	$33,180,000
	Education	3	$1,278,000
	Total	**3209**	**$912,497,000**
Clermont (1,965)	Residential	877	$139,309,000
	Commercial	41	$20,713,000
	Industrial	24	$11,438,000
	Agricultural	16	$9,014,000
	Religious/Non-Profit	4	$9,252,000
	Government	1	$832,000
	Education	0	$0
	Total	**963**	**$190,558,000**
Copake (3,615)	Residential	2462	$473,553,000
	Commercial	95	$67,476,000
	Industrial	27	$6,913,000
	Agricultural	18	$5,278,000
	Religious/Non-Profit	6	$7,614,000
	Government	12	$24,686,000
	Education	1	$226,000
	Total	**2621**	**$585,746,000**
Gallatin (1,668)	Residential	877	$164,899,477
	Commercial	1	$355,000
	Industrial	1	$1,957,900
	Agricultural	39	$22,721,577
	Religious/Non-Profit	3	$365,000
	Government	4	$1,300,000
	Education	0	$0
	Total	**925**	**$191,598,954**
Germantown (1,954)	Residential	1028	$196,848,000
	Commercial	62	$55,231,000
	Industrial	23	$8,466,000
	Agricultural	13	$19,288,000

Appendix G1 - Population and Building Exposure by Jurisdiction

Jurisdiction (Population)	Building Type	Number of Structures	Building Value
	Religious/Non-Profit	6	$6,964,000
	Government	3	$1,952,000
	Education	2	$4,230,000
	Total	**1137**	**$292,979,000**
Ghent (5,402)	Residential	2335	$475,208,000
	Commercial	139	$94,696,000
	Industrial	57	$42,258,000
	Agricultural	21	$8,078,000
	Religious/Non-Profit	9	$12,490,000
	Government	3	$1,928,000
	Education	3	$7,182,000
	Total	**2567**	**$641,840,000**
Greenport (4,165)	Residential	1761	$350,335,000
	Commercial	137	$162,346,000
	Industrial	25	$37,887,000
	Agricultural	12	$6,012,000
	Religious/Non-Profit	11	$14,944,000
	Government	6	$13,863,000
	Education	3	$28,434,000
	Total	**1955**	**$613,821,000**
Hillsdale (1,927)	Residential	1041	$288,980,085
	Commercial	53	$15,640,827
	Industrial	0	$0
	Agricultural	18	$7,102,100
	Religious/Non-Profit	4	$1,328,100
	Government	5	$1,153,200
	Education	5	$13,321,200
	Total	**1126**	**$327,525,512**

Appendix G1 - Population and Building Exposure by Jurisdiction

Jurisdiction (Population)	Building Type	Number of Structures	Building Value
Hudson (6,713)	Residential	1885	$572,060,000
	Commercial	239	$349,547,000
	Industrial	59	$96,408,000
	Agricultural	16	$6,856,000
	Religious/Non-Profit	25	$39,722,000
	Government	13	$24,259,000
	Education	5	$19,192,000
	Total	**2242**	**$1,108,044,000**
Kinderhook (8,498)	Residential	567	$129,000,398
	Commercial	40	$12,695,144
	Industrial	0	$0
	Agricultural	8	$2,826,078
	Religious/Non-Profit	8	$6,113,375
	Government	8	$899,085
	Education	1	$1,418,059
	Total	**632**	**$152,952,139**
Livingston (3,646)	Residential	1990	$324,894,000
	Commercial	79	$56,163,000
	Industrial	22	$8,904,000
	Agricultural	17	$14,942,000
	Religious/Non-Profit	3	$2,436,000
	Government	4	$7,169,000
	Education	1	$302,000
	Total	**2116**	**$414,810,000**
New Lebanon (2,305)	Residential	1406	$275,609,000
	Commercial	57	$40,817,000
	Industrial	20	$32,991,000
	Agricultural	5	$974,000
	Religious/Non-Profit	3	$4,190,000
	Government	2	$1,663,000
	Education	4	$13,706,000
	Total	**1497**	**$369,950,000**

Appendix G1 - Population and Building Exposure by Jurisdiction

Jurisdiction (Population)	Building Type	Number of Structures	Building Value
Stockport (2,815)	Residential	1171	$214,783,000
	Commercial	27	$12,273,000
	Industrial	20	$8,988,000
	Agricultural	4	$888,000
	Religious/Non-Profit	2	$7,516,000
	Government	1	$140,000
	Education	1	$1,092,000
	Total	**1226**	**$245,680,000**
Stuyvesant (2,027)	Residential	1024	$207,703,000
	Commercial	41	$18,175,000
	Industrial	14	$28,063,000
	Agricultural	10	$4,656,000
	Religious/Non-Profit	2	$3,464,000
	Government	7	$22,990,000
	Education	0	$0
	Total	**1098**	**$285,051,000**
Taghkanic (1,310)	Residential	781	$147,930,000
	Commercial	45	$20,718,000
	Industrial	12	$4,890,000
	Agricultural	1	$320,000
	Religious/Non-Profit	3	$1,956,000
	Government	0	$0
	Education	1	$33,960,000
	Total	**843**	**$209,774,000**
County-wide Total		**29904**	**$7,941,319,933**

Sources: U. S. Census Bureau 2010; HAZUS MH 2.1; Local Jurisdictions

Appendix G2: Critical Facility Inventory

Name	Type	Jurisdiction	Replacement Cost
Spencertown Fire Department	Fire Station	Austerlitz	N/A
Berkshire Junior-Senior High School	School	Canaan	$3,366,000
Red Rock Volunteer Fire Company Inc.	Fire Station	Canaan	N/A
Chatham Village Police	Police Station	Chatham	$1,652,000
East Chatham Fire Company Inc.	Fire Station	Chatham	N/A
Tri Village Fire Company Inc.	Fire Station	Chatham	N/A
Tri Village Fire Company Inc.	Fire Station	Chatham	N/A
Brookwood Center	School	Claverack	$2,875,000
Churchtown Fire Company Inc.	Fire Station	Claverack	N/A
Claverack Fire Department	Fire Station	Claverack	N/A
Philmont Village Police	Police Station	Claverack	$1,652,000
NYS Correctional Facility	Correctional	Claverack	N/A
Copake Fire Department	Fire Station	Copake	N/A
Copake Police Department	Police Station	Copake	$1,652,000
Craryville Fire District	Fire Station	Copake	N/A
Germantown Central School	School	Germantown	$10,240,000
GERMANTOWN Hose CO. #1	Fire Station	Germantown	N/A
Chatham Fire Department	Fire Station	Ghent	N/A
Chatham High School	School	Ghent	$9,116,000
Chatham Middle School	School	Ghent	$8,183,000
Columbia Christian Academy	School	Ghent	$1,019,000
Mary E. Dardess Elementary School	School	Ghent	$8,182,000
Philmont Volunteer Fire Company 1	Fire Station	Ghent	N/A
Columbia County Sheriff	Police Station	Greenport	$1,652,000
Greenport Fire District	Fire Station	Greenport	N/A
Greenport Fire District	Fire Station	Greenport	N/A
Greenport Police Department	Police Station	Greenport	$1,652,000
Greenport School	School	Greenport	$4,444,000
Hudson Correctional Facility	Correctional	Greenport	$3,600,000
Hawthorne Valley School	School	Hillsdale	$5,514,000
Hillsdale Fire Company #1	Fire Station	Hillsdale	$750,000
Columbia Memorial Hospital	Hospital	Hudson	$53,827,000
Hudson Fire Department	Fire Station	Hudson	N/A
Hudson High School	School	Hudson	$12,283,000
Hudson Middle School	School	Hudson	$13,416,000
Hudson Police Juvenile Aid Office	Police Station	Hudson	$1,652,000
John L. Edwards School	School	Hudson	$9,364,000
Ichabod Crane Middle School	School	Kinderhook	$10,986,000
Ichabod Crane Primary School	School	Kinderhook	$7,803,000
Ichabod Crane Senior High School	School	Kinderhook	$15,207,000

Appendix G2: Critical Facility Inventory

Name	Type	Jurisdiction	Replacement Cost
Martin H. Glynn Elementary School	School	Kinderhook	$3,900,000
Martin Van Buren Elementary School	School	Kinderhook	$2,665,000
Niverville Fire Department	Fire Station	Kinderhook	N/A
Palmer Engine & Hose Company	Fire Station	Kinderhook	N/A
Valatie Fire Department	Fire Station	Kinderhook	N/A
Livingston Pumper Company No 1	Fire Station	Livingston	N/A
Livingston S D A School	School	Livingston	$78,000
Canaan Protective Fire Company	Fire Station	Canaan	N/A
Darrow School	School	New Lebanon	$2,256,000
Lebanon Valley Protective Association I	Fire Station	New Lebanon	N/A
Mountain Road School	School	New Lebanon	$442,000
New Lebanon Junior-Senior High School	School	New Lebanon	$5,859,000
Walter B. Howard Elementary School	School	New Lebanon	$3,876,000
Stockport Volunteer Fire Company 1	Fire Station	Stockport	N/A
Stottville Fire Co	Fire Station	Stockport	N/A
Stuyvesant Falls Fire Company	Fire Station	Stuyvesant	N/A
Stuyvesant Fire Company 1	Fire Station	Stuyvesant	N/A
Taconic Hills Elementary School	School	Taghkanic	$10,240,000
Taconic Hills High School	School	Taghkanic	$12,543,000
Taconic Hills Middle School	School	Taghkanic	$11,128,000
Taghkanic Volunteer Fire Company #1	Fire Station	Taghkanic	N/A

Source: HAZUS MH 2.1 N/A – these figures were not available

Appendix G3 Direct Economic Losses for a 100-year Flood Event in Columbia County

Jurisdiction	Occupancy Type	Number of Structures in Hazard Area	Flood Dollar Loss Estimate	% of Total
Ancram	Residential	1	$960,000	0.60%
	Commercial	0	$324,000	1.50%
	Industrial	0	$2,000	0.10%
	Agricultural	0	$156,000	3.00%
	Religious/Non-Profit	0	$43,000	3.60%
	Government	0	$41,000	3.40%
	Education	0	$211,000	11.10%
	Total	**1**	**1,737,000**	**0.91%**
Austerlitz	Residential	0	$123,000	0.10%
	Commercial	0	$156,000	0.30%
	Industrial	0	$80,000	0.70%
	Agricultural	0	$0	0.00%
	Religious/Non-Profit	0	$0	0.00%
	Government	0	$0	0.00%
	Education	0	$0	0.00%
	Total	**0**	**359,000**	**0.12%**
Canaan	Residential	132	$47,864,316	20.00%
	Commercial	0	$0	0%
	Industrial	0	$0	0%
	Agricultural	0	$0	0%
	Religious/Non-Profit	0	$0	0%
	Government	7	$1,510,390	100.00%
	Education	0	$0	0%
	Total	**139**	**49,374,706**	**16.61%**
Chatham	Residential	13	$6,565,000	1.50%
	Commercial	0	$1,504,000	1.50%
	Industrial	0	$989,000	3.20%
	Agricultural	0	$11,000	0.10%
	Religious/Non-Profit	0	$404,000	1.60%
	Government	0	$15,000	0.30%
	Education	0	$28,000	0.40%
	Total	**13**	**9,516,000**	**1.55%**

Appendix G3 Direct Economic Losses for a 100-year Flood Event in Columbia County

Jurisdiction	Occupancy Type	Number of Structures in Hazard Area	Flood Dollar Loss Estimate	% of Total
Claverack	Residential	31	$5,432,000	0.90%
	Commercial	0	$2,859,000	1.70%
	Industrial	0	$4,203,000	4.60%
	Agricultural	0	$126,000	1.40%
	Religious/Non-Profit	0	$235,000	1.20%
	Government	0	$34,000	2.70%
	Education	0	$233,000	0.70%
	Total	**31**	**13,122,000**	**1.44%**
Clermont	Residential	2	$719,000	0.50%
	Commercial	0	$403,000	1.90%
	Industrial	0	$130,000	1.10%
	Agricultural	0	$223,000	2.50%
	Religious/Non-Profit	0	$0	0.00%
	Government	0	$0	0.00%
	Education	0	$0	0.00%
	Total	**2**	**1,475,000**	**0.77%**
Copake	Residential	23	$1,646,000	0.30%
	Commercial	0	$873,000	1.30%
	Industrial	0	$141,000	2.00%
	Agricultural	0	$40,000	0.80%
	Religious/Non-Profit	0	$19,000	0.20%
	Government	0	$0	0.00%
	Education	0	$255,000	1.00%
	Total	**23**	**2,974,000**	**0.51%**
Gallatin	Residential	156	$28,032,911	17.00%
	Commercial	0	$0	0.00%
	Industrial	0	$0	0.00%
	Agricultural	39	$22,721,577	100.00%
	Religious/Non-Profit	0	$0	0.00%
	Government	0	$0	0.00%
	Education	0	$0	0.00%
	Total	**195**	**50,754,488**	**26.49%**

Appendix G3 Direct Economic Losses for a 100-year Flood Event in Columbia County

Jurisdiction	Occupancy Type	Number of Structures in Hazard Area	Flood Dollar Loss Estimate	% of Total
Germantown	Residential	1	$773,000	0.40%
	Commercial	0	$71,000	0.40%
	Industrial	0	$605,000	2.20%
	Agricultural	0	$0	0.00%
	Religious/Non-Profit	0	$0	0.00%
	Government	0	$0	0.00%
	Education	0	$687,000	3.00%
	Total	**1**	**2,136,000**	**0.75%**
Ghent	Residential	1	$891,000	0.20%
	Commercial	0	$190,000	0.20%
	Industrial	0	$82,000	0.20%
	Agricultural	0	$7,000	0.10%
	Religious/Non-Profit	0	$0	0.00%
	Government	0	$0	0.00%
	Education	0	$0	0.00%
	Total	**1**	**1,170,000**	**0.18%**
Greenport	Residential	2	$2,754,000	0.80%
	Commercial	0	$1,157,000	0.70%
	Industrial	0	$329,000	0.90%
	Agricultural	0	$46,000	0.80%
	Religious/Non-Profit	0	$163,000	1.10%
	Government	0	$0	0.00%
	Education	0	$717,000	7.00%
	Total	**2**	**5,166,000**	**0.84%**
Hillsdale	Residential	36	$10,114,300	3.50%
	Commercial	4	$1,173,062	7.50%
	Industrial	0	$0	0.00%
	Agricultural	0	$0	0.00%
	Religious/Non-Profit	0	$0	0.00%
	Government	0	$0	0.00%
	Education	0	$0	0.00%
	Total	**40**	**11,287,362**	**3.45%**

Appendix G3 Direct Economic Losses for a 100-year Flood Event in Columbia County

Jurisdiction	Occupancy Type	Number of Structures in Hazard Area	Flood Dollar Loss Estimate	% of Total
Hudson	Residential	0	$148,000	0.00%
	Commercial	0	$251,000	0.10%
	Industrial	0	$487,000	0.50%
	Agricultural	0	$0	0.00%
	Religious/Non-Profit	0	$0	0.00%
	Government	0	$0	0.00%
	Education	0	$0	0.00%
	Total	**0**	**886,000**	**0.08%**
Kinderhook	Residential	2	$1,858,500	1.40%
	Commercial	2	$1,322,000	10.40%
	Industrial	0	$0	0.00%
	Agricultural	1	$796,610	28.20%
	Religious/Non-Profit	0	$0	0.00%
	Government	0	$0	0.00%
	Education	0	$0	0.00%
	Total	**5**	**3,977,110**	**2.60%**
Livingston	Residential	1	$2,366,000	0.70%
	Commercial	0	$599,000	1.10%
	Industrial	0	$109,000	1.20%
	Agricultural	0	$283,000	1.90%
	Religious/Non-Profit	0	$36,000	1.50%
	Government	0	$0	0.00%
	Education	0	$0	0.00%
	Total	**1**	**3,393,000**	**0.82%**
New Lebanon	Residential	42	$4,592,000	1.70%
	Commercial	0	$976,000	2.40%
	Industrial	0	$3,525,000	10.70%
	Agricultural	0	$0	0.00%
	Religious/Non-Profit	0	$85,000	2.00%
	Government	0	$126,000	0.90%
	Education	0	$68,000	4.10%
	Total	**42**	**9,372,000**	**2.53%**

Appendix G3 Direct Economic Losses for a 100-year Flood Event in Columbia County

Jurisdiction	Occupancy Type	Number of Structures in Hazard Area	Flood Dollar Loss Estimate	% of Total
Stockport	Residential	27	$4,306,000	2.00%
	Commercial	0	$519,000	4.20%
	Industrial	0	$297,000	3.30%
	Agricultural	0	$1,000	0.10%
	Religious/Non-Profit	0	$536,000	7.10%
	Government	0	$0	0.00%
	Education	0	$5,000	3.60%
	Total	**27**	**5,664,000**	**2.31%**
Stuyvesant	Residential	1	$773,000	0.40%
	Commercial	0	$71,000	0.40%
	Industrial	0	$605,000	2.20%
	Agricultural	0	$0	0.00%
	Religious/Non-Profit	0	$0	0.00%
	Government	0	$0	0.00%
	Education	0	$687,000	3.00%
	Total	**1**	**2,136,000**	**0.75%**
Taghkanic	Residential	1	$1,256,000	0.80%
	Commercial	0	$545,000	2.60%
	Industrial	0	$150,000	3.10%
	Agricultural	0	$0	0.00%
	Religious/Non-Profit	0	$0	0.00%
	Government	0	$0	0.00%
	Education	0	$0	0.00%
	Total	**1**	**1,951,000**	**0.93%**
County-wide Total		**525**	**176,450,666**	**2.22%**

Source: HAZUS MH 2.1; Local Jurisdictions

Appendix G4 Direct Economic Losses for a 1000 Year Hurricane Event in Columbia County

Jurisdiction	Occupancy Type	Hurricane Dollar Loss Estimate
Ancram	Residential	$1,029,690
	Commercial	$38,730
	Industrial	$4,460
	Agricultural	$20,071
	Religious/Non-Profit	$2,420
	Government	$5,260
	Education	$1,410
	Total	**$1,102,041**
Austerlitz	Residential	$1,438,800
	Commercial	$34,850
	Industrial	$8,040
	Agricultural	$3,870
	Religious/Non-Profit	$2,360
	Government	$2,440
	Education	$310
	Total	**$1,490,670**
Canaan	Residential	$1,880,840
	Commercial	$24,450
	Industrial	$8,770
	Agricultural	$1,630
	Religious/Non-Profit	$3,040
	Government	$1,460
	Education	$5,910
	Total	**$1,926,100**
Chatham	Residential	$3,623,970
	Commercial	$118,260
	Industrial	$24,970
	Agricultural	$32,070
	Religious/Non-Profit	$38,110
	Government	$3,170
	Education	$5,850
	Total	**$3,846,400**

Appendix G4 Direct Economic Losses for a 1000 Year Hurricane Event in Columbia County

Jurisdiction	Occupancy Type	Hurricane Dollar Loss Estimate
Claverack	Residential	$4,249,250
	Commercial	$347,140
	Industrial	$130,320
	Agricultural	$28,440
	Religious/Non-Profit	$38,210
	Government	$290,960
	Education	$2,120
	Total	**$5,086,440**
Clermont	Residential	$1,383,100
	Commercial	$68,220
	Industrial	$37,710
	Agricultural	$62,100
	Religious/Non-Profit	$27,310
	Government	$2,950
	Education	$0
	Total	**$1,581,390**
Copake	Residential	$3,330,150
	Commercial	$120,480
	Industrial	$9,990
	Agricultural	$23,650
	Religious/Non-Profit	$20,930
	Government	$115,620
	Education	$410
	Total	**$3,621,230**
Gallatin	Residential	$1,069,170
	Commercial	$16,310
	Industrial	$20,420
	Agricultural	$9,050
	Religious/Non-Profit	$7,070
	Government	$620
	Education	$0
	Total	**$1,122,640**

Appendix G4 Direct Economic Losses for a 1000 Year Hurricane Event in Columbia County

Jurisdiction	Occupancy Type	Hurricane Dollar Loss Estimate
Germantown	Residential	$2,071,600
	Commercial	$171,680
	Industrial	$24,740
	Agricultural	$143,280
	Religious/Non-Profit	$26,840
	Government	$8,850
	Education	$11,320
	Total	**$2,458,310**
Ghent	Residential	$3,806,730
	Commercial	$191,080
	Industrial	$190,820
	Agricultural	$39,580
	Religious/Non-Profit	$25,670
	Government	$18,360
	Education	$5,370
	Total	**$4,277,610**
Greenport	Residential	$3,075,890
	Commercial	$313,100
	Industrial	$123,300
	Agricultural	$25,310
	Religious/Non-Profit	$35,160
	Government	$51,590
	Education	$21,740
	Total	**$3,646,090**
Hillsdale	Residential	$1,380,070
	Commercial	$27,220
	Industrial	$6,890
	Agricultural	$8,240
	Religious/Non-Profit	$5,700
	Government	$190
	Education	$11,930
	Total	**$1,440,240**

Appendix G4 Direct Economic Losses for a 1000 Year Hurricane Event in Columbia County

Jurisdiction	Occupancy Type	Hurricane Dollar Loss Estimate
Hudson	Residential	$4,323,850
	Commercial	$424,600
	Industrial	$137,460
	Agricultural	$21,720
	Religious/Non-Profit	$70,870
	Government	$14,970
	Education	$23,380
	Total	**$5,016,850**
Kinderhook	Residential	$9,166,290
	Commercial	$401,980
	Industrial	$68,490
	Agricultural	$93,270
	Religious/Non-Profit	$68,910
	Government	$148,030
	Education	$69,130
	Total	**$10,016,100**
Livingston	Residential	$3,179,840
	Commercial	$153,840
	Industrial	$23,560
	Agricultural	$67,530
	Religious/Non-Profit	$5,310
	Government	$52,870
	Education	$700
	Total	**$3,483,650**
New Lebanon	Residential	$1,944,500
	Commercial	$28,130
	Industrial	$70,410
	Agricultural	$1,800
	Religious/Non-Profit	$3,670
	Government	$720
	Education	$7,510
	Total	**$2,056,740**

Appendix G4 Direct Economic Losses for a 1000 Year Hurricane Event in Columbia County

Jurisdiction	Occupancy Type	Hurricane Dollar Loss Estimate
Stockport	Residential	$2,295,180
	Commercial	$27,490
	Industrial	$32,520
	Agricultural	$6,460
	Religious/Non-Profit	$18,450
	Government	$400
	Education	$4,310
	Total	**$2,384,810**
Stuyvesant	Residential	$3,032,620
	Commercial	$91,480
	Industrial	$101,970
	Agricultural	$55,930
	Religious/Non-Profit	$14,540
	Government	$357,920
	Education	$0
	Total	**$3,654,460**
Taghkanic	Residential	$861,170
	Commercial	$26,920
	Industrial	$3,700
	Agricultural	$1,080
	Religious/Non-Profit	$2,820
	Government	$0
	Education	$129,600
	Total	**$1,025,290**
County-wide Total		**$59,237,061**

Hazus-MH: Flood Event Report

Region Name: Columbia

Flood Scenario: Flood_100Yr

Print Date: Wednesday, February 11, 2015

Disclaimer:
This version of Hazus utilizes 2010 Census Data.
Totals only reflect data for those census tracts/blocks included in the user's study region.

The estimates of social and economic impacts contained in this report were produced using Hazus loss estimation methodology software which is based on current scientific and engineering knowledge. There are uncertainties inherent in any loss estimation technique. Therefore, there may be significant differences between the modeled results contained in this report and the actual social and economic losses following a specific Flood. These results can be improved by using enhanced inventory data and flood hazard information.

Table of Contents

Section	Page #
General Description of the Region	3
Building Inventory	4
General Building Stock	
Essential Facility Inventory	
Flood Scenario Parameters	5
Building Damage	6
General Building Stock	
Essential Facilities Damage	
Induced Flood Damage	8
Debris Generation	
Social Impact	8
Shelter Requirements	
Economic Loss	9
Building-Related Losses	
Appendix A: County Listing for the Region	10
Appendix B: Regional Population and Building Value Data	11

General Description of the Region

Hazus is a regional multi-hazard loss estimation model that was developed by the Federal Emergency Management Agency (FEMA) and the National Institute of Building Sciences (NIBS). The primary purpose of Hazus is to provide a methodology and software application to develop multi-hazard losses at a regional scale. These loss estimates would be used primarily by local, state and regional officials to plan and stimulate efforts to reduce risks from multi-hazards and to prepare for emergency response and recovery.

The flood loss estimates provided in this report were based on a region that included 1 county(ies) from the following state(s):

- New York

Note:
Appendix A contains a complete listing of the counties contained in the region.

The geographical size of the region is 648 square miles and contains 3,868 census blocks. The region contains over 26 thousand households and has a total population of 63,096 people (2010 Census Bureau data). The distribution of population by State and County for the study region is provided in Appendix B.

There are an estimated 29,767 buildings in the region with a total building replacement value (excluding contents) of 8,854 million dollars (2010 dollars). Approximately 97.97% of the buildings (and 77.35% of the building value) are associated with residential housing.

Building Inventory

General Building Stock

Hazus estimates that there are 29,767 buildings in the region which have an aggregate total replacement value of 8,854 million (2010 dollars). Table 1 and Table 2 present the relative distribution of the value with respect to the general occupancies by Study Region and Scenario respectively. Appendix B provides a general distribution of the building value by State and County.

Table 1
Building Exposure by Occupancy Type for the Study Region

Occupancy	Exposure ($1000)	Percent of Total
Residential	6,848,970	77.4%
Commercial	1,160,901	13.1%
Industrial	327,136	3.7%
Agricultural	98,531	1.1%
Religion	152,946	1.7%
Government	120,272	1.4%
Education	145,278	1.6%
Total	**8,854,034**	**100.00%**

Table 2
Building Exposure by Occupancy Type for the Scenario

Occupancy	Exposure ($1000)	Percent of Total
Residential	1,924,686	79.0%
Commercial	269,748	11.1%
Industrial	129,770	5.3%
Agricultural	26,423	1.1%
Religion	34,909	1.4%
Government	33,866	1.4%
Education	16,958	0.7%
Total	**2,436,360**	**100.00%**

Essential Facility Inventory

For essential facilities, there are 1 hospitals in the region with a total bed capacity of 192 beds.
There are 26 schools, 27 fire stations, 6 police stations and no emergency operation centers.

Flood Scenario Parameters

Hazus used the following set of information to define the flood parameters for the flood loss estimate provided in this report.

Study Region Name:	Columbia
Scenario Name:	Flood_100Yr
Return Period Analyzed:	100
Analysis Options Analyzed:	No What-Ifs

General Building Stock Damage

Hazus estimates that about 91 buildings will be at least moderately damaged. This is over 4% of the total number of buildings in the scenario. There are an estimated 23 buildings that will be completely destroyed. The definition of the 'damage states' is provided in Volume 1: Chapter 5 of the Hazus Flood Technical Manual. Table 3 below summarizes the expected damage by general occupancy for the buildings in the region. Table 4 summarizes the expected damage by general building type.

Table 3: Expected Building Damage by Occupancy

	1-10		11-20		21-30		31-40		41-50		Substantially	
Occupancy	**Count**	**(%)**	**Count**	**(%)**	**Count**	**(%)**	**Count**	**(%)**	**Count**	**(%)**	**Count**	**(%)**
Agriculture	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Commercial	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Education	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Government	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Industrial	0	0.00	1	100.00	0	0.00	0	0.00	0	0.00	0	0.00
Religion	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Residential	0	0.00	5	5.56	7	7.78	27	30.00	28	31.11	23	25.56
Total	**0**		**6**		**7**		**27**		**28**		**23**	

Table 4: Expected Building Damage by Building Type

Building Type	1-10		11-20		21-30		31-40		41-50		Substantially	
	Count	**(%)**	**Count**	**(%)**	**Count**	**(%)**	**Count**	**(%)**	**Count**	**(%)**	**Count**	**(%)**
Concrete	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
ManufHousing	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	5	100.00
Masonry	0	0.00	0	0.00	0	0.00	1	100.00	0	0.00	0	0.00
Steel	0	0.00	1	100.00	0	0.00	0	0.00	0	0.00	0	0.00
Wood	0	0.00	5	5.95	7	8.33	26	30.95	28	33.33	18	21.43

Essential Facility Damage

Before the flood analyzed in this scenario, the region had 192 hospital beds available for use. On the day of the scenario flood event, the model estimates that 192 hospital beds are available in the region.

Table 5: Expected Damage to Essential Facilities

		# Facilities		
Classification	Total	At Least Moderate	At Least Substantial	Loss of Use
Fire Stations	27	0	0	0
Hospitals	1	0	0	0
Police Stations	6	0	0	0
Schools	26	1	0	1

If this report displays all zeros or is blank, two possibilities can explain this.

(1) None of your facilities were flooded. This can be checked by mapping the inventory data on the depth grid.

(2) The analysis was not run. This can be tested by checking the run box on the Analysis Menu and seeing if a message box asks you to replace the existing results.

Induced Flood Damage

Debris Generation

Hazus estimates the amount of debris that will be generated by the flood. The model breaks debris into three general categories: 1) Finishes (dry wall, insulation, etc.), 2) Structural (wood, brick, etc.) and 3) Foundations (concrete slab, concrete block, rebar, etc.). This distinction is made because of the different types of material handling equipment required to handle the debris.

Analysis has not been performed for this Scenario.

Social Impact

Shelter Requirements

Hazus estimates the number of households that are expected to be displaced from their homes due to the flood and the associated potential evacuation. Hazus also estimates those displaced people that will require accommodations in temporary public shelters. The model estimates 611 households will be displaced due to the flood. Displacement includes households evacuated from within or very near to the inundated area. Of these, 543 people (out of a total population of 63,096) will seek temporary shelter in public shelters.

Economic Loss

The total economic loss estimated for the flood is 118.65 million dollars, which represents 4.87 % of the total replacement value of the scenario buildings.

Building-Related Losses

The building losses are broken into two categories: direct building losses and business interruption losses. The direct building losses are the estimated costs to repair or replace the damage caused to the building and its contents. The business interruption losses are the losses associated with inability to operate a business because of the damage sustained during the flood. Business interruption losses also include the temporary living expenses for those people displaced from their homes because of the flood.

The total building-related losses were 118.29 million dollars. 0% of the estimated losses were related to the business interruption of the region. The residential occupancies made up 56.24% of the total loss. Table 6 below provides a summary of the losses associated with the building damage.

Table 6: Building-Related Economic Loss Estimates

(Millions of dollars)

Category	Area	Residential	Commercial	Industrial	Others	Total
Building Loss						
	Building	43.22	5.92	5.35	1.57	56.06
	Content	23.50	16.94	13.32	6.93	60.69
	Inventory	0.00	0.25	1.17	0.14	1.55
	Subtotal	**66.71**	**23.11**	**19.84**	**8.64**	**118.29**
Business Interruption						
	Income	0.00	0.03	0.00	0.00	0.03
	Relocation	0.01	0.00	0.00	0.00	0.02
	Rental Income	0.00	0.00	0.00	0.00	0.00
	Wage	0.00	0.03	0.00	0.27	0.31
	Subtotal	**0.02**	**0.06**	**0.00**	**0.27**	**0.35**
ALL	**Total**	**66.73**	**23.17**	**19.84**	**8.91**	**118.65**

Appendix A: County Listing for the Region

New York

- Columbia

Appendix B: Regional Population and Building Value Data

		Building Value (thousands of dollars)		
	Population	Residential	Non-Residential	Total
New York				
Columbia	63,096	6,848,970	2,005,064	8,854,034
Total	**63,096**	**6,848,970**	**2,005,064**	**8,854,034**
Total Study Region	**63,096**	**6,848,970**	**2,005,064**	**8,854,034**

Shelter Summary Report

February 11, 2015

	# of Displaced People	# of People Needing Short Term Shelter
New York		
Columbia	1,832	543
Total	**1,832**	**543**
Scenario Total	**1,832**	**543**

Totals only reflect data for those census tracts/blocks included in the user's study region and will reflect the entire county/state only if all of the census blocks for that county/state were selected at the time of study region creation.

Study Region: Columbia
Scenario: Flood_100Yr
Return Period: 100

Direct Economic Losses for Buildings

CR version: 11.5.12

February 11, 2015

All values are in thousands of dollars

	Capital Stock Losses				Income Losses				
	Building Loss	Contents Loss	Inventory Loss	Building Loss Ratio %	Relocation Loss	Capital Related Loss	Wages Losses	Rental Income Loss	Total Loss
New York									
Columbia	56,056	60,690	1,547	2.30	16	31	307	0	118,647
Total	**56,056**	**60,690**	**1,547**	**2.30**	**16**	**31**	**307**	**0**	**118,647**
Scenario Total	**56,056**	**60,690**	**1,547**	**2.30**	**16**	**31**	**307**	**0**	**118,647**

Totals only reflect data for those census tracts/blocks included in the user's study region and will reflect the entire county/state only if all of the census blocks for that county/state were selected at the time of study region creation.

Study Region: Columbia
Scenario: Flood_100Yr
Return Period: 100



Columbia County, New York

Appendix H

Historical Resources

MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN

April 2018

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APPENDIX H - Historic Resources in Columbia County

Columbia County Properties/Districts on the National Register of Historic Places

Property Name	Address	Location	Date Listed
Bouwerie	Buckwheat Bridge Rd	Clermont	11/7/1983
Blinn-Pulver Farmhouse	219 Hudson Ave	Chatham	2/12/2003
Brodhead, Thomas,	US 9	Clermont	10/7/1983
Bronson, Dr. Oliver House	West of US 9	Hudson	7/31/2009
Bronson, Dr. Oliver and Stable	South of Hudson off US 9	Hudson	2/20/1973
Church of Our Saviour	NY 22, junction with US 20	New Lebanon	2/14/1997
Church of St. John in the Wilderness	Junction of NY 344 and Valley View Rd	Copake	8/10/1995
Church of St. John the Evangelist	Chittenden Rd	Stockport	4/13/1972
Clarkson Chapel	NY 9G	Clermont	10/7/1983
Claverack Free Library	629 NY 23B	Claverack	1/7/1998
Clermont	Clermont State Park	Germantown	2/18/1971
Clermont Academy	US 9	Clermont	10/7/1983
Clermont Civic Historic District	1795 US 9	Clermont	7/3/2003
Clermont Estates Historic District	S of Germantown	Germantown	5/7/1979
Columbia Turnpike-West Tollhouse	NY 23B	Greenport	12/28/2000
Coons House	NY 9G	Clermont	10/7/1983
Copake Grange Hall	Empire Rd, south of Old Rte 22	Copake	7/3/2001
Copake Iron Works Historic District	Taconic State Park	Copake	4/18/2007
Copake United Methodist Church	Church Street	Copake	6/27/2007
Crow Hill	Junction of NY 9H and Co Rte 21	Kinderhook	5/9/1997
Dick House	641 Co. Rte 8	Germantown	7/29/2009
Donnelly House	Cty Rd 5	New Lebanon	8/2/2000
Dr. Joseph P Dorr House	2745 NY 23	Hillsdale	10/31/2007
Double-Span Whipple Bowstring Truss Bridge	Van Wyck Lane	Claverack	4/17/1980
Henry and Evanlina Dubois House	105 Ten Broeck Ln	Hudson	12/6/2004
Emmanuel Lutheran Church of	Cty 21 and Pheasant	Harlemville	1/24/2002

Columbia County Properties/Districts on the National Register of Historic Places

Property Name	Address	Location	Date Listed
Harlemville	Ln		
Cornelius Evans House	414-416 Warren St	Hudson	11/1/1974
George Felpel House	60NY 9H	Claverack	8/21/1997
First Columbia County Courthouse	549 NY 23B	Claverack	1/7/1998
First Presbyterian Church	Church Street	Valatie	9/7/1979
Forth House	2751 US 9	Livingston	6/11/2010
Front Street-Parade Hill-Lower Warren Street Historic District	Front and Warren Sts	Hudson	3/5/1970
German Reformed Sanctity Church Parsonage	Maple Ave	Germantown	1/30/1976
Elisha Gilbert House	US 20	New Lebanon	9/7/1984
Hickory Hill	Buckwheat Bridge Rd	Clermont	10/7/1983
Hillsdale Hamlet Historic District	NY 22 and NY 23	Hillsdale	1/27/2010
Stephen Hogeboom House	562 NY 23B	Claverack	8/21/1997
House at New Forge	128 New Forge Rd	New Forge	12/14/1987
House at 37-47 North Fifth St	37-47 Fifth St	Hudson	11/15/2003
Hudson Almshouse	400 State St	Hudson	9/19/2008
Hudson Historic District	Warren and State Sts	Hudson	10/21/1985
Hudson River Heritage District	E side of Hudson	Germantown	12/14/1990
Hudson/Athens Lighthouse	South of Middle Grounds Flats	Hudson	5/29/1979
Dr. Abram Jordan House	137 NY 23	Claverack	9/9/1999
Kinderhook Village District	Both sides of US 9	Kinderhook	7/24/1974
Knollcroft	CR 9	New Concord	8/14/1985
Lace House	NY 22 and Miller Rd	Canaan	2/21/1985
Lebanon Spring Union Free School	NY 22 east of the junction with Cemetery Rd	New Lebanon	11/21/1991
Linlithgo Reform Church of Livingston	447 Church Rd	Livingston	2/1/2006
Livingston Memorial Church	CR 10 and Wire Rd	Livingston	9/12/1985
Henry W Livingston House	N of Bell's Pond	Livingston	2/18/1971
William Henry Ludlow House	465 NY 23B	Claverack	8/8/1997
Ludlow-Van Rensselaer House	465 NY 23B	Claverack	8/21/1997
Lynch Hotel	41 Ferry Rd	Stuyvesant	6/10/2005
James Lynch House	33 Ferry Rd	Stuyvesant	11/13/2009

Columbia County Properties/Districts on the National Register of Historic Places

Property Name	Address	Location	Date Listed
Melius-Bentley House	North of Pine Plains on Mt Ross Rd	Ancram	8/11/1982
Mellenville Railroad Station	NY 217	Mellenville	9/29/2000
Jacob Mesick House	68 Van Wyck Ln	Claverack	8/21/1997
Harmon Miller House	6109 9H	Claverack	8/8/1997
Stephen Miller House	114 NY 23	Claverack	8/8/1997
Mount Lebanon Shake Society	US 20	New Lebanon	10/15/1966
Cornelius Muller House	602 NY 23B	Claverack	8/8/1997
New Concord Historic District	Co Rte 9	New Concord	1/19/2010
North Chatham Historic District	NY 203	Chatham	9/4/2010
North Hillsdale Methodist Church	1012 Rte 21	Hillsdale	10/1/2010
Oak Hill	North of Linglithgo on Oak Hill Rd	Linlithgo	6/26/1979
Olana	Church Hill	Church Hill	10/15/1966
Old Parsonage	Buckwheat Bridge Rd	Clermont	10/7/1983
Peck House	NY 203	Chatham	7/22/1999
Harriet Phillips Bungalow	438 NY 23B	Claverack	8/21/1997
Pine View Farm	567 Collins St	Hillsdale	6/6/2002
Rev Dr. Elbert S Porter House	6163 NYS Rte 9H	Claverack	8/21/1997
Pratt Homestead	866 Rte 203	Spencertown	11/13/2009
William and Victoria Pulver House	2329 Ct Rte 8	Snyderville	4/6/2005
Reformed Dutch Church of Claverack	NY 9H	Claverack	6/21/2001
Requa House	9 Requa Rd	Stuyvesant	11/15/2002
Richmond Hill	CR31	Livingston	7/6/1988
Riders Mills Historic District	NY 66, Bachus Rd	Chatham	8/2/2000
Simeon Rockerfeller House	524 Columbia Rte 8	Germantown	7/2/2009
Rossman-Propsect Avenue Historic District	Prospect and Rossman Ave	Hudson	11/21/1985
Rowe-Lant Farm	983 NY 395	Chatham	3/23/2010
R and W Scott Ice Cream Powerhouse	River Rd	Stuyvesant	2/21/1985
Silvernail Homestead	383 Poole Hill Rd	Ancram	6/11/2010
Simons General Store	Ancram Sq	Ancram	4/23/1973
Sixteen Mile District	West of Clermont	Clermont	3/7/1979
Snyderville Schoolhouse	Cty Rd 8	Snyderville	7/28/2004

Columbia County Properties/Districts on the National Register of Historic Places

Property Name	Address	Location	Date Listed
Spencer Academy	NY 203	Spencertown	4/3/1973
Spengler Bridge	Spengler rd	Chatham	2/23/1973
St. John's Luther Church	1273 Co Rte 7	Ancram	6/30/2009
St. John's Evangelical Lutheran Church	923 NY 19	Livingston	1/11/2002
St. Luke's Church	US 9	Clermont	10/7/1983
St. Peter's Presbyterian Church	Cty Rte 7	Spencertown	8/2/2002
Steepletop	Northeast of Austerlitz	Austerlitz	11/11/1971
Stone Jug	South of Germantown on NY 9G	Germantown	4/20/1978
Stephen Storm House	51 NY 217	Claverack	1/7/1998
Stuyvesant Falls Mill District	New St and SR 23	Stuyvesant	9/15/1976
Stuyvesant Railroad Station	Riverview Ave	Stuyvesant	1/27/1999
Teviotdale	Wire Rd	Linlithgo	10/10/1979
Trinity Episcopal Church	601 NY 23B	Claverack	9/2/1997
Turtle House	14 Fabiano blvd	Greenport	4/2/2001
Union Station	NY 66 and NY 295	Chatham	5/1/1974
US Post office - Hudson	402 Union St	Hudson	11/17/1988
Johannis L Van Alen Farm	School House Rd	Stuyvesant	4/26/1973
Martin van Buren National Historic Site	NY 9H	Kinderhook	12/24/1967
Jan van Hoesen House	NY 66	Claverack	8/1/1997
Van Resselaer Lower Manor House	103 NY 23B	Claverack	8/8/1997
Henry Van Rensselaer House	Yates Rd and NY 9H/23	Greenport	9/16/1982
Jacob Rutsen Van Rensselaer House	NY 23	Claverack	9/9/1982
Van Salsbergen House	333 Joslen Blvd	Hudson	11/10/2010
James Van Valkenburgh House	31 Co Rd 13	Chatham	4/11/2002
Van Valkenburgh-Isbister Farm	1129-1142 Rte 22	Ghent	4/12/2006
The Wilbor House	0.25 miles northeast of I-90 and Thorne Rd	Chatham	6/30/1997
Wild's Mill Complex	US 9 and NY 203	Valatie	6/14/1982
Nathan Wild House	3007 Main	Valatie	5/30/1991
Elisha Williams House	7 Aitkin Ave	Hudson	12/9/1999

Columbia County Properties/Districts on the National Register of Historic Places

Property Name	Address	Location	Date Listed
John S Williams House	Shake Museum rd	Chatham	12/16/1996
Oliver Wiswall House	West of Hudson	Hudson	9/4/1980
William Witbeck House	Co Rd 26A	Stuyvesant	12/12/1994
Mount Lebanon Shake Society	US 20	New Lebanon	10/15/1966
Cornelius Muller House	602 NY 23B	Claverack	8/8/1997
New Concord Historic District	Co Rte 9	New Concord	1/19/2010



Columbia County, New York

Appendix I

Status of 2008 Actions

MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN

April 2018

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Current Plan Strategy ID (if applicable)	Jurisdiction	Mitigation Activity	Goals Supported/ Hazard(s) Addressed	Priority	Cost	Benefit	Timeframe for Implementation	Responsible Agency or Jurisdiction	Status/Reason Removed
PPL-1	Countywide	Implement building codes to encourage disaster resistant construction for new structures and renovations to existing structures	1 – All Hazards	High	L	H	ASAP	Building departments of all jurisdictions countywide	Carryover
N/A	Countywide	Public preparedness information campaign	2 – All Hazards	High	L	H	ASAP	CCEMO	Removed from all jurisdictions as this is not a mitigation action
PPL-2	Countywide	Implement zoning to discourage building new structures in disaster prone areas	1 – All Hazards	High	L	H	ASAP	Legislatures of all jurisdictions countywide	Carryover
PPL-5	Town of Ancram	Snow fencing on Carson Road to ease snow removal	1 – Winter Storm (Severe)	Moderate	L	H	Within 6 months of plan implementation	Ancram Highway Department	Carryover
PPL-6	Town of Ancram	Snow fencing on Sawchuck Road to ease snow removal	1 – Winter Storm (Severe)	Moderate	L	H	Within 6 months of plan implementation	Ancram Highway Department	Carryover
PPL-7	Town of Ancram	Snow fencing on SR 22 to ease snow removal	1 – Winter Storm (Severe)	Moderate	L	H	Within 6 months of plan implementation	Ancram Highway Department	Carryover

PPL-8	Town of Austerlitz	Reinforce bridges over the Green River to prevent damage from Flooding	1 – Flood	Low	M	H	Within 1 year of plan implementation	Austerlitz Highway Department	Ongoing
PPL-9	Town of Chatham	Clear debris in sluiceway to improve drainage and alleviate road flooding	1 – Flood	Moderate	M	M	Within 6 months of plan implementation	Chatham Highway Department	Carryover
N/A	Town of Claverack	Improve drainage on all roads in floodplain	1 – Flood	Low	M	M	Within 1 year of plan implementation	Claverack Highway Department	Completed
N/A	Town of Gallatin	Public preparedness and flood zone danger information campaign	2 – All Hazards, Flood	High	L	H	ASAP	CCEMO	Not selected for 2017 Plan Update
N/A	Town of Greenport	Build berm around sewer plant to eliminate flooding	1, 4 – Flood	Low	H	H	Within 1 year of plan implementation	Greenport Sewer Department	Not selected for 2017 Plan Update
N/A	Town of Ghent	Flood Control projects (concrete)	1 – Flood	Low	H	M	Within 1 year of plan implementation	Ghent Highway Department	Not selected for 2017 Plan Update
N/A	Town of Hillsdale	Pave Harlemville Road to improve drainage and alleviate road flooding	1 – Flood, Winter Storm (Severe)	Low	H	M	Within 1 year of plan implementation	Hillsdale Highway Department	Not selected for 2017 Plan Update
N/A	Town of Hillsdale	Pave Pumpkin Hill Rd to improve drainage and alleviate road flooding	1 – Flood, Winter Storm (Severe)	Low	H	M	Within 1 year of plan implementation	Hillsdale Highway Department	Not selected for 2017 Plan Update

N/A	Town of Hillsdale	Pave Rodman Road to improve drainage and alleviate road flooding	1 – Flood, Winter Storm (Severe)	Low	H	M	Within 1 year of plan implementation	Hillsdale Highway Department	Not selected for 2017 Plan Update
N/A	Town of Hillsdale	Pave Pheasant Lane to improve drainage and alleviate road flooding	1 – Flood, Winter Storm (Severe)	Low	H	M	Within 1 year of plan implementation	Hillsdale Highway Department	Not selected for 2017 Plan Update
N/A	Town of Hillsdale	Pave Herrington Rd to improve drainage and alleviate road flooding	1 – Flood, Winter Storm (Severe)	Low	H	M	Within 1 year of plan implementation	Hillsdale Highway Department	Not selected for 2017 Plan Update
N/A	Town of Hillsdale	Pave Phudd Hill to improve drainage and alleviate road flooding	1 – Flood, Winter Storm (Severe)	Low	H	M	Within 1 year of plan implementation	Hillsdale Highway Department	Not selected for 2017 Plan Update
N/A	Town of Hillsdale	Pave Lockwood Road to improve drainage and alleviate road flooding	1 – Flood, Winter Storm (Severe)	Low	H	M	Within 1 year of plan implementation	Hillsdale Highway Department	Not selected for 2017 Plan Update
N/A	Town of Hillsdale	Pave Hereford Hills to improve drainage and alleviate road flooding	1 – Flood, Winter Storm (Severe)	Low	H	M	Within 1 year of plan implementation	Hillsdale Highway Department	Not selected for 2017 Plan Update
N/A	Town of Hillsdale	Pave Texas Hill Rd to improve drainage and alleviate road flooding	1 – Flood, Winter Storm (Severe)	Low	H	M	Within 1 year of plan implementation	Hillsdale Highway Department	Not selected for 2017 Plan Update
PES-15	Town of Kinderhook	Generator for highway garage to ensure continued operations through a power outage	1, 4 - All Hazards	Moderate	L	H	Within 6 months of plan implementation	Kinderhook Highway Department	Carryover

PPL-29	Town of Livingston	Repair sluiceway/culvert on Roe-Jan Creek at Rt. 9 and Buckwheat Road to eliminate and alleviate road flooding	1 – Flood	Low	M	H	Within 1 year of plan implementation	Livingston Highway Department	Carryover
PPL-11	Town of New Lebanon	Flood control (concrete beds) on Wyomanock Creek	1 – Flood	Low	H	M	Within 1 year of plan implementation	New Lebanon Highway Department	Carryover
PPL-12	Town of New Lebanon	Flood control (concrete beds) on Kinderhook Creek	1 – Flood	Low	H	M	Within 1 year of plan implementation	New Lebanon Highway Department	Carryover
PES-7	Town of Stockport	Trim trees by power company house	1,4 – Severe Storm, Winter Storm (Severe), Tornado	Moderate	M	H	Within 6 months of plan implementation	Stockport Highway Department	Ongoing
N/A	Town of Taghkanic	New Culverts to eliminate and alleviate road flooding	1 – Flood	Low	M	H	Within 1 year of plan implementation	Taghkanic Highway Department	Not selected for 2017 plan update
PES-6	Village of Chatham	Generator at Sewer plant to ensure continued treatment of sewage through a power outage	1, 4 – All Hazards	Moderate	L	H	Within 6 months of plan implementation	Chatham Sewer Department	Carryover
PES-17	Village of Valatie	Improve sewers to eliminate infiltration from storm waters	1, 4 – Flood	Low	H	H	Within 1 year of plan implementation	Valatie Sewer Department	Ongoing

EP-1	Countywide	Collect additional information to fill any existing data gaps in this plan	1, 3 – All Hazards	High	L	H	During first plan revision cycle	CCEMO	Ongoing



Columbia County, New York

Appendix J

Shelter Plan

MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN

April 2018

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COLUMBIA COUNTY

EMERGENCY SHELTER PLAN

APPENDIX TO THE COLUMBIA COUNTY COMPREHENSIVE EMERGENCY MANAGEMENT PLAN

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The information contained in this document is For Official Use Only (FOUO). No information from this document shall be released when such release would jeopardize the efforts to prepare for an emergency, and thereby endanger the lives of the people of Columbia County.

Draft Last Revised: March 17, 2014

Columbia County, NY

Table of Contents

Attachments and Appendix	pg 3
Executive Summary	pg 4
Acknowledgement	pg 4
Plan Storage	pg 4
Plan Distribution	pg 5
Evaluation and Update Cycle	pg 5
Legal Authority to Administer the Plan	pg 6
Situation	pg 6
Assumptions	pg 7
Concept of Operations	pg 8
Background of Columbia County	pg 13
Types and Models of Shelters	pg 18
Choosing a Site to Serve as a Shelter	pg 19
Coordinating Shelter Operations	pg 19
Opening a Shelter	pg 19
Shelter Staffing	pg 20
Shelter Setup	pg 20
Shelter Security	pg 21
Transporting People to Emergency Shelters	pg 22
Registration of Shelter Residents	pg 22
Resources and Supplies	pg 22
Medical Staff, Services, and Medications	pg 23
Shelter Reporting	pg 24
Pet Sheltering Plans	pg 24
Service Animals	pg 24
Unaccompanied Minors	pg 25
Shelter Rules	pg 25
Shelter Briefing	pg 26
Quiet Area, Family Area, & Private Area	pg 26
Shelter Hygiene & Infection Control	pg 26
Food Operations	pg 29
Janitorial	pg 30
Laundry Services	pg 31
Building Maintenance & Engineering	pg 32
Miscellaneous	pg 32
Communicating with the Press	pg 33
Transition from Shelter	pg 33
Closing Shelter	pg 34
Communicating the Opening and Closing of Shelters	pg 34
Post-Emergency Evaluation and Improvement	pg 34
Cost Reimbursement	pg 34
Resources Cited and Consulted	pg 35

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Attachments to the Plan

Number	Title
1	Record of Shelter Plan Distribution and Receipt
2	County Officials Review & Approval Record
3	Shelter Plan Review and Revision Record
4	NYS Executive Law Article 2B 2010
5	Agency Responsibilities Related to Emergency Sheltering
6	Shelter Activation Procedure (Flow Chart)
7	Shelter Activation and Staffing Algorithm
8	Checklist for Transportation to Shelters
9	FEMA FNSS Guidance
10	Vulnerable Groups for Emergency Sheltering
11	Columbia County Camp List
12	Columbia County Shelter Sites
13	Shelter Facility Survey
14	MOU template for Shelters
15	Shelter Staff Sign-in/out
16	Shelter Signs
17	MOU Template for Transportation
18	Sheltering Client Sign-In
19	ARC – HHS Medical Assessment Form
20	Special Medical Needs Registration Form
21	Signs and Symptoms of Post Traumatic Stress
22	Shelter Reporting Log
23	Saving the whole Family – Pets, Equine, Livestock
24	Shelter Rules
25	CDC Cover Your Cough Poster
26	CCDOH Hand Washing Poster
27	Columbia County Transport Services
28	Shelter Exit Survey

Appendix to the Plan

1	ADA Checklist for Shelters
2	ARC Shelter Operations Management Toolkit
3	ARC FNSS Description
4	NYS FNSS Overview
5	Public Law Pets and Emergencies
6	Food Operations Resources
7	COARC Site Listing
8	MOU Hudson City Schools
9	Shelter Project Committee Members
10	Town Supervisors Contact Information
11	Contacts for Emergency Sheltering
12	CCDOH Volunteer Activation Plan

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Executive Summary

- The Columbia County Emergency Shelter Plan developed from the recognition on the part of local officials that a comprehensive plan is needed to address Columbia County's ability to shelter the public during an emergency or disaster.

- This plan is an appendix and integral part of Columbia County's Comprehensive Emergency Management Plan (CEMP).

- This plan outlines procedures and protocols for emergency shelter operations within Columbia County. Emergency Shelter Operations is to provide temporary emergency relief to disaster victims. Providing temporary emergency relief involves a range of emergency human services (e.g., food, shelter, health care, mental health support, etc.).

- This plan is a working document subject to changes based on community needs and experiences from exercises and emergencies.

- The plan is classified as "For Official Use Only" (FOUO), and as such, should be handled as sensitive information to be disclosed only to those agencies which will need to utilize the plan to protect the people of Columbia County.

Acknowledgment

- The Columbia County Emergency Shelter Planning Committee was assembled in December of 2011 and the members worked cooperatively to prepare this plan.

- The committee includes the following government agencies and Community Based Organizations (CBOs): CC Department of Health, CC Social Services, CC Human Services, CC Office of Emergency Management, CC Sheriff, CC Fire Coordinator, CC Office for the Aging, American Red Cross of Northeastern New York, Columbia Memorial Hospital, Columbia-Greene Humane Society, and COARC.

Plan Storage

- Up-to-date versions (electronic and hard copy) of this plan will be stored in two main locations: the Columbia County Emergency Management Office (EMO) and the Columbia County Department of Health (CCDOH).

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Plan Distribution

- This plan will be distributed to all committee agencies, and as necessary, to other agencies which play a role in emergency sheltering (i.e. Columbia County Emergency Medical Services (EMS), NYS Department of Health, and the NYS Office of Emergency Management).

- CCDOH will be responsible for distributing the plan and will keep an accurate record of distribution **(Attachment 1)** each time the plan is distributed.

- The Columbia County Emergency Management Director, the Columbia County DOH Director, the county BOH Chair, the Health Committee Chair, the Public Safety Committee Chair, and the Chairperson of the Board of Supervisors will review and sign off on the plan. Signatures will be obtained to provide evidence of review and approval **(Attachment 2).**

Evaluation and Update Cycle

- The body of the plan will undergo a comprehensive evaluation and update every three years. However, time sensitive information and contact information will be updated as needed and at least annually.

- Representatives from at least four of the agencies on the Emergency Sheltering Planning Committee will conduct the reviews.

- The plan will be revised and updated as new or additional information becomes available. Changes will be made based on experiences from drills, training, and real-life events, as indicated by After Action Reports and Improvement Plans (AAR/IPs).

- A record of revisions will be kept **(Attachment 3).**

- Representatives from the Columbia County Emergency Shelter Planning Committee will brief all the individuals noted in bullet point three of the above Plan Distribution section on revisions made to this plan.

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Legal Authority to Administer the Plan

- New York State Executive Law Article 2-B **(Attachment 4)** states that it is each municipality's responsibility to conduct emergency sheltering.

- The local chief executive may declare a state of emergency and must provide for "the establishment or designation of emergency shelters, emergency medical shelters, and in consultation with the state commissioner of health, alternate medical care sites." This also includes having a plan for "coordinated evacuation procedures, including the establishment of temporary housing and other necessary facilities; utilization and coordination of programs to assist individuals with household pets and service animals following a disaster, with particular attention to means of evacuation, shelter and transportation options." (New York State Executive Law Article 2-B).

- The Pets Evacuation and Transportation Standards Act of 2006 requires that the State and local emergency preparedness officials include how they will accommodate households with pets or service animals when presenting shelter plans to FEMA (Federal Emergency Management Agency). This law is important because past disasters, like Hurricane Katrina, demonstrated that many people will choose to risk their own lives in order to remain with their pets.

- The following laws require emergency shelters to accommodate people with functional support service needs (these services to be explained further in the plan) and integrate those populations into general population shelters:
  - Americans with Disabilities Act (ADA)
  - The Rehabilitation Act of 1973
  - The Civil Rights Act of 1968
  - The Architectural Barriers Act of 1968
  - The Homeland Security Act of 2002
  - The Post-Katrina Emergency Management Reform Act
  - Older Americans Act (OAA), Sections 306(b)3, 306(a), 306(a)17, 307(a), 307(a)30
  - Pandemic and All-Hazards Preparedness Act (PAHPA), 2006

Situation

- Columbia County is responsible to coordinate/provide for shelter operations to protect the people of the county. (See **Attachment 5** – Agency Responsibilities)

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- The Columbia County Emergency Management Office (EMO) will coordinate emergency sheltering for people in Columbia County.

- There are various emergencies for which emergency shelters may be required including, but not limited to: extended power outages, severe storms, and flooding.

- Specific shelter sites will be used depending on geographic area of impact and type of situation/emergency. Some memoranda of understanding (MOUs) and agreements exist and others are being developed.

- The county EMO will provide shelter clients occupants with public information on the status of the event and the anticipated duration of their stay if applicable.

Assumptions

- **The responsibility for care and shelter belongs to local government**. However, the American Red Cross and Salvation Army, along with other Community Based Organizations (CBOs) and volunteer agencies, may assist local government as partners in delivering these services

- **Columbia County may not receive outside assistance (or assistance may be delayed)** from other agencies such as the American Red Cross, the New York State Emergency Management Office, the New York State Department of Health, or others.

- In the immediate days after a major disaster, **neighborhood organizations and local congregations will emerge to provide care and shelter support** independent of local government. Local government will need to coordinate care and shelter services with those groups that emerge spontaneously.

- **Some degree of mutual aid from Local, State, and Federal areas unaffected by the incident will be provided if available**. However, expect resources to be extremely limited the first few days following a disaster where there has been widespread damage. Local jurisdictions will fare better in the short term by developing their own local resource base.

- **In a major disaster, the American Red Cross will require an influx of resources from outside the area to be operational.** Therefore, it may be upwards of 5 days before the Red Cross can assume a primary care and shelter role.

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- **Many evacuees will seek shelter with friends or relatives rather than go to a public shelter.** Depending on the emergency, an average of 13% of a population will go to a public shelter. This may vary depending on time of year, temperature and type of incident. (Interactive Emergency Evacuation Guidebook, 2006, John Sorensen, PH.D, Barbara Voht, PH.D, ***Destinations of evacuees***).

- **Many residents who suffer some structural damage to their home, following a major disaster, will choose to remain on their property** (i.e., camp-out), versus going to a public disaster shelter. Yet, they will still have needs and expectations for disaster assistance from local government.

- **A disaster that occurs while school is in session may require the school to become a temporary shelter for its student population**. Either an alternative shelter is needed for the general population, or the County EMO may have to identify a separate area for the general public within the school building so that two separate shelter operations are occurring simultaneously.

- **Essential public and private services will continue during shelter and mass care operations**. However, for a major disaster that generates a very large-scale shelter operation, normal activities at schools, community centers, churches and other facilities used as shelter sites will be curtailed.

- **Some displaced residents will converge on public parks and open spaces**, as an alternative to using indoor mass care shelters.

- **Pet owners could be deterred from evacuation to a shelter** unless the safety of their pets is secured.

- **Livestock may require specialized skills and equipment** to be safety evacuated which could delay or deter farmers from evacuating to a shelter

Concept of Operations

- Columbia County will work with the American Red Cross in helping to fulfill the County's legal responsibility of providing care and shelter for its citizens in a disaster. The partnership requires that local government and the American Red Cross work cooperatively during the preparedness phase to clarify roles and responsibilities (as outlined below on pages 11 & 12). Columbia County may also work in cooperation with other volunteer disaster assistance organizations to provide disaster relief.

- Columbia County will use the Incident Command System (ICS) to coordinate emergency response in the county, including sheltering operations (**Attachment 6)** Shelter Activation Procedure Flow Chart).

- The County Emergency Management Office, in cooperation with a representative from the Columbia County Office for the Aging, the Columbia County Department of Health, the Columbia County Fire Coordinator, and the Columbia County EMS Coordinator will determine if, when, and where a shelter will be opened. Depending on the size and scope of the event, the EMO and Shelter operations team will evaluate the resources available to the County at the time. If resources are limited, the EMO will contact the American Red Cross requesting either a Red Cross Managed, Partnered, or Supported response. **(See Attachment 7**

- The Columbia County Fire Coordinator will work with his/her staff and local fire chiefs to activate their respective Red Cross certified shelters and staff. (ie: Churchtown, Tagkanic, Tri-Village) If any other designated shelter is to be opened, the EMO will contact shelter partners (personnel from County agencies, community partners, and If circumstances require that citizens be transported to a shelter, a Columbia County transport service/s will be notified **(Attachment 27)** and the Checklist for Transportation to Shelters will be followed **(Attachment 8)**

- Multiple county agencies in Columbia County such as the CCDSS, CCOFA, CCDOH, CC HSD, CC Sheriff's Office, CC DPW, and CC Facilities, will mutually support shelter operations with shared personnel and support services whenever possible. County employees working in shelter operations are doing so on County time and will receive their normal compensation to include overtime if necessary.

- At Each County supported shelter location, the County will provide contain health/medical support personnel (i.e. a nurse, EMT, PA, or doctor), communications, and security staff.

- Crisis intervention and mental health counseling will be available for shelter occupants by the Columbia County Human Services Department, the Columbia County division of the Salvation Army, or the American Red Cross when needed.

- If additional shelter support is needed by shelter managers, all requests for assistance will be made through the Columbia County Emergency Management Office.

- Public and private providers of institutional care (medical and residential) remain responsible for having shelter plans for their populations.

- Columbia County will not be responsible for unauthorized shelter openings.

- The Columbia County Emergency Management Office, in cooperation with shelter managers, will decide when each Columbia County supported shelter will be closed.

Cooperative Partnership between Columbia County & the American Red Cross

Columbia County will:

1. Develop a Statement of Understanding with the American Red Cross

The statement of understanding helps to solidify the mutual working partnership between the County and the Red Cross. The Red Cross has a standard agreement for this purpose. **(See Attachment .....**

2. Identify and Survey Shelter Facilities

Work with the American Red Cross, school districts and other government agencies to compile an up-to-date list of pre-disaster designated shelters. **See Attachment 12.**

4. Ensure that Agreements are in Place

Memorandums of understanding with designated shelter sites have been developed to clarify terms of use. **(See Attachment 14)**

5. Train Staff to Operate Disaster Shelters

Work with the Red Cross to provide shelter training to County employees and local volunteers who will staff (and especially manage) disaster shelters.

6. Provide Care and Shelter Services

Responsibility for care and shelter belongs to local government. The County will need to initially open and run shelters following a large or countywide disaster. Red Cross may be requested to support shelter functions in one of their various capacities as noted on page ( )

Note: American Red Cross Contact: The Columbia County Regional Program Manager for the Red Cross is Michael Raphael at 518-618-5731.

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The American Red Cross will:

1. Provide Care and Shelter Services as requested *

By congressional mandate and in accordance with its corporate policy, the Red Cross will assist Columbia County in providing the following services:

- Emergency sheltering
- Fixed and mobile feeding
- Mental Health Support
- Disaster Preparedness Education & Shelter Operations Training

* It may be upwards of 5-days before the Red Cross is fully operational to launch these services on a complete countywide basis following a major disaster.

2. Provide No-Cost Shelter Training

The Red Cross will provide a 3-hour simulated Care and Shelter Operations Training class to members of the County's Shelter Response Teams

3. Engage in Cooperative Care and Shelter Planning

The Red Cross will make itself available to representatives of the County to engage in care and shelter planning and preparedness activities.

Additional Emergency Sheltering Partners and Roles

Aside from the American Red Cross, the following are some of the other county or local resources that may be relevant for supporting local government's care and shelter response. All resources will be requested through the county EMO or EOC.

1. County Health Care Services Agency

The County health care service agencies encompass a variety of program areas -- Medical Care, Behavioral Care, Public Health and Environmental Health.

The CCDOH Public Health and Environmental Health divisions will provide the following disaster response functions:

- Act to prevent the spread of communicable disease and any disaster-related illness.
- Make public health nursing services available to disaster shelters.
- Address food and water safety and sanitation issues in shelters.
- Monitor, assess and reports on the community disaster health status.

The Columbia County 911 Center will coordinate the immediate emergency response in a disaster, including emergency medical dispatch, fire, police, and non-emergency ambulance services.

2. County Behavioral Health Care Services

CC Human Services Department will manage the following disaster mental health response functions:

- Assesses and activate the response to disaster mental health issues.
- Make counselors available to shelter facilities to provide mental health services.
- Ensure the continuation of care, treatment and housing for those clients currently residing within the Mental Health System

3. County Social Services Agency (DSS)

DSS will provide a support role for vulnerable county residents that utilize one or more of the following services:

- **Adult Protective Services (APS)** -- services to adults with developmental disabilities, including mentally disabled adults and elderly persons.
- **Child Abuse & Children's Protective Services** -- services for children who are victims of neglect or lack family care (such as without family supervision post disaster).
- **In-Home Supportive Services (IHSS)** -- in-home care services to low income elderly, blind and disabled persons.
- **Emergency Benefits** – Cash assistance
- **SNAP** – Supplemental Nutrition Assistance Program

4. **County Office for the Aging**

The OFA will have support role to the EMO regarding services to seniors and people with disabilities.

5. Community Based Organizations (CBOs)

CBOs that provide direct and ongoing services to persons with special needs during non-disaster times are in the best position to support the recovery of more vulnerable populations following a disaster. Columbia County will reach out to CBOs such as COARC, Mental Health Association of Columbia County, and Faith Based entities.

6. Salvation Army

The Salvation Army may assist with the following services to individuals and families.

- Food provisions
- Clothing distribution

- Counseling
- Vouchers for Furniture replacement

Background of Columbia County, NY

Geography and Neighboring Areas

- Columbia County is located in the Hudson Valley region of eastern New York State. The City of Hudson is the county seat.

- The county contains twenty-three municipalities: the Towns of Ancram, Austerlitz, Canaan, Chatham, Claverack, Clermont, Copake, Gallatin, Germantown, Ghent, Greenport, Hillsdale, Kinderhook, Livingston, New Lebanon, Stockport, Stuyvesant, and Taghkanic, the City of Hudson, and the Villages of Chatham, Kinderhook, Philmont, and Valatie (Figure X). Columbia County covers 648 square miles, or approximately 407,000 acres *(Ecology 2008)*. The county borders Massachusetts and Connecticut. Dutchess County, NY is to the south, Rensselaer County is to the north, and Greene County is across the Hudson River to the west (Figure A).

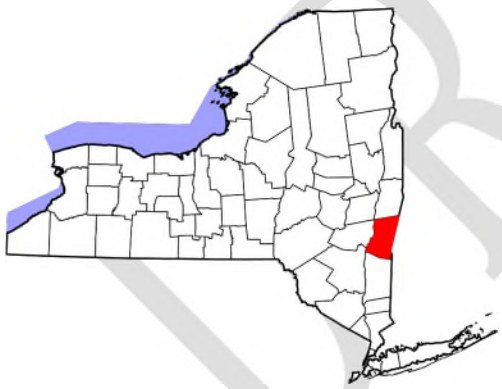


Figure X. Columbia County within NY State

- The county's western border has approximately 30 miles of Hudson River waterfront. The eastern border contains the Taconic and Berkshire mountain ranges, reaching elevations of up to 2,110 ft.

- West of the Taconic Mountains, the county has broad plains and hills, with expansive flood plains and a series of bluffs lining the Hudson River *(Ecology 2008)*.

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Potential Area Hazards

- According to the Columbia County Multi-Jurisdictional Hazard Mitigation Plan (2008), the main potential hazards in the county (assessed for the Hazard Mitigation Plan and rated by the HIRA-NY System, considering factors such as scope, onset, impact, duration, and frequency) include:

Hazard	Score	Level
Severe Storm	279	Moderately High
Tornado	240	Moderately Low
Flood*	232	Moderately Low
Winter Storm (Severe)	187	Moderately Low
Earthquake	182	Moderately Low
Wildfire	151	Low
Dam Failure	138	Low
Landslide	136	Low
Ice Jam	124	Low
Drought	117	Low
Infestation	108	Low

- The following are the hazard score categorizations: High: 321-400; Moderately High: 241-320; Moderately Low: 161-240; Low: 44-160.

- Power outages which may or may not be associated with another emergency are another potential hazard in Columbia County.

Demographics and Special Needs Populations

According United States Census (2013), Columbia County had a population of 62,499. People under five years of age make up 4.6% of the population, those under 18 make up 19.7%, and those age 65 and older make up 18.7%. Between 2007 and 2011, 7.5% of the population spoke a language other than English at home. Between 2007 and 2011, there was an average of 2.35 persons per household. Between 2007 and 2011, 9.3% of the population was below the poverty level. On the weekends and over the summer months, the county has a large influx of people, particularly from New York City and the northern part of the state, who inhabit or visit the county on a seasonal basis.

When planning for shelter operations, it is imperative to consider various types of people and groups residing within the county, their potential special needs with regard to sheltering, and the agencies and services which can provide related assistance and support. There are several terms for people who may need special assistance during an emergency. These terms include "vulnerable populations," "at-risk populations," "special needs

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populations," "people requiring additional assistance," and people who need "functional needs support services (FNSS)." People in these categories may be those who have sensory impairments (blind, deaf, hard-of-hearing); cognitive disorders; mobility limitations; limited English comprehension or non-English speaking; people who are geographically or culturally isolated, homeless, or medically or chemically dependent; or people who need help performing daily tasks *(Centers 2012)*.

Post-Katrina, the Emergency Management Reform Act requires children and adults with and without disabilities who have access and functional needs must have access to the same programs and services as the general population.

The Americans with Disabilities Act also requires that jurisdictions provide equal accommodations, opportunities, and services to people with varying functional support needs at emergency shelters.

Columbia County will incorporate people who need Functional Needs Support Services (FNSS) into general population shelters. FNSS are services which allow individuals to maintain independence in a general population shelter. The services include *(FEMA 2010):*

- Reasonable modification to policies, practices, and procedures
- Durable medical equipment (DME)
- Consumable medical supplies (CMS) (i.e. access to medications to maintain health and function)
- Personal assistance services (PAS) to assist with daily living
- Other goods and services as needed (i.e. provision of sleeping accommodations; access to way-finding for people who are blind or have vision impairment)

People requiring FNSS may have disabilities of varying nature, including physical, sensory, mental health, and cognitive and/or intellectual. These disabilities may hinder their ability to function independently without assistance. People also requiring FNSS may include elders, people needing bariatric equipment, and women in the late stages of pregnancy *(FEMA 2010)*. (**See Attachment 9** "Guidance on Planning for Integration of Functional Needs Support Services in General Population Shelter" by FEMA, for information on providing for FNSS in general population shelters)

Some Special Populations and Groups who may need Function Needs Support Services in Columbia County include:

- Seniors, age 60+ who reside in their homes, both with and without informal supports and services (DSS or Office of the Aging)
- People receiving treatment or who have received treatment for alcohol and substance abuse (Twin County Recovery)
- People with mental illness and developmental disabilities (DSS, CCHSD)
- Children and young adults with disabilities (Early Intervention, DSS, CCHSD)

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(**See Attachment 10** for a detailed list of special population groups in Columbia County, their particular needs, and service providers and agencies)

Some other potentially special needs groups in Columbia County may include:

- People who do not speak English as their primary language, or not at all
  - Bengali population, primarily in Hudson; most are Muslim
  - Migrant worker population; many are Spanish-speaking
- Summer camps – some overnight camps serve children from geographically distant areas
  - See **Attachment 11** Columbia County Summer Camps
  - Camp for children with special needs: XPS Camp Sundown, Craryville – for children with Xerdoderma Pigmentosum (sun sensitivity) and their families
- Residential Schools
  - Berkshire Farm Center and Services for Youth, Cannaan – child welfare agency and residential treatment center/school

Some special populations in Columbia County with their own emergency plans include:

- Inmates at correctional Facilities
  - Columbia County Jail, Hudson
  - Hudson Correctional Facility, Hudson
- Youth offenders – Brookwood Secure Facility, Claverack
- Long-Term Care/Nursing Home residents
  - Long-term care facilities include:
    -Barnwell Nursing and Rehabilitation Center, Valatie
    -Livingston Hills Nursing and Rehabilitation Center, Livingston
    -Whittier Nursing and Rehabilitation Center, Ghent
    -Pine Haven Nursing and Rehabilitation Center, Philmont
    -The Volunteer Firemen's Home of the State of New York, Hudson
    -Camphill Ghent, Chatham
- Hospital patients – Columbia Memorial Hospital, Hudson
- People with developmental disabilities
  - Camphill residences, which serve people with developmental disabilities
    -Camphill Village, Copake
    -Triform Camphill Community, Hudson
    -Camphill Hudson, Hudson
    -Camphill Ghent (also listed under long-term care facilities)
  - COARC, facilities and homes throughout Columbia County - serves children and adults with developmental disabilities

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Some special considerations for those with mental or physical disabilities and a voluntary registry to assist them in evacuating to a shelter:

§ 23-a, number 1, of NYS Executive Law Article 2-B recommends a voluntary registry in order to meet the special needs of persons who would need assistance during evacuations and sheltering because of physical or mental handicaps.

- Chief executive should maintain a registry of disabled persons located within the county. The registry shall identify those persons in need of assistance and plan for resource allocation to meet those identified needs.
- To assist the chief executive in identifying such persons, the county department of health, or such other county department or agency as designated by the chief executive, shall provide voluntary registration information to all of its special needs clients and to all incoming clients as part of the intake process. (DSS, Office of the Aging, CCDOH, and CCHSD)
- The registry shall be updated annually. The registration program shall give disabled persons the option of pre-authorizing emergency response personnel to enter their homes during search and rescue operations if necessary to assure their safety and welfare during disasters.
- Once complete the registry should be made available to the appropriate county, state and federal agencies for their use in delivering services in the event of a local or state disaster.
- The chief executive shall, upon the request of the state emergency management office, provide such registry information to such office. The chief executive may, at his discretion, use the registry information for local disaster preparedness only in coordination with other political subdivisions of the state.
- Once established, the voluntary registry of disabled persons, a semi-annual circular publication should be made to inform the county of the availability of the voluntary registration program.

Columbia County does have an electronic **Special Medical Needs Registry** that is accessible through the County website, CCDOH website, CCOFA website, CCDSS Website, and the CC Sheriff's Office website and Facebook page. There is also an option to download the registration form and send it in to the Columbia County Sheriff's Office who will then enter the data into the Registry. In addition – the County also provides a **County Safety Net program** that is a collaborative effort between the Columbia County Sheriff's Office and the Columbia County Office for the Aging. This program allows citizens with special needs to register to receive an automated daily phone call. The City of Hudson has a similar program through the Hudson Police Department that is available to all City of Hudson residents.

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Types and Models of Shelters

The American Red Cross has two main *types* of shelters:

- **General Population Shelters,** in which people generally stay for a while (for example, general shelters may be opened to protect people from flooding emergencies). Their capacity is approximately 40 square feet per person.
- **Evacuation Shelters,** utilized to remove people from immediate harm (for example, hurricane shelters). Their capacity is approximately 20 square ft per person.
- A shelter can serve both purposes. The distinction must be made in order to comply with the capacity standards.

There are various *models* of emergency shelters, according to the American Red Cross. For the purposes of this plan, the classification is as follows:

- **Red Cross *Managed* Shelters,** which are run, staffed, and supplied by the American Red Cross.
- **Red Cross *Partner* Shelters,** at which staff specific to the site must open and run the shelter, but the American Red Cross, funds, carries liability and enters into an MOU with the sponsoring shelter.
- **Red Cross *Supported* Shelters**, which are supported by Red Cross resources (supplies, staff).
- **Independent Shelters,** which are not supported by the American Red Cross.
- **"Warming (or Cooling) Stations,"** which are local sites that are opened for people to take shelter (get food, rest, shower, etc.) during the day; they are not meant for people to sleep/spend the night.

Columbia County has various shelter models. All of the County's Regional Shelters are certified Red Cross Shelters. Depending on the size and scope of the event, the Columbia County EMO will determine what shelter model will be utilized when opening a shelter. In the event of a small scale incident the ARC may not be involved at all, or they may assist at the Partner or Support level. All Columbia County shelters are classified as a **Red Cross supported** shelter where cots, blankets and pillows may need to be requested. Otherwise, this plan is designed as a guide for operating as an Independent Shelter.

The Columbia County Shelter Site Spreadsheet contains details on the various shelter sites in the county. The list contains details such as shelter model and type, geographic location, contact information of contact persons for the site, capacity, staffing plan, available

DRAFT

supplies, accessibility and accommodations for those with special needs, and any other special details pertinent to the site. **(Attachment 12)**

Choosing a Site to Serve as a Shelter

Columbia County has adapted the American Red Cross shelter survey to designate a site as an emergency shelter **(Attachment 13).** Memoranda of Understandings (MOUs) exist and are being developed to formalize agreements for emergency sheltering with the County and each respective shelter site. **(Attachment 14)**

Coordinating Shelter Operations

The Columbia County Emergency Manager, or designee from the Emergency Management Office, or the Chairman of the Board of Supervisors, will activate official emergency shelter operations in Columbia County. There does not have to be a declared State of Emergency in the county for emergency shelter operations to be activated. This plan will be utilized as a guidance document to coordinate shelter operations from the county EOC. The plan is meant to be flexible and can be used for a variety of hazards requiring sheltering. As the American Red Cross is often integral to the county shelter efforts, all attempts should be made to have an American Red Cross representative at the EOC to be the American Red Cross shelter liaison for the county.

Opening a Shelter

- The opening of a shelter will be determined by the CCEMO. They will make the initial decision to open the EOC and then determine if the need for a shelter(s) is required.
- The local jurisdictions will identify the extent of a shelter, i.e. evacuation versus a general population shelter.
- The CCEMO will determine which location to use for the shelter. This will depend largely on the location of the event and the safety of the designated shelters in relation to the disaster.
- Once the need for a shelter is determined contact should be made to the agreed upon shelter to see if it is available. If the primary choice is not available a secondary or tertiary location may have to be used.
- An assessment will be done on the shelters property to ensure that it is safe for use.
- A survey of the shelter will be done on the ARC log (same log used to determine if the building will be used as a shelter) and pictures will be taken of the site to ensure that any damage is cataloged before the shelter is opened.
- If the ARC is requested and available, it is still the jurisdiction's (CCEMO) responsibility to open the shelter until the ARC can arrive and assume the role they have been requested to fulfill.
- The EMO and the Chairman of the Board will activate governmental employees, the volunteer plan, and the emergency shelter plan partners until any necessary help from the ARC arrives.

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- Once the shelter site(s) is/are established, then the public will be advised. See the "Communicating the Opening and Closing of Shelters section" (page 34).
- Proper signage will be used to alert evacuees of the shelter's location. Other signs showing designated parking areas should be used if possible.
- Security staff will be allocated and dispatched to the shelter site.

Shelter Staffing

Each shelter requires a security staff person. Security staff will be assigned by the EMO. Each shelter requires there be a medical staff person (i.e. Registered Nurse, EMT, Paramedic) on site.

The agencies/personnel working on shelter planning and operations during a given emergency will coordinate staff and volunteers to run the shelter. The general steps will be as follows:

- The EOC ascertains which type of staff (general vs. medical or specialty) is needed. If they are general staff, the EOC will send out a notification to all agencies that hold a seat at the EOC (including Red Cross) and all county agencies and CBOs
- Simultaneously, Columbia County Department of Health will send out a ServNY volunteer alert (ServNY is New York State Department of Health's registry for medical and non-medical volunteers and it contains a medical credential verification feature; Columbia County Department of Health has several ServNY Coordinators who can search for and alert ServNY volunteers).
- If additional staff are needed the Red Cross will be notified for assistance. (See **Attachment 7** for activation stages and staffing algorithm).
- Some BOCES staff have been trained by the Red Cross as shelter managers. Mr. Craig Hansen from Columbia County Questar III could be contacted to see if any staff may be available to volunteer. His cell phone number is 518-337-7791
- This plan will also contain a printed spreadsheet of American Red Cross Shelter trained volunteers who can be alerted during an emergency.
- The Logistics section at the EOC will contact and schedule volunteers as needed per requests that are made by on site shelter managers, and will keep a log of agencies notified or asked to send individuals (medical, specialty, or volunteer).
- ServNY has an "Incident Response Management" function for scheduling volunteers and non-volunteers and therefore can be used as a tool for such purposes

Shelter Set-Up

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Whether the American Red Cross (ARC) is requested to manage a shelter site or not, the County EOC will designate an initial shelter manager. The shelter manager is the person designated to answer any questions or concerns throughout the duration of the shelter or until the ARC arrives, and will act as a liaison between shelter residents and the EOC. Shelter Volunteers will be required to sign in. (**See Attachment 29**)

A waiting area and registration area should be established since evacuees may be arriving before the shelter set up is complete. The waiting area can later be used as a recreational or other area that residents can use away from the dormitory area. This area may also be useful as a quiet place.

Depending on the type of shelter, there are minimal requirements for square footage. Additional considerations are necessary for those with physical disabilities that require equipment or have service animals. (See pages 14-17 for special needs) (See pages 24-25 for service animals)

For those without disabilities the square footage for an evacuation shelter is 20 sq ft per person. In a general population **s**helter the capacity is approximately 40 square feet per person.

The shelter manager and the EOC will determine how the cots, cribs, or other beds will be set up and placed throughout the shelter. For shelters that will remain open for 72+ hours 40 sq ft is required per person (FEMA, FNSS). Cots and other furniture items should be placed in such a way that routes are accessible to people who use wheelchairs, crutches, or walkers. Protruding objects in ANY area where people walk throughout the shelter should be eliminated to reduce injury. Accessible routes should connect the sleeping quarters to the food distribution and dining quarters, bathrooms, and activity areas.

Signs will be posted throughout the shelter to alert residents of specific areas (restroom, exits, entrances, etc.) See **Attachment 16** for Shelter Signs.

Special bed or sleeping accommodations may be necessary for young children, elderly, and those with disabilities. Pack-N-Plays and/or cribs may be necessary to obtain, or reach out to the public to bring their own infant/toddler sleeping quarters, if it is possible.

Shelter Security

Shelter security will be very important. Security may be provided by the building site's security detail, local law enforcement, or an outside company under an MOU. Initially local law enforcement will be contacted for security detail. If local law enforcement is unavailable, the task will go to the County Sheriff's Office. If the Sheriff's office is unavailable, the task will go to the NYS Police.

Previous visits to the location should have identified any security flaws or areas that need

more security. Areas needing attention or extra security should be discussed with the CCEMO to determine steps to take to ensure security of the shelter.

Transporting People to and from Emergency Shelters

The public may not have a means to get to shelter sites or to get home once the shelter is closed. Columbia County will coordinate the transportation of those who DO NOT have transportation to and from their homes to an established staging site or shelter. Staging sites are places where people assemble and are then directed to a shelter. Some memoranda of Understanding (MOUs) exist and others are being developed to formalize plans and agreements to transport the public to emergency shelter sites. Transportation vehicles must be capable of transporting those with special medical needs, disabilities, and service animals. See **(Attachment 17)** MOU Template for transportation

Registration of Shelter Residents

Shelter residents will be required to sign in with the registration staff to ensure that all residents are signed in and that any special medical needs or assistance is reported to ensure that they are taken care of during their stay. Registration is important so that shelter residents can be accounted for in the event of an emergency evacuation, fire, menu planning, cot placement, and other incidences where knowing the shelter resident is imperative. (See **Attachment 18** for Sheltering Resident Sign In)

After signing in, ALL shelter residents will need to complete an initial intake assessment form in order for shelter staff to properly place each resident. (See **Attachment 19**)

There is an additional registration process for those with special medical needs or those who will need assistance performing daily activities during their stay at the shelter. This special medical needs registry, along with the medical assessment form, will assist the shelter manager with shelter staffing. (See **Attachment 20** for Special Medical Needs Shelter Registration) (See **Attachment 19** for Medical Assessment Form) During the registration process each shelter resident will receive a shelter ID tag containing the name of the shelter and an assigned number.

Resources and Supplies

Shelter supplies and equipment will be requested through the Emergency Management Office. Supplies may consist of cots, blankets, pillows, food, medical supplies, personal hygiene items, baby and child supplies (including but not limited to formula, diapers, wipes, bottles, and medications). Local pharmacies, supermarkets, and box stores will be sought to provide these supplies.

If the shelter is a full American Red Cross shelter then the ARC will follow their own

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protocol for requesting supplies and equipment from ARC resources.

Medical Staff, Services, and Medications

Medical Staff and specialty staff are defined as the following:

- Medical Staff are professionally trained medical personnel who are accredited, certified, or registered, such as nurses (CNA, LPN, or RN), doctors (MD, DO), PA, NP, EMT, paramedic or other medical professionals.
- Specialty staff are individuals trained to deal with specific populations, or groups. These could include but are not limited to psychiatrists, therapists, and counselors (LSW, MSW)

Medical and dental services

A first aid station will be available at the shelter. The on-site medical services staff will be able to administer over-the-counter medication (i.e. NSAIDs, antacids), minimize contagions through infection control methods, perform illness and injury surveillance, facilitate replacement of medication, and make referrals for emergency medical or dental treatment. The medical station should have at least 1 registered nurse and 1 paramedic (an EMT minimum) at a ratio of 1:100 residents at all times. (FEMA, FNSS) There should be a medical doctor and a psychiatrist on call at all times while the shelter is open.

Mental health professional or mental health services

Mental health services should be available to shelter inhabitants regardless of a disability. A reasonable effort will be made to ensure that a mental health professional will be on-site at all time or one will be on call while the shelter is open. Post-shelter services can be determined and arranged by the mental health professional for post-disaster counseling or guidance. Posters alerting shelter inhabitants of the signs and symptoms of Post Traumatic Stress Disorder (PTSD) should be displayed at the shelter. **(Attachment 21)**

Medications

Whenever possible, shelter residents should bring their own prescriptions, OTC medications, or other medical supplies they require on a daily basis. This may not always be the case, especially in an evacuation shelter. Shelter residents will be responsible for safeguarding their medications, unless special considerations are necessary (refrigeration, drug safety, narcotics, etc.) Reasonable accommodations will be made to safeguard these medications at the first aid station or at another medical service area within the shelter.

Diabetic supplies (testing lancets, test strips, insulin syringes, etc.) should be disposed of properly using the resident's sharps container or another approved sharps container. Approved makeshift containers could be a laundry detergent bottle or other container that cannot be penetrated by a lancet or needle. Sharps containers can be disposed of at multiple sites around the County including the Columbia Memorial Hospital (NYSDOH,

DRAFT

2006). All full or expended sharps containers will be sealed and the lid duct taped to the container.

Shelter Reporting

The American Red Cross reports on shelter numbers, including number of people in the shelter, number of new clients, and number of meals served, among other details. Columbia County will be responsible for the reporting at non-Red Cross shelters; Columbia County will share their reports with the Red Cross. These reports, along with post-event reports will be used to improve the shelter, the Shelter Plan, and other shelter related documents for future shelters. (See **Attachment 22** Shelter Report Log)

Pet Sheltering Plans

Columbia County has collaborated with the Columbia-Greene Humane Society (CGHS) in developing an emergency sheltering plan for domestic pets and commercial livestock. The Humane Society is responsible for the pet sheltering plan.. A Memoranda of Understanding (MOUs) is being developed with the CGHS for sheltering pets. (*Ron Perez is the president of the CGHS and is currently developing a written plan to be added as an appendix or attachment)Ron Perez, 518-828-6044 x 108, cell 518-232-4218. Columbia County has made available a guide for pet owners. (See **Attachment 23** - Saving the whole family)

Service Animals

Service animal is defined, as of March 15, 2011, as a dog that is individually trained to provide assistance to a person with a disability. (See section 4.2.2., pg 28 of **Attachment 9** FEMA 2010 FNSS Guidance for more detail) While pets will not be allowed in a general or evacuation shelter, service animals are allowed by law. If there is no obvious evidence that the animal is a "service animal" (i.e. vest, cape, special harness, etc.), shelter staff should ask only two questions to determine if an animal is a service animal:

(1) "Is this a service animal required because of a disability?"
(2) "What work or tasks has the animal been trained to perform?"

If the answers reveal that the animal has been trained to work or perform tasks or services for a person with a disability, it qualifies as a service animal and must be allowed to accompany its owner anywhere other members of the public are allowed to go, including bathrooms, areas where food is served, and almost all areas where medical care is provided.

The American with Disabilities Act (ADA) does not permit the shelter staff or volunteers to question the individual's disability, ability to function, or the severity of their disability. Questions about the nature or severity of a person's disability or ability to function may not be asked. Additionally a service animal may not be excluded even if the shelter staff or

volunteers are able to provide the same services as the service animal. Under the ADA, shelter staff may not request a license, certification, ID tag, medical certificate, or any other type of documentation for a service animal. (FEMA, 2010)

Volunteers may be necessary for feeding, walking, and toileting service animals. The owner will be responsible for supplying food, medications, and any other equipment or specific needs the animal may need (including but not limited to leashes, bowls, harnesses, and bed). If the owner has not brought supplies for their pet refer to the shelter manager for guidance on obtaining supplies for the service animal.

A designated area will be posted to walk service animals. Proper clean up will be necessary daily to ensure the health and safety of the shelter residents.

Unaccompanied Minors

Unaccompanied minors will be taken into the shelter and registered. Staff will make every effort possible to locate the minor's legal guardian, next of kin, or any family member to verify the minor's identity, to reunite them with their family, or seek assistance to find care for the minor (i.e. foster care). Shelter staff will alert security staff and the EMO of the minor's status (lost, separated from family, injured, confused, etc.) to help find next of kin and if the minor requires medical treatment. If the family is not located, the Department of Social Services (DSS), or Child Protective Services (CPS), should be contacted for further assistance.

If the minor requires any emergency medical attention, NYS Public Health Law § 2504 and The PREP Act, will guide shelter management staff and medical team to treatment options. The minor can be treated by the medical staff if the situation is considered to be an emergency and there has not been a PREP declaration.

Shelter Rules

Shelter rules should be clearly posted and distributed to shelter residents.
Shelter rules include, but are not limited to,

- Please keep the isles clear of debris, belongings, and other objects to ensure everyone's safety.
- You are responsible for any belongings brought to the shelter.
- Quiet hours are between _____ and _____. Please respect these quiet hours. Quiet areas, nursing areas, and family areas will be posted with designated times for each area.
- No illegal drugs, alcohol, or weapons are allowed in the shelter or on shelter grounds. Designated smoking areas will be posted on the shelter grounds. [State laws may not allow for smoking on school properties.]

DRAFT

- Threatening, aggressive, or violent behavior will NOT be tolerated. This includes, but is not limited to, arguments, fighting, or other confrontations. Those found to be displaying any threatening behavior will be escorted from the shelter, permanently.
- Please use trash receptacles provided.
- Wash your hands frequently to reduce the risk of illness.
- Feeding times will be posted daily. Please alert the shelter staff to any food allergies or special dietary needs.
- If you are feeling ill please alert shelter staff for medical assistance.

See **Attachment 24** for Shelter Rules.

Shelter Briefings

Daily briefings should be held at least once. It is recommended that three briefings be held (10 am, 3 p.m., and 7 p.m.) to keep shelter residents and staff apprised of any new developments in the community or shelter. These meetings are also important to dispel rumors, fears, or concerns among the shelter residents. These meetings will help the residents feel empowered and secure. These briefings can be held in designated areas or in common areas so that all residents can be included.

Quiet Area, Family Areas, & Private Areas

Reasonable efforts will be taken to designate a quiet area within the shelter, as suggested by FEMA. This area will be quiet. Televisions, radios and cell phones will be prohibited in this area. Any smart phone, tablet, or ipad will be placed on airplane mode and will be limited to visual use only. Anyone desiring to listen to music will be required to use noise dampening head phones. This is to allow shelter residents to decompress and relax in a quite setting. The quiet area is imperative to mental health and hygiene of shelter residents to maintain their well being.

Reasonable accommodations will be made to create a family friendly area where children and their families can enjoy time together without disturbing the rest of the shelter residents. This area can have times that coincide or alternate with the quiet area so that one space can be used for both purposes and everyone has time to relax or use the space.

Reasonable accommodations will be made to offer a quiet private area for breast-feeding mothers, those who have private medical treatments, or other conditions or issues that they need a private area to conduct themselves. This area is very important for mothers and babies and should be made a high-priority. Medical treatments can be done at the medical services, if necessary.

Shelter Hygiene and Infection Control

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Personal and environmental hygiene are very important in a shelter setting. Frequent cleaning of common areas, laundering bedding materials, and frequent hand-washing are imperative to protecting the shelter from an infectious disease.

Columbia County Shelters will follow the Center for Disease Control (CDC) (2005) guidelines pertaining to the use of appropriate infection control and prevention methods to reduce or prevent the spread of infectious disease. These guidelines include:

- Staff and residents should wash their hands with soap and water frequently. Staff and residents should follow the proper hand washing flyers posted thorough out the shelter and in bathrooms.
- Children should be assisted in washing their hands with soap and water frequently.
- Hand sanitizers are an effective addition to hand washing and a reasonable temporary substitute when soap and clean water are not readily available.
- Hand sanitizers should be positioned throughout the evacuation center, especially at the beginning of food service lines and outside of toilet facilities.
- Encourage good personal hygiene practices including the following:
    - Cover your cough with tissues, disposing tissues in the trash. Wash your hands or use alcohol hand gel after coughing. If possible, tissues should be provided in evacuation center living areas.
    - Cough and sneeze into the elbow to prevent spread of respiratory particles. See **Attachment 25** for Cover your Cough Poster.
    - Follow good hygienic practices during food preparation.
    - Do not share eating utensils or drinking containers.
    - Do not share personal care items such as combs, razors, toothbrushes, or towels with anyone else.
- Facilities should be adequate to allow residents to bathe at least twice weekly.
- Laundry facilities should be available to allow appropriate laundering of clothes and bed linens.
- Avoid touching your eyes, mouth, nose, and face in general so to decrease exposure to germs.

Evacuees may have health problems including traumatic injuries, infectious diseases, and chronic illnesses (CDC, 2005). Proper hand hygiene and proper sneezing and coughing etiquette are imperative to infection control within the shelter. For proper hand hygiene steps please see **Attachment 26**

Proper hand hygiene is recommended:

- Before eating.

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- After handling uncooked foods, particularly raw meat, poultry, or fish.
- After using the bathroom
- After changing a diaper or cleaning a child who has used the bathroom.
- Before and after tending to someone who is sick.
- Before and after treating a wound.
- After blowing your nose or coughing.
- After handling an animal or animal waste.
- After handling garbage.
- Food handlers must wash their hands properly (with soap and water), before preparing food, after working with uncooked foods listed above, and before returning to work after a bathroom visit or break.

Hand Sanitizers

Hand sanitizers with a concentration of 60% alcohol, can be used in conjunction with hand washing to improve infection control, but should not be used as a substitute to proper hand washing techniques. Hand sanitizer may be used when running water is not present or water and soap are not available. Hand washing is always the best practice. However, if it is not available, then hand sanitizers should be used as follows:

- Apply a small amount (2-3 mL) of product to the palm of one hand.
- Rub hands together, be sure to cover entire hands (fingernails, cuticles, wrists, web-spaces, palms, and the backs of hands).
- Ensure hands are completely dry before touching any surface to prevent re-contamination. Normal drying time is between 20-40 seconds.

Handling Potentially Infectious Residents

Shelter staff should handle possibly infectious shelter residents or staff using standard precautions:

- Wear gloves if dealing with any body fluids, infectious persons, respiratory secretions, or contaminated surfaces.
- Wear a disposable gown if clothes may be soiled with patient's body fluids or contaminated surfaces.
- Change gloves and gowns after each patient encounter and wash hands immediately after removing gloves.
- Wash hands after touching a patient, patient's environment, or touching respiratory secretions, regardless if gloves were worn.
- Wash hands with soap and water whenever they become visibly dirty or contaminated with respiratory secretions, or after touching a surface contaminated with respiratory secretions.

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Individuals (residents or shelter staff) exhibiting or complaining of fever, cough, skin rashes or sores, open wounds, diarrhea, or vomiting should be seen by medical staff for evaluation and diagnosis. Treatment can be provided by the shelter's medical staff or the individual can be sent to a local medical facility.

Once it is determine that this person is not contagious or a danger to other residents they can return to their place in the shelter. If they are deemed contagious, quarantine measures will be taken to treat the individual as well as protect fellow shelter residents. If resident is contagious and requires quarantine those who have had close personal contact should be quarantined if necessary.

Those individuals requiring further medical treatment or quarantine will be moved to a different medical facility determined by the shelter manager and medical supervisor.

Staff members, should be excused and sent home regardless of their contagions to ensure the safety and health of other staff and residents.

The Cover Your Cough Flyer (**Attachment 25**) should be placed in the same areas as the other infection control flyers, as well as in restrooms and eating areas.

The Proper Hand Washing Poster (**Attachment 26**) should be placed in eating areas, common areas, restrooms, and in the room where children will play. Proper hand-washing and hand sanitizer will help decrease the incidence and spread of most infectious diseases in a shelter setting. Respiratory illnesses should be isolated and diagnosed to determine if further precautions or measures need to be taken to protect the shelter population.

Food Operations

Columbia County Emergency Management is required to provide food for shelter staff and residents at official, county-opened shelters (unless the Red Cross has agreed to provide the food). Food supply will be used from the shelter initially. If it is determined that additional supplies will be necessary, a request will be made to the CCEMO. The CCEMO will contact local box stores, local food pantries, and the Salvation Army for their assistance. CCEMO may also contact the ARC requesting one of the food vending options the ARC provides (cantina, full food service, etc.)

Special diets or dietary restrictions need to be considered when opening the shelter and or ordering additional food supplies (i.e., diabetics, low-sodium, gluten-free, food allergies, vegetarian, etc.)

A food manager will be designated to ensure that special diets are met, feeding operations are conducted in a timely and efficient manner, and that the food supply is inventoried properly to ensure the proper number of meals for shelter residents. Adequate refuse containers, utilities, utensils, and cantina services should be determined by the manager.

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Feeding times should be clearly posted for shelter residents to see. Feeding times should be scheduled but have some flexibility. Flexibility is necessary for certain individuals, including but not limited to, children, the elderly, the medically frail, or those with medical conditions requiring them to eat on a specific schedule.

Janitorial

Janitorial services will be provided by the Columbia County Facilities Department. They will play an initial role in delivering and setting up cots, equipment and sanitation receptacles. Thereafter, personnel will remain to provide janitorial services for the shelter. If the designated shelter is a public school, then the option of having the school district's janitorial staff provide the services will be considered. Hyper-vigilance is necessary to avoid infectious diseases. Janitorial staff should be present at all times during the shelter to assist shelter staff in maintaining a clean, safe, and healthy environment.

Garbage cans and recycling bins will be made available to the residents. Outside companies and sites may need to be utilized for laundry services, during and after shelter operations.

Sanitizing Surfaces

The CDC suggests that janitorial staff keep surfaces and items clean to help reduce the spread of infection in staff and residents:

- Clean surfaces with a household detergent when visibly dirty and on a regular schedule:
    - Kitchens and bathrooms MUST be cleaned daily and as necessary.
    - Living areas should be cleaned at the very least weekly and whenever necessary.
    - Bed frames, mattresses, and pillows should be cleaned/laundered between occupants, and at least weekly per occupant.
    - Other furniture should be cleaned weekly and as necessary.
    - Spills should be cleaned immediately using the proper guidelines for the particular spill.
- Sanitize high-risk surfaces with household disinfectants (product labeled as a disinfectant, i.e. Lysol) or a mixture of 1 teaspoon of bleach in 1 quart of clean water, mixed fresh daily.
- High-risk surfaces include:
    - Food preparation areas/surfaces
    - Changing tables
    - Surfaces soiled with body fluids (i.e. vomit, blood, feces, etc.)

Garbage

DRAFT

- Waste disposal should comply with local requirements, including disposal of regulated medical waste.
- Use trash receptacles lined with plastic bags that can be securely shut.
- Trash bags should not be overfilled.
- Place trash in an area separated from the living spaces, preferably in trash bins.
- Have waste pick-ups scheduled frequently- daily if possible.
- Separate medical waste from household waste for pickup; follow local guidelines for pick up of medical waste.

Laundry Services

Laundry services for resident's personal laundry and for shelter laundry (blankets, sheets, etc.) may be needed depending on the duration of the shelter. If laundry facilities are not available at the designated shelter then outside laundry services will need to be utilized. Laundry should be done at a minimum of once weekly, especially in an extended or long-term shelter setting. It may be necessary to do laundry more frequently depending upon the conditions of the shelter and season.

If in house laundry services are available, it is important that shelter staff operate these services according to the following guidelines:

- Provide a daily laundry schedule so that residents can launder their own clothes or provide their clothing to those doing the laundering.
- Tag and track clothing of shelter residents.
- Ensure that heavily soiled garments with stool be handled carefully by wearing gloves and placed in a plastic bag for disposal. If stool can be easily removed with toilet tissue, the garment may be laundered following the instructions below.
- Wash clothing in a washing machine using normal temperature settings and laundry detergent. To avoid allergic reactions or skin irritations "free and clear" (those free of dyes and fragrance) detergents should be used.
- Household bleach can be used at normal concentrations.
- Dry clothes thoroughly in a dryer.
- Make sure donated clothes are washed properly before distribution.

If there are no laundry facilities at the shelter site, or site facilities are inadequate, the following options will be considered:

- Shelter staff will take shelter laundry items such as pillow cases, blankets, sheets to the nearest Laundromat for laundering

DRAFT

- Public transportation will be made available for residents of the shelter to go to the nearest Laundromat to do their own laundry
- Utilize one of the following commercial laundry services to pick up and return resident's laundry
  - Best Cleaners - Albany 518-458-2378 ext. 236
  - Morgan Linen Services 845-246-9503 (linens, blankets, towels, pillow cases only)
  - Fairview Cleaners – Hudson 518-828-3815 (will get back to confirm)
  - Wash –Rite Laundry & Dry cleaning – Hudson 518-828-9118
- Contact Tide disaster relief laundry service called "Loads of Hope" (for large scale disasters)

Building Maintenance & Engineering

The Columbia County Facilities' building maintenance and engineering staff will be utilized throughout the shelter. If outside help is needed the EOC can request extra staff from other organizations or from volunteer staff. Maintenance and engineering staff may not be required to be present all hours while the shelter is open but there should be a designated person or persons to contact if needed while the shelter is open.

Building maintenance and engineering staff should be able to assist with multiple maintenance concerns, including but not limited to, plumbing, HVAC, electrical, and general maintenance while the shelter is open.

Miscellaneous

Post Office
Depending on the length of time the evacuation shelter will be open, residents will need access to a post office, or postal services (i.e. sending and receiving mail). The shelter manager will contact the CCEMO to reach out to local post offices for guidance.

Internet Access and Computer Use
Shelter residents and staff will likely require computers and internet access during their time at the shelter. The CCEMO will collaborate with County IT and building facility personnel to check on the building type, availability, and capacity, of Wi-Fi internet. County IT can assist in setting up a "guest service" if Wi-Fi exists. If Wi-Fi is NOT available then the CCEMO may consider purchasing a temporary Mi-Fi unit for the shelter and IT will assist in setting it up.

Charging Areas

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Shelter residents will likely have devices that require frequent charging. These devices include but are not limited to cell phones, computers, and medical devices. Charging areas can be designated for individuals to charge their devices, or specific times can be allotted for charging devices so to protect the electrical wiring of the building or generator capacity.

Telephones
While many individuals will likely have their own cell phone with them, telephones and/or landlines should be available for shelter residents to use to contact or locate family and friends, their employers, or others. Phones can be available all day or during specific times.

Pharmacy
Shelter residents may require refills for their daily medications. Transportation or pharmacy services will be provided for shelter residents with disabilities or for those who do not have transportation.

Entertainment
If the shelter is open for more than 3 days, activities should be scheduled for residents. Activities for all residents may require a number of different activities at different times, i.e. family movie, children's arts and crafts, or bingo, this way all the different demographics can have a form of entertainment. Local libraries, church groups, children's groups, or other outreach organizations may be able to assist in scheduling or running the events within the shelter.

Communicating with the Press

Columbia County follows the Incident Command System (ICS) during any disaster or public emergency. ICS is a Federal Emergency Management Agency system for coordinating efficient and effective emergency response. ICS states that only the Public Information Officer (PIO) can communicate with the press regarding emergency operations.

The American Red Cross has a different policy of communicating with the press than that used by ICS. The American Red Cross, according to their Shelter Operations Management Toolkit, allows some shelter staff to communicate with the press. With regard to emergencies managed by/affecting Columbia County, the ICS policy will override the American Red Cross practice regarding communicating with the press. American Red Cross shelter staff and managers will refer inquiries about public information to the Columbia County Public Information Officer.

Transition from Shelter

Shelter residents need a reasonable amount of time to transition back to their lives following a shelter. This transition may include going to their original home and continuing their normal routine or having to locate a new residence or temporary residence to live.

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To transition residents back into their home transportation may be needed. This can be arranged with one of the MOU organizations available transport services to transport individuals to their home or other residence. (See **Attachment 27** for list of transport services) Aftercare may be needed and can be arranged by the individual's primary care provider or guidance can be given through community resources, such as CCMH.
For those residents transitioning to a temporary residence they may require assistance from medical staff, volunteers, or a social worker. The CCDSS can help in this transition.

Closing a Shelter

The closing of a shelter is an important step towards the recovery phase. The closing of the shelter helps shelter residents begin the recovery process but can also stress them. It is important to remember that shelters are temporary and every effort should be made to close the shelter by identifying and using the resources necessary to return residents to suitable housing that continues to meet their access and functional needs. The goal is to always support individuals toward self sufficiency (FEMA, 2010).

CCDSS can help those with FNSS transition into their post-shelter lives. Other county programs and organizations can be consulted to help with transitioning shelter residents to their previous lives or to help them find a new residence following an event.

Communicating the Opening and Closing of Shelters

Columbia County uses various methods to communicate emergency messages with the public. These include:

- Radio
- NY Alerts
- Columbia County Sheriff Office's Facebook page
- Television/News casts
- Code Red

Post-Emergency Evaluation and Improvement

Following emergency sheltering operations in Columbia County, the Columbia County Emergency Management Office will conduct an After Action Meeting in order to evaluate the shelter operations and improve the process during future emergencies. The Emergency Shelter Planning Committee will incorporate lessons learned and updates into this plan. (See **Attachment 28** Shelter Exit Survey) This survey can be given to residents prior to their departure and used to gauge the success of the shelter and areas that need improvement.

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Cost reimbursement and submission of paperwork

All costs associated with Shelter Operations (including receipts) will be presented to the Columbia County Emergency Management Office's Finance Officer for reimbursement submission (if applicable). During a designated "State of Emergency" all reimbursement submissions must include the assigned FEMA incident number.

Resources Cited and Resources Consulted

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