



9.19 TOWN OF RHINEBECK

This section presents the jurisdictional annex for the Town of Rhinebeck.

9.19.1 Hazard Mitigation Plan Point of Contact

The following individuals have been identified as the hazard mitigation plan’s primary and alternate points of contact.

Primary Point of Contact	Alternate Point of Contact
Elizabeth Spinzia, Town Supervisor 80 East Market Street, Rhinebeck, NY 12572 (845) 876-3409 espinzia@rhinebeckny.gov	Barry Sherrod, Highway Superintendent 119 Rhinecliff Road, Rhinebeck, NY 12572 (845) 876-6263 bsherrod@rhinebeckny.gov

9.19.2 Municipal Profile

The Town of Rhinebeck is home to a portion of a National Historic Landmark District, the State Mid-Hudson Historic Shorelands Scenic District, the Estates District Scenic Area of Statewide, State Scenic Byways, and a Coastal Zone area. The Town also lies within the Hudson River Valley National Heritage Area and the State's Hudson River Valley Greenway.

Several waterbodies are found within the Town and include the Hudson River, Sepasco Lake, Muddler Kill, Rhinebeck Kill, Fallsburg Creek, Crum Elbow Creek, and Landsman Kill. The Hudson River makes up the western border of the Town. To the north of the Town is the Town of Red Hook, to the south are the Towns of Hyde Park and Clinton, and to the east are the Towns of Milan and Clinton. The Town of Rhinebeck fully surrounds the Village of Rhinebeck. There are several communities located within the Town and include: Eighmyville, Ellerslie, The Gardens, Rhinecliff, Weys Corners, and Württemberg.

Growth/Development Trends

The following table summarizes recent residential/commercial development since 2010 to present and any known or anticipated major residential/commercial development and major infrastructure development that has been identified in the next five years within the municipality.

Table 9.19-1. Growth and Development

Property or Development Name	Type (e.g. Res., Comm.)	# of Units / Structures	Location (address and/or Parcel ID)	Known Hazard Zone(s)	Description/Status of Development
Recent Development from 2010 to present					
Gardens Phase II	Res	80	Garden Way	None	Complete
Known or Anticipated Development in the Next Five (5) Years					
Gardens III	Res	92	6170-00-010475	None	Approved
Grasmere	Res/Comm		6169-00-320500		In planning
Rockledge	Res/Comm	32	6268-00-041979		In planning
Rhinebeck Ford	Comm	1	6171-00-862418		In planning



Property or Development Name	Type (e.g. Res., Comm.)	# of Units / Structures	Location (address and/or Parcel ID)	Known Hazard Zone(s)	Description/Status of Development
Leemilt's Petroleum, Inc.	Comm	3	6171-00-877182		Environmental mitigation
Stanford Machine	Comm	1	6171-00860700		In planning
GBR	TBD	5	6271-00-070680	Floodplain	Issued demo permit

* Only location-specific hazard zones or vulnerabilities identified.

9.19.3 Natural Hazard Event History Specific to the Municipality

Dutchess County has a history of natural and non-natural hazard events as detailed in Volume I, Section 5.0 of this plan. A summary of historical events is provided in each of the hazard profiles and includes a chronology of events that have affected the County and its municipalities. For the purpose of this Plan, events that have occurred in the County from 2008 to present were summarized to indicate the range and impact of hazard events in the community. Information regarding specific damages is included, if available, based on reference material or local sources. This information is presented in the table below. For details of these and additional events, refer to Volume I, Section 5.0 of this plan.

Table 9.19-2. Hazard Event History

Dates of Event	Event Type	FEMA Declaration # (If Applicable)	County Designated?	Summary of Damages/Losses
April 14-18, 2007	Severe Storms and Inland and Coastal Flooding	DR-1692	Yes	This event brought heavy rain and flooding to the Town. Overall, damages were between \$50,000 and \$75,000. The Town received over \$52,000 in assistance from FEMA (recovery costs). There was town-wide damage that included damage to numerous roadways (Old Rock City Road, Pells Road, Mount Rutson Road, Burger Road, Stone Church Road, Ackert Hook Road, Enterprise Road, and Frost Road). There were approximately 12 roads closed in the Town due to flooding. Ackert Hook Road was washed out as water flowed over the concrete culvert. Enterprise Road washed out. Other damages in the Town included the town dock which was damaged by debris and water because the bulkhead was damaged.
February 24, 2010	Heavy Snow	N/A	N/A	This event led to road closures which limited access on obstructed access for emergency vehicles. There were electrical and utility outages throughout the Town. Stone Church Road and Frost Road were both closed. Downed trees blocked roadways and debris blockage needed removal. Costs to the Town included Highway Department overtime, emergency response, and cleanup and debris removal.
December 26-27, 2010	Severe Winter Storm and Snowstorm / Nor'Easter	DR-1957	Yes	This event led to utility outages and impassable roads due to 20 inches of snowfall. Costs to the Town included overtime, additional labor, and materials, which totaled over \$23,000.
March 7, 2011	Winter storm ice/wind	N/A	N/A	This event caused roadway flooding and utility outages. There were partial road closures in the Town (Enterprise Road, Cedar Heights Extension and Morton Road – CR 85). Costs to the Town included overtime.
June 28-29, 2011	Thunderstorm	N/A	N/A	This event caused limited roadway access and temporary road closures from trees blocking roadways. There were longer closures on McGuire Lane and Eagle Road. There were minor power outages as well. Costs to the Town included overtime and cleanup and debris removal.
August 26 – September	Hurricane Irene	DR-4020	Yes	Hurricane Irene led to road closures throughout the Town. Numerous roads were damaged due to washouts, loss of





Dates of Event	Event Type	FEMA Declaration # (If Applicable)	County Designated?	Summary of Damages/Losses
5, 2011				pavement, damaged culverts, and shoulder damage. The Town had to open/create a temporary roadway to provide access for residents on Mill Road and Buttonwood Lane which had no egress due to flooding. Other damages in the Town included Parsonage Street Bridge, the culvert on West Miller Road, and Lions Park playground (in the Village). The Amtrak parking lot was also damaged and vehicles in the lot were damaged as well. Public Assistance was requested. Costs to the Town included cleanup and debris removal costs, overtime costs, materials, and repairs which totaled over \$123,000.
October 29-30, 2011	Nor'Easter, Heavy Snow	N/A	N/A	This event caused downed trees and utility/power outages. Roads were closed due to three downed trees and there were untreated roads because they were blocked. An R8 truck had a broken axel. Costs to the Town included truck repairs, overtimes costs and storm cleanup/debris removal.
September 18, 2012	Rain/wind storm	N/A	N/A	The strong winds downed trees in the Town which led to road closures. Costs to the Town included overtime and debris cleanup and removal.
October 27 – November 8, 2012	Hurricane Sandy	EM-3351	Yes	During Hurricane Sandy, there were road closures, flooding, and utility outages. Rhinecliff Landing had flooding. Costs to the Town included overtime and storm cleanup and debris removal.
February 12-13, 2014	Winter Storm	N/A	N/A	Costs to the Town from this event included overtime and materials.
July 2-3, 2014	Thunderstorm & straight line wind	N/A	N/A	This event caused nine road closures from downed trees and power/utility outages. Two roads were closed for longer than 24 hours. Costs to the Town included overtime and cleanup/debris removal.
July 8, 2014	Thunderstorm & straight line wind	N/A	N/A	Costs to the Town from this event included overtime for tree removal.
July 23, 2014	Thunderstorm and Lightning	N/A	N/A	Residents were trapped in their driveways due to downed trees that blocked egress into their homes. There were roads closed in the Town due to downed trees as well. Costs to the Town included overtime and storm cleanup/debris removal.

9.19.4 Hazard Vulnerabilities and Ranking

The hazard profiles in Section 5.0 of this plan have detailed information regarding each plan participant’s vulnerability to the identified hazards. The following summarizes the hazard vulnerabilities and their ranking in the Town of Rhinebeck. For additional vulnerability information relevant to this jurisdiction, refer to Section 5.0.

Hazard Risk/Vulnerability Risk Ranking

The table below summarizes the hazard risk/vulnerability rankings of potential hazards for the Town of Rhinebeck.

Table 9.19-3. Hazard Risk/Vulnerability Risk Ranking

Hazard type	Estimate of Potential Dollar Losses to Structures Vulnerable to the Hazard ^{a, c}	Probability of Occurrence	Risk Ranking Score (Probability x Impact)	Hazard Ranking ^b
Coastal Storm	100-year MRP: \$1,108,914.00 500-year MRP: \$6,022,659.00 Annualized: \$67,718.00	Frequent	48	High





Hazard type	Estimate of Potential Dollar Losses to Structures Vulnerable to the Hazard ^{a, c}	Probability of Occurrence	Risk Ranking Score (Probability x Impact)	Hazard Ranking ^b
Drought	Damage estimate not available	Frequent	42	High
Earthquake	100-Year GBS: \$0 500-Year GBS: \$272,722 2,500-Year GBS: \$3,333,031	Occasional	32	High
Extreme Temperature	Damage estimate not available	Frequent	30	Medium
Flood	1% Annual Chance: \$47,360,472	Frequent	36	High
Severe Storm	100-Year MRP: \$1,108,914 500-year MRP: \$6,022,659 Annualized: \$67,718	Frequent	48	High
Winter Storm	1% GBS: \$15,646,004 5% GBS: \$78,230,020	Frequent	51	High
Wildfire	Estimated Value in the WUI: \$2,222,122,175	Frequent	42	High

Notes:

GBS = General building stock; MRP = Mean return period.

- a. The general building stock valuation is based on the custom inventory generated for the municipality and based on improved value.
- b. High = Total hazard priority risk ranking score of 31 and above
Medium = Total hazard priority risk ranking of 20-30+
Low = Total hazard risk ranking below 20
- c. Loss estimates for the severe storm and severe winter storm hazards are structural values only and do not include the estimated value of contents. The earthquake and hurricane wind hazards were evaluated by Census tract. The Census tracts do not exactly align with municipal boundaries; therefore, a total is reported for each Town inclusive of the Villages. Loss estimates for the flood and earthquake hazards represent both structure and contents. Potential flood loss estimates were generated using HAZUS-MH 2.2 and the 2011 FEMA DFIRM for the 1-percent annual chance event. For the wildfire hazard, the improved value and estimated contents of buildings located within the identified hazard zones is provided.

National Flood Insurance Program (NFIP) Summary

The following table summarizes the NFIP statistics for the Town of Rhinebeck.

Table 9.19-4. NFIP Summary

Municipality	# Policies (1)	# Claims (Losses) (1)	Total Loss Payments (2)	# Rep. Loss Prop. (1)	# Severe Rep. Loss Prop. (1)	# Policies in 100-year Boundary (3)
Town of Rhinebeck	36	3	\$28,632.56	1	0	12

Source: FEMA Region 2, 2014

- (1) Policies, claims, repetitive loss and severe repetitive loss statistics provided by FEMA Region 2, and are current as of 12/31/2014. Please note the total number of repetitive loss properties includes the severe repetitive loss properties. The number of claims represents claims closed by 12/31/14.
- (2) Total building and content losses from the claims file provided by FEMA Region 2.
- (3) The policies inside and outside of the flood zones is based on the latitude and longitude provided by FEMA Region 2 in the policy file.

Notes: FEMA noted that where there is more than one entry for a property, there may be more than one policy in force or more than one GIS possibility.

A zero percentage denotes less than 1/100th percentage and not zero damages or vulnerability as may be the case.

Number of policies and claims and claims total exclude properties located outside County boundary, based on provided latitude and longitude

Critical Facilities

The table below presents HAZUS-MH estimates of the damage and loss of use to critical facilities in the community as a result of a 1- and 0.2-percent annual chance flood events.





Table 9.19-5. Potential Flood Losses to Critical Facilities

Name	Type	Exposure		Potential Loss from 1% Flood Event		
		1% Event	0.2% Event	Percent Structure Damage	Percent Content Damage	Days to 100-Percent ⁽¹⁾
Rhinebeck Pump	Potable Pump	X	X	-	-	-
Rhinebeck Town Garage	DPW	X	X	0	0	-

Source: Dutchess County, NYGIS

Note (1): HAZUS-MH 2.2 provides a general indication of the maximum restoration time for 100% operations. Clearly, a great deal of effort is needed to quickly restore essential facilities to full functionality; therefore this will be an indication of the maximum downtime (HAZUS-MH 2.1 User Manual).

Note (2): In some cases, a facility may be located in the DFIRM flood hazard boundary; however HAZUS did not calculate potential loss. This may be because the depth of flooding does not amount to any damages to the structure according to the depth damage function used in HAZUS for that facility type. Further, HAZUS-MH may estimate potential damage to a facility that is outside the DFIRM because the model generated a depth grid beyond the DFIRM boundaries.

X Facility located within the DFIRM boundary

- Not calculated by HAZUS-MH 2.2

Other Vulnerabilities Identified

The municipality has identified the following vulnerabilities within their community:

- The Town indicated that rain events during the late winter/early spring can lead to significant flooding events due to frozen ground and the water has nowhere to go. This can also lead to ice jam events in the Town.
- The stormwater drainage system in the hamlet of Rhinecliff is a compromised and limited. It incorporates a 100+ year old blind ditch system.
- Enterprise Road frequently floods during periods heavy rain due to an undersized culvert.
- The west end Frost Road floods during periods of heavy rain.
- The area of Vlei and Ackert Hook Roads flood during periods of heavy rain and the shoulder of the roadway washes out. This is caused by the force of water hitting the headwall of the culvert, which is too forceful for the culvert and leads to flooding.
- The shoulder at the southern part of Mill Road washes out during periods of heavy rain
- Old Post Road is subject to flooding during heavy rains which leads to road closures
- The area of Old Rock City Road and Kimberly Place is subject to flooding of roadways, public land and private properties. This occurs during moderate to heavy rainfall.

9.19.5 Capability Assessment

This section identifies the following capabilities of the local jurisdiction:

- Planning and regulatory capability
- Administrative and technical capability
- Fiscal capability
- Community classification
- National Flood Insurance Program
- Integration of Mitigation Planning into Existing and Future Planning Mechanisms



Planning and Regulatory Capability

The table below summarizes the regulatory tools that are available to the Town of Rhinebeck.

Table 9.19-6. Planning and Regulatory Tools

Tool / Program (code, ordinance, plan)	Do you have this? (Yes/No)	Authority (local, county, state, federal)	Dept. /Agency Responsible	Code Citation and Comments (Code Chapter, name of plan, explanation of authority, etc.)
Planning Capability				
Master Plan	yes	Local	Town Board	December 2009
Capital Improvements Plan	No			
Floodplain Management / Basin Plan	Yes	Local & Fed.	Town Bd.	Mar. 2012
Stormwater Management Plan	No			
Open Space Plan	Yes	Local	Town Board	Dec. 2009 (only as integral to Town Comprehensive Plan)
Stream Corridor Management Plan	Yes	Local	Town Board	Dec. 2009 (only as integral to Town Comprehensive Plan)
Watershed Management or Protection Plan	Yes	Local	Town Board	Dec. 2009 (only as integral to Town Comprehensive Plan)
Economic Development Plan	Yes	Local	Town Board	Dec. 2009 (only as integral to Town Comprehensive Plan)
Comprehensive Emergency Management Plan	Yes	Local	Town	June 2014 – Emergency Management Plan
Emergency Response Plan	Yes	Local	Town	June 2014 – Emergency Management Plan
Post-Disaster Recovery Plan	Yes	Local	Town	June 2014 – Emergency Management Plan
Transportation Plan	No			
Strategic Recovery Planning Report	No			
Other Plans:	Yes			Local Waterfront Revitalization Plan
Regulatory Capability				
Building Code	Yes	State & Local	BI/CEO	
Zoning Ordinance	Yes	Local	ZA/ZEO	Chapter 125 – Zoning (Dec. 2009 & May 2012)
Subdivision Ordinance	Yes	Local	Plann. Bd.	Chapter 101 – Subdivision of Land (Dec. 2009 & Apr. 2010)
NFIP Flood Damage Prevention Ordinance	Yes	Federal, State, Local	Planning Board and Building Dept.	Chapter 73 - Flood Damage Prevention (2012)
NFIP: Cumulative Substantial Damages	No			
NFIP: Freeboard	Yes	State, Local	Building Dept.	State mandated BFE+2 for single and two-family residential construction, BFE+1 for all other construction types
Growth Management Ordinances	No			
Site Plan Review Requirements	Yes	Local	Planning Board	Apr. 2010 & May 2012





Tool / Program (code, ordinance, plan)	Do you have this? (Yes/No)	Authority (local, county, state, federal)	Dept. /Agency Responsible	Code Citation and Comments (Code Chapter, name of plan, explanation of authority, etc.)
Stormwater Management Ordinance	Yes	Local	Planning Board	Article 125.60 – Stormwater Management (2009)
Municipal Separate Storm Sewer System (MS4)	No			
Natural Hazard Ordinance	No			
Post-Disaster Recovery Ordinance	No			
Real Estate Disclosure Requirement	Yes	State	Building Dept.	NYS mandate, Property Condition Disclosure Act, NY Code - Article 14 §460-467
Other [Special Purpose Ordinances (i.e., sensitive areas, steep slope)]	Yes	Local	Planning Board	Chapter 119 – Local Waterfront Revitalization Program (2005) Chapter 188 – Waterfront Consistency Review (2007) Chapter 120 – Wetlands (2009) Article 125.40 – Development near streams, rivers, wetlands and other waterbodies (2012) Article V 125.54 – Development within water resources protection overlay district (2009) Article IV 125.32 – Freshwater Wetlands and Floodplains (2009) Article V 125.55 – Preservation of Natural and Cultural Features; design standards (2009)

Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the Town of Rhinebeck.

Table 9.19-7. Administrative and Technical Capabilities

Resources	Is this in place? (Yes or No)	Department/ Agency/Position
Administrative Capability		
Planning Board	Yes	Clerk
Mitigation Planning Committee	No	
Environmental Board/Commission	Yes	Conservation Advisory Board
Open Space Board/Committee	Yes	Open Space & Affordable Housing Committee
Economic Development Commission/Committee	No	
Maintenance Programs to Reduce Risk	No	
Mutual Aid Agreements	Yes	Fire Dept.
Technical/Staffing Capability		
Planner(s) or Engineer(s) with knowledge of land development and land management practices	Yes	Planning Consultant (Not on staff)
Engineer(s) or Professional(s) trained in construction practices related to buildings and/or infrastructure	Yes	Engineering Consultant (Not on staff)
Planners or engineers with an understanding of natural hazards	No	





Resources	Is this in place? (Yes or No)	Department/ Agency/Position
NFIP Floodplain Administrator	Yes	Ed Matuk, CEO
Surveyor(s)	No	
Personnel skilled or trained in GIS and/or HAZUS-MH applications	No	
Scientist familiar with natural hazards	No	
Emergency Manager	Yes	Emergency Management Coordinator
Grant Writer(s)	No	
Staff with expertise or training in benefit/cost analysis	No	
Professionals trained in conducting damage assessments	No	

Fiscal Capability

The table below summarizes financial resources available to the Town of Rhinebeck.

Table 9.19-8. Fiscal Capabilities

Financial Resources	Accessible or Eligible to Use (Yes/No)
Community development Block Grants (CDBG, CDBG-DR)	No
Capital Improvements Project Funding	No
Authority to Levy Taxes for specific purposes	Yes
User fees for water, sewer, gas or electric service	Yes – VCSD - sewer
Impact Fees for homebuyers or developers of new development/homes	Yes – subdivision & recreation fees
Stormwater Utility Fee	No
Incur debt through general obligation bonds	Yes
Incur debt through special tax bonds	Yes
Incur debt through private activity bonds	No
Withhold public expenditures in hazard-prone areas	No
Other Federal or State Funding Programs	CHIPS - roads
Open Space Acquisition Funding Programs	No
Other	n/a



Community Classifications

The table below summarizes classifications for community program available to the Town of Rhinebeck.

Table 9.19-9. Community Classifications

Program	Do you have this? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Community Rating System (CRS)	No		
Building Code Effectiveness Grading Schedule (BCEGS)	No		
Public Protection (ISO Fire Protection Classes 1 to 10)	Yes	5	?
Storm Ready	No		
Firewise	No		
Disaster/Safety Programs in/for Schools	No		
Organizations with Mitigation Focus (advocacy group, non-government)	No		
Public Education Program/Outreach (through website, social media)	No		
Public-Private Partnerships	No		

N/A = Not applicable. NP = Not participating. - = Unavailable. TBD = To be determined.

The classifications listed above relate to the community’s ability to provide effective services to lessen its vulnerability to the hazards identified. These classifications can be viewed as a gauge of the community’s capabilities in all phases of emergency management (preparedness, response, recovery and mitigation) and are used as an underwriting parameter for determining the costs of various forms of insurance. The CRS class applies to flood insurance while the BCEGS and Public Protection classifications apply to standard property insurance. CRS classifications range on a scale of 1 to 10 with class 1 being the best possible classification, and class 10 representing no classification benefit. Firewise classifications include a higher classification when the subject property is located beyond 1000 feet of a creditable fire hydrant and is within 5 road miles of a recognized Fire Station.

Criteria for classification credits are outlined in the following documents:

- The Community Rating System Coordinators Manual
- The Building Code Effectiveness Grading Schedule
- The ISO Mitigation online ISO’s Public Protection website at <http://www.isomitigation.com/ppc/0000/ppc0001.html>
- The National Weather Service Storm Ready website at <http://www.weather.gov/stormready/howto.htm>
- The National Firewise Communities website at <http://firewise.org/>



Self-Assessment of Capability

The table below provides an approximate measure of the Town of Rhinebeck’s capability to work in a hazard-mitigation capacity and/or effectively implement hazard mitigation strategies to reduce hazard vulnerabilities.

Table 9.19-10. Self-Assessment Capability for the Municipality

Area	Degree of Hazard Mitigation Capability		
	Limited (If limited, what are your obstacles?)*	Moderate	High
Planning and Regulatory Capability		X	
Administrative and Technical Capability	X		
Fiscal Capability	X		
Community Political Capability	X		
Community Resiliency Capability	X		
Capability to Integrate Mitigation into Municipal Processes and Activities.	X		

National Flood Insurance Program

NFIP Floodplain Administrator (FPA)

Edmund J. Matuk, Jr. Building & Fire Inspector

Flood Vulnerability Summary

The Town of Rhinebeck does not maintain lists/inventories of properties that have been damaged by floods. For details regarding the damages in the Town from the most recent flooding events, refer to Section 0 of this annex. The FPA did not make Substantial Damage estimates during Sandy or other events. Currently, there is one property interested in mitigation in the Town and funding for this project would be provided by the property owner and their flood insurance.

Resources

The FPA is the sole person assuming responsibilities of floodplain administration within the Town of Rhinebeck. Services and functions the FPA provides include permit review, inspections, and record-keeping. The Town's Flood Damage Prevention ordinance, local law 2 of 2012, provides information regarding floods within the Town. The FPA indicated that time constraints is a barrier to running an effective floodplain management program; he has part time hours for this position. The FPA also stated that he does not feel adequately supported and trained to fulfill his responsibilities as the municipal FPA and would consider attending continuing education and certification trainings if offered.

Compliance History

The Town of Rhinebeck is currently in good-standing with the NFIP; however, it is unknown when the most recent compliance audit was conducted.

Regulatory

The Town has several ordinances that support floodplain management and meet NFIP requirements and includes: Local Waterfront Revitalization Program (Chapter 119 of Town Code) and Freshwater wetlands and floodplains (Article IV 125.32 of Town Code).





Community Rating System

The Town of Rhinebeck does not participate in the Community Rating System (CRS) program; however, the Town has considered joining and would attend a CRS seminar if offered locally.

Integration of Hazard Mitigation into Existing and Future Planning Mechanisms

For a community to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local government operations. As part of this planning effort, each community was surveyed to obtain a better understanding of their community's progress in plan integration. A summary is provided below. In addition, the community identified specific integration activities that will be incorporated into municipal procedures.

Planning

Land Use Planning: The Town has a Planning Board and Zoning Board of Appeals which review all applications for development and consider natural hazard risk areas in their review. Many development activities require additional levels of environmental review, specifically NYS SEQR and Federal NEPA requirements.

Town of Rhinebeck Comprehensive Plan 2009: The Town completed a Comprehensive Plan, which included the identification of natural hazard risk areas like floodplains, wetlands, and steep slopes, as well as land use and zoning recommendations for managing those risks. However, the Comprehensive Plan does not refer to the County's HMP. Some of the recommendations included the following:

Objective: Use and maintain state-of-the-art information management techniques to preserve the knowledge generated by the Rhinebeck Plan and to convey that knowledge to key decision-makers and the general public.

- Continue to map the location of lands that comprise significant natural, historic and cultural resources, using the computer-based Geographic Information System (GIS) established for The Rhinebeck Plan. Identify permanently protected lands on all mapping. Continuously update the maps as resources are added. Become a clearinghouse for the geographic information collected, and make it available to the Planning Board, Zoning Board of Appeals, zoning enforcement officer and those wishing to develop land in the town for their review prior to the formulation of their plans. Display the maps at town hall for use by municipal boards, landowners, and prospective applicants for development approval. Make the maps available on the town's website. Ensure the maps are properly labeled to indicate they are reference tools and are not a substitute for on-site analysis during the development approval process.
- Establish procedures for the electronic submission of development applications, including their SEQR documents (now required by State law), to enable their interactive viewing a review meetings.
- Instruct town officials in the use of the "Virtual Private Network" (VPN)-enabled computer at Town Hall, so that decision makers have ready access to up-to-date GIS data. Inform residents of the availability of the VPN, so that residents have access to the same information that town officials currently have. If feasible, make the GIS data accessible through the town's Web site.
- Provide electronic versions of the Zoning Law and Subdivision Regulations for viewing and downloading on the Internet.
- Amend the subdivision regulations to require all applicants for new subdivisions to submit electronic versions of their plans from the most preliminary submittal through subsequent reviews. The electronic submissions should be in a format that allows it to be viewed registered with all other town geographic data.



Objective: Ensure that municipal boards have the proper training to carry out the new planning and zoning requirements.

- Appoint Planning Board members who represent diverse interests, including architecture, agriculture, business, natural and cultural resources and long-term community advocacy.
- Ensure that municipal entities can effectively implement the recommendations of The Rhinebeck Plan to enhance rural character by providing them with clear direction, training and resources. Inform new members of training obligations before they assume their position.
- Require Dutchess County Planning Federation certification of all Planning Board members.
- Update and adopt administrative policies and project review checklists for the Planning and Zoning Boards and applicants to streamline the review process.
- Provide the Planning Board with adequate planning resources, such as adequate staffing and easy access to officially adopted maps, in order to better enable them to carry out the Board's new responsibilities under The Rhinebeck Plan.

Rhinebeck LWRP 2009: The Town of Rhinebeck Local Waterfront Revitalization Program (LWRP) has been prepared pursuant to provisions of the New York State Waterfront Revitalization of Coastal Areas and Inland Waterways Act and the New York State Coastal Management Program (NYS CMP). The Rhinebeck LWRP is a comprehensive management program for the Town's Hudson River waterfront resources that is based on the policies of the NYS CMP. Upon approval by the Secretary of State, it is to be incorporated into the NYS CMP. The Rhinebeck LWRP would change the NYS CMP by making several policies more specific as they apply within the Town and by specifying the location and types of uses to be accommodated within the waterfront area. The Plan included the following applicable policies:

- Policy 11 (Siting of Structures to Minimize Damage from Flooding and Erosion) the policy is applicable to the flood hazard areas identified within the Town. It establishes minimum setbacks from all riverbanks and streambanks for buildings or other structures. All new construction or substantial improvement of residential and non-residential development within flood hazard areas must have the lowest floor elevated to the level of the base flood elevation and/or have floodproofing of non-residential structures. Streambank erosion from tidal action or navigation on the Hudson River is considered a moderate problem. The sloping to steep banks along the river are subject to slumping and need to be protected, especially near Suckley Cover, north of Jones Island, which is considered an area of critical erosion. Vegetation needs to be maintained along the sloping banks.
- Policy 12 (Coastal Activities Causing Erosion and Flooding) this policy describes the Town's bluff areas. As further development is proposed, preservation of these natural features to avoid flooding and erosion needs to be considered by the Town during review. Measures to protect these natural features are specified.
- Policy 13 (Erosion Protection for Thirty Years) this policy specifies guidelines for construction or alteration of erosion protection structures.
- Policy 14 (No Measurable Onsite or Offsite Increase in Erosion or Flooding) this policy calls for developments along the river bank to be sited to avoid construction on clay soils and soils subject to erosion. The policy also specifies practices to be utilized for construction in the waterfront area.
- Policy 17 (Use Non-Structural Measures to Minimize Damage from Flooding and Erosion) the sloping to steep earthen banks along the Hudson River are subject to landslides and erosion. These areas, particularly the area near Suckley Cove north of Jones Island, which is classified as an area of critical erosion, will be protected through site plan and/or subdivision review.
- Policy 36 (Meet Requirements for Hazardous Material Shipment and Storage) Local regulations provide for protection of sensitive stream corridors and aquifer protection areas.



Conservation Planning: The Town Conservation Advisory Board (CAB) examines and recommends measures to improve and protect Rhinebeck's natural environment. It reviews applications before the Planning Board and makes recommendations on environmentally sensitive aspects of those applications. It operates in an advisory role only.

Regulatory and Enforcement (Ordinances)

Flood Damage Prevention Chapter 73: It is the purpose of this chapter to promote the public health, safety, and general welfare and to minimize public and private losses due to flood conditions in specific areas by provisions designed to:

- A. Regulate uses which are dangerous to health, safety and property due to water or erosion hazards or which result in damaging increases in erosion or in flood heights or velocities;
- B. Require that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction;
- C. Control the alteration of natural floodplains, stream channels, and natural protective barriers which are involved in the accommodation of floodwaters;
- D. Control filling, grading, dredging and other development which may increase erosion or flood damages;
- E. Regulate the construction of flood barriers which will unnaturally divert floodwaters or which may increase flood hazards to other lands; and
- F. Qualify for and maintain participation in the National Flood Insurance Program.

Zoning Code Chapter 125: The Town's zoning code includes districts and standards pertaining to the mitigation of hazards. These sections include the Floodplain regulations, stormwater management & erosion control standards.

Site Plan/Subdivision Review Chapter 101: The Town's Planning Board is tasked with site plan/subdivision review. The Planning board pays special attention to ensure that developments mitigate the issues associated with flooding or steep slopes.

Operational and Administration

When the Planning and Zoning Boards need to make decisions with respect to natural hazard risk management, they use the following to help guide them to a decision: USDHS, FEMA, FIRM, NYSDEC, USGS, NWI and USDA studies, surveys and associated mapping.

The Town of Rhinebeck utilizes a planning consultant who functions in collaboration with the Planning Board Engineer, overview are related only to review of individual projects before the Town for subdivision plat approval, issuance of special use permits, issuance of wetlands permits and site plan approval.

The Town does have a Planning Board and their functions, with respect to managing natural hazard risk and compliance with related natural hazard regulations, include the review of, and decision upon, applications for subdivision plat approval, issuance of special use permits, issuance of wetlands permits, and site plan approval. The Planning Board seeks advice from both the Planner and Engineer and the Town's Conservation Advisory Board and Waterfront Advisory Committee.

The Town's Conservation Advisory Board, Waterfront Advisory Committee, and the Town Highway Superintendent all include functions with respect to managing natural hazard risk within the community.



Stormwater management functions is performed by the designated stormwater management officer who is Ed Matuk, building inspector and CEO for the Town. He is also the identified floodplain manager and part of the Hudson Valley Code Enforcement Officials.

Currently, Town staff does not have experience with developing FEMA BCAs, performing Substantial Damage Estimates, or preparing grant applications for mitigation projects. The Town's CEO and ZEO do receive limited certification hours; however, Town staff is part time. Areas in which the Town staff would benefit from additional training and/or certification with respect to natural hazard risk management include: floodplain management and mitigation, stormwater management and mitigation, flood proofing construction and mitigation, and erosion and sediment control and mitigation.

Funding

The Town of Rhinebeck has not pursued or been awarded grant funds for mitigation-related projects. The Town does not have any other mechanisms to fiscally support hazard mitigation projects. The following provides additional information regarding the Town's budget and hazard mitigation.

- **Operating Budget:** The Town's operating budget contains minimal provisions for expected repairs like snow removal and infrastructure repair after a storm or natural disaster. The operating budget does not contain line items for mitigation projects or activities.
- **Capital Improvement Budget:** The Town does not have any capital improvement programs in place. The Highway Department and Town Board considers capital projects and related appropriations on an annual budget basis.

Education and Outreach

The Town includes announcements on the home page and includes links and contact info for all town personal and emergency response resources. The Planning Department is a member of the Dutchess County Planning Federation and attends trainings and researches best practices that other communities are implementing. The Town has planned to budget for training for personal including professional development geared towards health and safety.



9.19.6 Mitigation Strategy and Prioritization

This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and prioritization.

Past Mitigation Initiative Status

The Town of Rhinebeck has no prior mitigation strategy.

Completed Mitigation Initiatives not Identified in the Previous Mitigation Strategy

The Town of Rhinebeck has identified the following as mitigation projects/activities that have been completed, are planned, or on-going within the municipality:

- 2006-2007 Rhinecliff Waterfront – the Town Buildings and Grounds Department used ¾-inch stone and constructed concrete ramps to keep this area from washing out
- 2008 Zipfeldburg / Frost Rd Culvert replacement – the Town Highway Department replaced two culvert pipes (36" & 24") with one 57" x 38" aluminized squash pipe
- 2011-2012 Rhinecliff Boat Landing/park – the Town Buildings and Grounds Department reinforced/rebar the sea wall with concrete (8x5x20), topsoil, and seeding to prevent erosion
- 2012 – Parsonage St. Bridge - the Town Highway Department strengthened bridge abutments, approach wing walls, and approach banks.

Proposed Hazard Mitigation Initiatives for the Plan

The Town of Rhinebeck participated in a mitigation action workshop in May 2015 and was provided the following FEMA publications to use as a resource as part of their comprehensive review of all possible activities and mitigation measures to address their hazards: FEMA 551 ‘Selecting Appropriate Mitigation Measures for Floodprone Structures’ (March 2007) and FEMA ‘Mitigation Ideas – A Resource for Reducing Risk to Natural Hazards’ (January 2013).

Table 9.19-11 summarizes the comprehensive-range of specific mitigation initiatives the Town of Rhinebeck would like to pursue in the future to reduce the effects of hazards. Some of these initiatives may be previous actions carried forward for this Plan. These initiatives are dependent upon available funding (grants and local match availability) and may be modified or omitted at any time based on the occurrence of new hazard events and changes in municipal priorities. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table below to further demonstrate the wide-range of activities and mitigation measures selected.

As discussed in Section 6, 14 evaluation/prioritization criteria are used to complete the prioritization of mitigation initiatives. For each new mitigation action, a numeric rank is assigned (-1, 0, or 1) for each of the 14 evaluation criteria to assist with prioritizing your actions as ‘High’, ‘Medium’, or ‘Low.’ The table below summarizes the evaluation of each mitigation initiative, listed by Action Number.

Table 9.19-12 provides a summary of the prioritization of all proposed mitigation initiatives for the Plan.



Table 9.19-11. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
T. Rhinebeck-1	Enterprise Road Culverts – install shallow precast concrete culvert in main stream bed	Existing	Flood, Severe Weather, Coastal, Severe Winter Storm	1, 2	Town Highway Department	Protect life and safety; protect infrastructure; decrease the need for repairs	High	FEMA Mitigation Grant Programs and Local Budget	Short Term / DOF	High	SIP	PP
T. Rhinebeck-2	Ackert Hook Road & Vlei Road culvert replacement; reinforce the shoulder of the roadway. There is also the possibility of installing check dams upstream.	Existing	Flood, Severe Weather, Coastal, Severe Winter Storm	1, 2	Town Highway Department	Protect life and safety; protect infrastructure; decrease the need for repairs	High	FEMA Mitigation Grant Programs and Local Budget	Short Term / DOF	High	SIP	PP
T. Rhinebeck-3	Upsize drain and culvert pipes on Mill Road (south) – re-grade ditch lines and upsize culverts	Existing	Flood, Severe Weather, Coastal, Severe Winter Storm	1, 2	Town Highway Department	Protect life and safety; protect infrastructure; decrease the need for repairs	High	FEMA Mitigation Grant Programs and Local Budget	Short Term / DOF	High	SIP	PP
T. Rhinebeck-4	A study is needed to identify possible locations for water collection in the area of Old Post Road to help alleviate flooding. The study needs to identify possible locations for additional culverts as well. This project will be broken into two phases.	Existing	Flood, Severe Weather, Coastal, Severe Winter Storm	1, 2, 4	Town Highway Department	Protect life and safety; remove threat of flooding; reduce costs of emergency response	Medium	HMPG with local match	Short Term / DOF	Medium	LPR, SIP	PP, PR
T. Rhinebeck-5	A study is needed to locate possible changes in water flow and collection areas in the area of Old Rock City Road and Kimberly Place. Some areas may require some additional fill and rising of land to help alleviate the flood problem. This will require the	Existing	Flood, Severe Weather, Coastal, Severe Winter Storm	1, 2, 4	Town Highway Department	Protect life and safety; remove threat of flooding; reduce costs of emergency response	Medium to High	HMPG with local match	Short Term / DOF	Medium	LPR, SIP	PP, PR





Table 9.19-11. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
	involvement of private property owners. This project will be broken into two phases.											
T. Rhinebeck-6	Conduct an engineering study to develop a plan for a stormwater system replacement and to identify additional drainage outlets. This will require both engineering and legal consultation and obtaining easements. Once identified, the Town will implement the project.	Existing	Flood, Severe Weather, Coastal, Severe Winter Storm	1, 2, 4	Town Highway Department	Protect life and safety; remove threat of flooding; reduce costs of emergency response	Medium to High	HMPG with local match	Short Term / DOF	Medium	LPR, SIP	PP, PR
T. Rhinebeck-7	Support and participate in county-led initiatives intended to build local and regional mitigation and risk-reduction capabilities (see Section 9.1)	Existing	All	All	Engineering via NFIP FPA with NYS DHSES and FEMA support	High	Low	Municipal Budget	Ongoing – Long Term / DOF	High	LPR	PR, PI
T. Rhinebeck-8	Assess and prioritize non-structural flood hazard mitigation alternatives for at risk properties within the floodplain, including those that have been identified as repetitive loss, such as acquisition/relocation, or elevation depending on feasibility. The parameters for feasibility for this initiative would be: funding, benefits versus costs and willing participation of property owners. Implement as funding becomes available. Specifically identified are properties in the following areas:											
	See above	Existing	Flood, Severe Weather, Coastal, Severe Winter Storm	1, 2	Engineering via NFIP FPA with NYS DHSES and FEMA support	High	High	FEMA Mitigation Grant Programs and Local Budget	Ongoing – Long Term / DOF	High	SIP	PP
T. Rhinebeck-9	Create/Enhance/Maintain Mutual Aid agreements with neighboring communities for continuity of operations	N/A	All	All	Town with support from County, NYS DHSES, FEMA and surrounding communities	Medium	Low	Municipal Budget	Short Term	Medium	LPR	PR, ES
T. Rhinebeck-	Have designated NFIP Floodplain Administrator (FPA), and other local officials who would benefit, become a Certified Floodplain Manager (CFM) through the Association of State Floodplain Managers (ASFPM) and New York State. Floodplain and Stormwater Managers Association (NYSFSMA), and pursue relevant continuing education training such as FEMA											





Table 9.19-11. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
10	Benefit-Cost Analysis (BCA) and Substantial Damage Estimation (SDE).											
	See above	N/A	Flood	All	Town NFIP FPA and others	Medium	Low	Municipal Budget	Short Term / DOF	High	EAP	PR
T. Rhinebeck-11	Notify and provide needed support to the facility manager/operator to evaluate the Rhinebeck Pump and Town Garage's flood vulnerability and determine what mitigation actions are feasible. Assure that any mitigation addresses the 500-year flood event or "worst damage scenario".	Existing	Flood	1, 2	Town Administration and facility owners	Medium	Low	Municipal Budget	Short Term	Medium	SIP	PP

Notes:

Not all acronyms and abbreviations defined below are included in the table.

*Does this mitigation initiative reduce the effects of hazards on new and/or existing buildings and/or infrastructure? Not applicable (N/A) is inserted if this does not apply.

Acronyms and Abbreviations:

- CAV Community Assistance Visit
- CRS Community Rating System
- DPW Department of Public Works
- FEMA Federal Emergency Management Agency
- FPA Floodplain Administrator
- HMA Hazard Mitigation Assistance
- N/A Not applicable
- NFIP National Flood Insurance Program
- OEM Office of Emergency Management

Potential FEMA HMA Funding Sources:

- FMA Flood Mitigation Assistance Grant Program
- HMGP Hazard Mitigation Grant Program
- PDM Pre-Disaster Mitigation Grant Program
- RFC Repetitive Flood Claims Grant Program (discontinued 2015)
- SRL Severe Repetitive Loss Grant Program (discontinued 2015)

Timeline:

- Short 1 to 5 years
- Long Term 5 years or greater
- OG On-going program
- DOF Depending on funding

Costs:

Where actual project costs have been reasonably estimated:

- Low < \$10,000
- Medium \$10,000 to \$100,000
- High > \$100,000

Benefits:

Where possible, an estimate of project benefits (per FEMA's benefit calculation methodology) has been evaluated against the project costs, and is presented as:

- Low= < \$10,000
- Medium \$10,000 to \$100,000
- High > \$100,000





Costs:

Where actual project costs cannot reasonably be established at this time:

- Low Possible to fund under existing budget. Project is part of, or can be part of an existing on-going program.
- Medium Could budget for under existing work plan, but would require a reapportionment of the budget or a budget amendment, or the cost of the project would have to be spread over multiple years.
- High Would require an increase in revenue via an alternative source (i.e., bonds, grants, fee increases) to implement. Existing funding levels are not adequate to cover the costs of the proposed project.

Benefits:

Where numerical project benefits cannot reasonably be established at this time:

- Low Long-term benefits of the project are difficult to quantify in the short term.
- Medium Project will have a long-term impact on the reduction of risk exposure to life and property, or project will provide an immediate reduction in the risk exposure to property.
- High Project will have an immediate impact on the reduction of risk exposure to life and property.

Mitigation Category:

- Local Plans and Regulations (LPR) – These actions include government authorities, policies or codes that influence the way land and buildings are being developed and built.
- Structure and Infrastructure Project (SIP) - These actions involve modifying existing structures and infrastructure to protect them from a hazard or remove them from a hazard area. This could apply to public or private structures as well as critical facilities and infrastructure. This type of action also involves projects to construct manmade structures to reduce the impact of hazards.
- Natural Systems Protection (NSP) – These are actions that minimize damage and losses, and also preserve or restore the functions of natural systems.
- Education and Awareness Programs (EAP) – These are actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. These actions may also include participation in national programs, such as StormReady and Firewise Communities

CRS Category:

- Preventative Measures (PR) - Government, administrative or regulatory actions, or processes that influence the way land and buildings are developed and built. Examples include planning and zoning, floodplain local laws, capital improvement programs, open space preservation, and storm water management regulations.
- Property Protection (PP) - These actions include public activities to reduce hazard losses or actions that involve (1) modification of existing buildings or structures to protect them from a hazard or (2) removal of the structures from the hazard area. Examples include acquisition, elevation, relocation, structural retrofits, storm shutters, and shatter-resistant glass.
- Public Information (PI) - Actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. Such actions include outreach projects, real estate disclosure, hazard information centers, and educational programs for school-age children and adults.
- Natural Resource Protection (NR) - Actions that minimize hazard loss and also preserve or restore the functions of natural systems. These actions include sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.
- Structural Flood Control Projects (SP) - Actions that involve the construction of structures to reduce the impact of a hazard. Such structures include dams, setback levees, floodwalls, retaining walls, and safe rooms.
- Emergency Services (ES) - Actions that protect people and property during and immediately following a disaster or hazard event. Services include warning systems, emergency response services, and the protection of essential facilities





Table 9.19-12. Summary of Prioritization of Actions

Mitigation Action / Project Number	Mitigation Action/Initiative	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
T. Rhinebeck-1	Enterprise Road Culverts – install shallow precast concrete culvert in main stream bed	1	1	1	1	1	1	0	1	0	1	1	1	1	0	11	High
T. Rhinebeck-2	Ackert Hook Road & Vlei Road culvert replacement; reinforce the shoulder of the roadway. There is also the possibility of installing check dams upstream.	1	1	1	1	1	1	0	1	0	1	1	1	1	0	11	High
T. Rhinebeck-3	Upsize drain and culvert pipes on Mill Road (south) – re-grade ditch lines and upsize culverts	1	1	1	1	1	1	0	1	0	1	1	1	1	0	11	High
T. Rhinebeck-4	A study is needed to identify possible locations for water collection in the area of Old Post Road to help alleviate flooding.	1	1	1	1	0	0	1	1	0	1	1	0	0	0	8	Medium
T. Rhinebeck-5	A study is needed to locate possible changes in water flow and collection areas in the area of Old Rock City Road and Kimberly Place.	1	1	1	1	0	0	1	1	0	1	1	0	0	0	8	Medium
T. Rhinebeck-6	Conduct an engineering study to develop a plan for a stormwater system replacement and to identify additional drainage outlets.	1	1	1	1	0	0	1	1	0	1	1	0	0	0	8	Medium
T. Rhinebeck-7	Support and participate in county-led initiatives intended to build local and regional mitigation and risk-reduction capabilities	1	1	1	1	1	1	1	0	0	1	1	1	0	0	10	High
T. Rhinebeck-8	Assess and prioritize non-structural flood hazard mitigation alternatives for at risk properties within the floodplain, including those that have been identified as repetitive loss, such as acquisition/relocation, or elevation depending on feasibility.	1	1	1	1	1	1	1	0	0	1	1	1	0	0	10	High





Table 9.19-12. Summary of Prioritization of Actions

Mitigation Action / Project Number	Mitigation Action/Initiative	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
T. Rhinebeck-9	Create/Enhance/Maintain Mutual Aid agreements with neighboring communities for continuity of operations	1	1	1	1	1	0	1	0	0	0	1	1	0	0	8	Medium
T. Rhinebeck-10	Have designated NFIP Floodplain Administrator (FPA), and other local officials who would benefit, become a Certified Floodplain Manager (CFM) and pursue relevant continuing education training such as FEMA Benefit-Cost Analysis (BCA) and Substantial Damage Estimation (SDE).	0	1	1	1	1	1	1	0	0	1	0	1	1	0	9	High
T. Rhinebeck-11	Notify and provide needed support to the facility manager/operator to evaluate the Rhinebeck Pump and Town Garage's flood vulnerability and determine what mitigation actions are feasible. Assure that any mitigation addresses the 500-year flood event or "worst damage scenario".	1	1	1	1	1	0	1	0	0	0	1	1	0	0	8	Medium

Note: Refer to Section 6 which contains the guidance on conducting the prioritization of mitigation actions.



9.19.7 Future Needs To Better Understand Risk/Vulnerability

None at this time.

9.19.8 Hazard Area Extent and Location

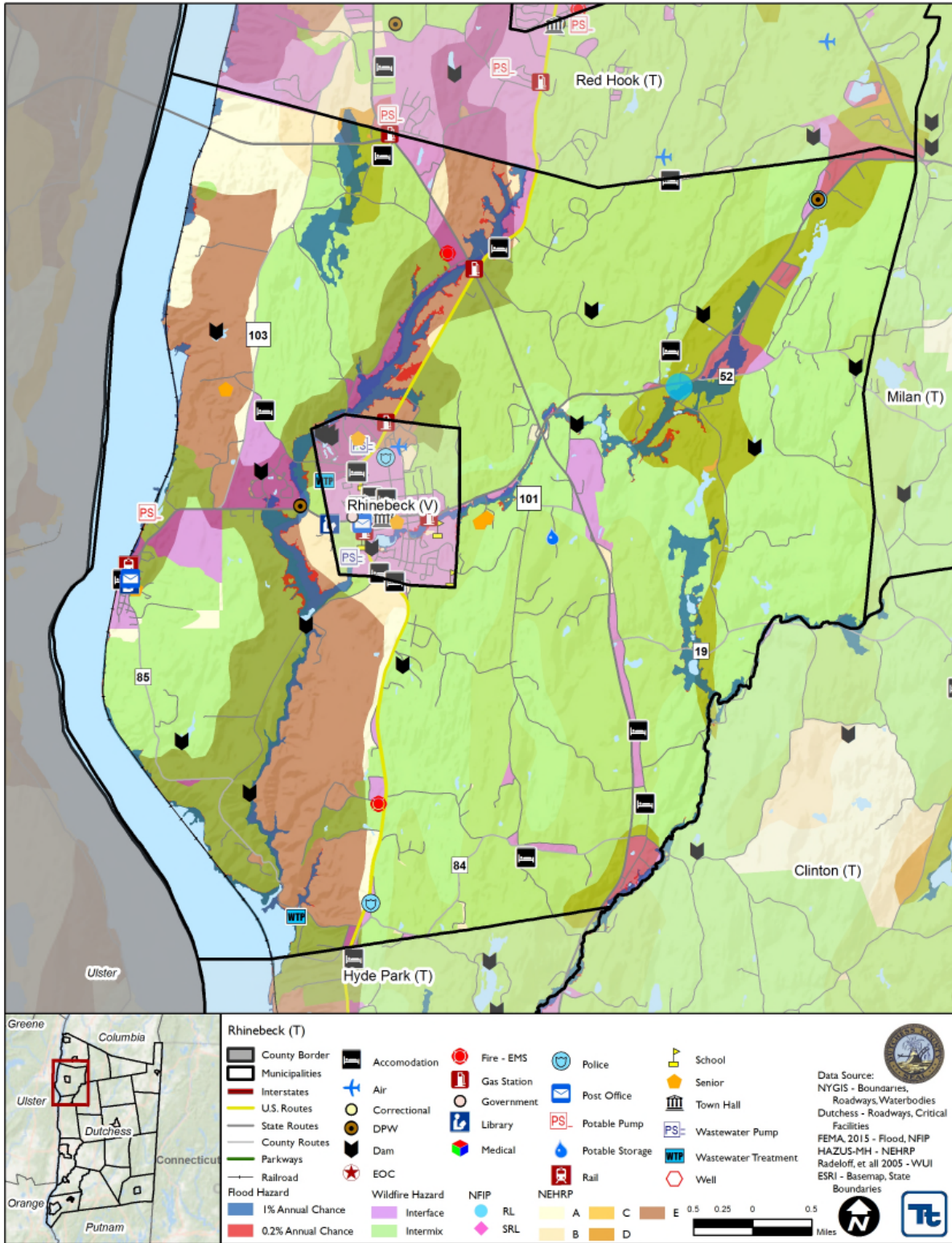
Hazard area extent and location maps have been generated for the Town of Rhinebeck that illustrate the probable areas impacted within the municipality. These maps are based on the best available data at the time of the preparation of this plan, and are considered to be adequate for planning purposes. Maps have only been generated for those hazards that can be clearly identified using mapping techniques and technologies, and for which the Town of Rhinebeck has significant exposure. These maps are illustrated in the hazard profiles within Section 5.4, Volume I of this Plan.

9.19.9 Additional Comments

None at this time.



Figure 9.19-1. Town of Rhinebeck Hazard Area Extent and Location Map





Name of Jurisdiction: Town of Rhinebeck
 Action Number: T. Rhinebeck-1
 Action Name: Enterprise Road Culverts

Assessing the Risk	
Hazard(s) addressed:	Flood, Severe Storm, Severe Winter Storm
Specific problem being mitigated:	Main channel (Landsman Kill) has pipes that are inadequate and the secondary and third culverts help but during periods of heavy rain, all three become inundated and unable to work properly. This floods Enterprise Road and the flooding undermines the roadway causing the Town pavement failures.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	<ol style="list-style-type: none"> 1. Install shallow precast concrete culvert in main stream bed 2. Establish secondary access for residents; however, this would not address repetitive damage to existing road and culvert system. 3. No action – current problem continues
Action/Project Intended for Implementation	
Description of Selected Action/Project	To provide proper mitigation, install a shallow precast concrete box culvert in the main stream bed. The height of the box culvert has to be limited to no greater than 30 inches and the width at least 8 feet. This will also require box beam guiderail.
Mitigation Action/Project Type	SIP
Goals and/or Objectives Met	1, 2
Applies to existing structures/infrastructure, future, or not applicable	Existing
Benefits (losses avoided)	The roadway will not wash out; public travel and safety will not be compromised; and will not need to spend money on repeat repairs.
Estimated Cost	High (\$250,000 +)
Priority*	High
Plan for Implementation	
Responsible Organization	Town of Rhinebeck Highway Department
Local Planning Mechanism	Capital Improvement, Stormwater Management
Potential Funding Sources	FEMA Mitigation Grant Programs and Local Budget
Timeline for Completion	Short Term / DOF
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

* Refer to results of Prioritization (page 2)



Action Number:

T. Rhinebeck-1

Action Name:

Enterprise Road Culverts

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Reduce road closures during flooding events which will allow emergency personnel to access residents in this area of the Town
Property Protection	1	Reduce or eliminate flood damage to Enterprise Road and culverts
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	
Fiscal	0	
Environmental	1	
Social	0	
Administrative	1	
Multi-Hazard	1	Flood, Severe Weather
Timeline	1	
Agency Champion	1	
Other Community Objectives	0	
Total	11	
Priority (High/Med/Low)	High	



Name of Jurisdiction: Town of Rhinebeck
Action Number: T. Rhinebeck-2
Action Name: Ackert Hook Road & Vlei Road culvert

Assessing the Risk	
Hazard(s) addressed:	Flood, Severe Storm, Severe Winter Storm
Specific problem being mitigated:	During heavy storms, water from the Fallsburg will leak through the headwall of the culvert and open up tabs for erosion in the area. If the water current continues on the back of the stone wall, it could lead to erosion and could result in a void that would result in a sink hole in the roadway.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	<ol style="list-style-type: none"> 1. Replace box culvert, reinforce shoulder, install rip rap 2. Establish secondary access for residents; however, this would not address repetitive damage to existing road and culvert system. 3. No action – current problem continues
Action/Project Intended for Implementation	
Description of Selected Action/Project	Replace the box culvert with a new box culvert with stone facing on both sides of the roadway. Reinforce the shoulder of the roadway and install rip rap on the banks of the Fallsburg. Possibility of check dams upstream from the location of the box culvert.
Mitigation Action/Project Type	SIP
Goals and/or Objectives Met	1, 2
Applies to existing structures/infrastructure, future, or not applicable	Existing
Benefits (losses avoided)	Public Safety; reduce costs of repeated repairs
Estimated Cost	High
Priority*	High
Plan for Implementation	
Responsible Organization	Town of Rhinebeck Highway Department
Local Planning Mechanism	Capital Improvement, Stormwater Management
Potential Funding Sources	FEMA Mitigation Grant Programs and Local Budget
Timeline for Completion	Short Term / DOF
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

* Refer to results of Prioritization (page 2)



Action Number:

T. Rhinebeck-2

Action Name:

Ackert Hook Road & Vlei Road culvert

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Reduce road closures during flooding events which will allow emergency personnel to access residents in this area of the Town
Property Protection	1	Reduce or eliminate flood damage to Ackert Hook Road and Vlei Road
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	
Fiscal	0	
Environmental	1	
Social	0	
Administrative	1	
Multi-Hazard	1	Flood, Severe Weather
Timeline	1	
Agency Champion	1	
Other Community Objectives	0	
Total	11	
Priority (High/Med/Low)	High	



Name of Jurisdiction: Town of Rhinebeck
Action Number: T. Rhinebeck-3
Action Name: Upsize drain and culvert pipes on Mill Road (south)

Assessing the Risk	
Hazard(s) addressed:	Flood, Severe Storm, Severe Winter Storm
Specific problem being mitigated:	The shoulder of the Mill Road (south) washes out during periods of heavy rain.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	1. Re-grade ditch lines and upsize existing culverts
	2. No action – current problem continues
	3. No other feasible option was identified for this project
Action/Project Intended for Implementation	
Description of Selected Action/Project	The ditch lines need to be re-graded and the culverts need to be upsized.
Mitigation Action/Project Type	SIP
Goals and/or Objectives Met	1, 2
Applies to existing structures/infrastructure, future, or not applicable	Existing
Benefits (losses avoided)	Public Health and & Safety; reduce costs of repeated repairs
Estimated Cost	Medium
Priority*	High
Plan for Implementation	
Responsible Organization	Town of Rhinebeck Highway Department
Local Planning Mechanism	Capital Improvement, Stormwater Management
Potential Funding Sources	FEMA Mitigation Grant Programs and Local Budget
Timeline for Completion	Short Term / DOF
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

* Refer to results of Prioritization (page 2)



Action Number:

T. Rhinebeck-3

Action Name:

Upsize drain and culvert pipes on Mill Road (south)

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Reduce road closures during flooding events which will allow emergency personnel to access residents in this area of the Town
Property Protection	1	Reduce or eliminate flood damage to Mill Road
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	
Fiscal	0	
Environmental	1	
Social	0	
Administrative	1	
Multi-Hazard	1	Flood, Severe Weather
Timeline	1	
Agency Champion	1	
Other Community Objectives	0	
Total	11	
Priority (High/Med/Low)	High	



Name of Jurisdiction: Town of Rhinebeck
Action Number: T. Rhinebeck-4
Action Name: Engineering Study and Implementation of Old Post Road

Assessing the Risk	
Hazard(s) addressed:	Flood, Severe Storm, Severe Winter Storm
Specific problem being mitigated:	Flooding of roadway during periods of heavy rain. This leads to partial to full road closures and, at times, leads to shoulder washouts.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	1. Conduct study and implement findings
	2. Do nothing – current problem continues
	3. No other feasible options were identified
Action/Project Intended for Implementation	
Description of Selected Action/Project	A study is needed to identify possible locations for water collection in the area of Old Post Road to help alleviate flooding. The study needs to identify possible locations for additional culverts as well. This project will be broken into two phases: Phase 1: Acquire engineering firm to conduct the study for the Town Phase 2: Implement the findings from the study and complete the necessary project(s) to alleviate the problem.
Mitigation Action/Project Type	LPR, SIP
Goals and/or Objectives Met	1, 2
Applies to existing structures/infrastructure, future, or not applicable	Existing
Benefits (losses avoided)	Public Health & Safety; remove threat of flooding; reduce costs of emergency response for road closures
Estimated Cost	Medium
Priority*	Medium
Plan for Implementation	
Responsible Organization	Town of Rhinebeck Highway Department
Local Planning Mechanism	Capital Improvement and Stormwater Management
Potential Funding Sources	FEMA Mitigation Grant Programs and Local Budget
Timeline for Completion	Short Term / DOF
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

* Refer to results of Prioritization (page 2)



Action Number:

T. Rhinebeck-4

Action Name:

Engineering Study and Implementation of Old Post Road

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Reduce road closures during flooding events which will allow emergency personnel to access residents in this area of the Town
Property Protection	1	Reduce or eliminate flood damage to Old Post Road
Cost-Effectiveness	1	
Technical	1	
Political	0	
Legal	0	
Fiscal	1	
Environmental	1	
Social	0	
Administrative	1	
Multi-Hazard	1	Flood, Severe Weather
Timeline	0	
Agency Champion	0	
Other Community Objectives	0	
Total	8	
Priority (High/Med/Low)	Medium	



Name of Jurisdiction: Town of Rhinebeck
Action Number: T. Rhinebeck-5
Action Name: Engineering study of Old Rock City Road & Kimberly Place

Assessing the Risk	
Hazard(s) addressed:	Flood, Severe Storm, Severe Winter Storm
Specific problem being mitigated:	Subject to flooding on public and private properties during periods of moderate rains
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	1. Engineering study of Old Rock City Road & Kimberly Place and implementation of findings 2. Do nothing – current problem continues 3. No other feasible options were identified
Action/Project Intended for Implementation	
Description of Selected Action/Project	A study is needed to locate possible changes in water flow and collection areas in the area of Old Rock City Road and Kimberly Place. Some areas may require some additional fill and rising of land to help alleviate the flood problem. This will require the involvement of private property owners. This project will be broken into two phases: Phase 1: Acquire engineering firm to conduct the study for the Town Phase 2: Implement the findings from the study and complete the necessary project(s) to alleviate the problem.
Mitigation Action/Project Type	SIP, LPR
Goals and/or Objectives Met	1, 2, 4
Applies to existing structures/infrastructure, future, or not applicable	Existing
Benefits (losses avoided)	Prevent loss of public and private property; reduce risk to health and safety; reduce cost to response time to flooding conditions
Estimated Cost	Medium to High
Priority*	Medium
Plan for Implementation	
Responsible Organization	Town of Rhinebeck Highway Department
Local Planning Mechanism	Capital Improvement, Stormwater Management
Potential Funding Sources	FEMA Mitigation Grant Programs and Local Budget
Timeline for Completion	Short Term / DOF
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

* Refer to results of Prioritization (page 2)



Action Number:

T. Rhinebeck-5

Action Name:

Engineering study of Old Rock City Road & Kimberly Place

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Reduce road closures during flooding events which will allow emergency personnel to access residents in this area of the Town
Property Protection	1	Reduce or eliminate flood damage to Old Rock City Road and Kimberly Place
Cost-Effectiveness	1	
Technical	1	
Political	0	
Legal	0	
Fiscal	1	
Environmental	1	
Social	0	
Administrative	1	
Multi-Hazard	1	Flood, Severe Weather
Timeline	0	
Agency Champion	0	
Other Community Objectives	0	
Total	8	
Priority (High/Med/Low)	Medium	