

# Lower Wappinger Creek



## Community Resilience Building Workshop Summary of Findings August 2019



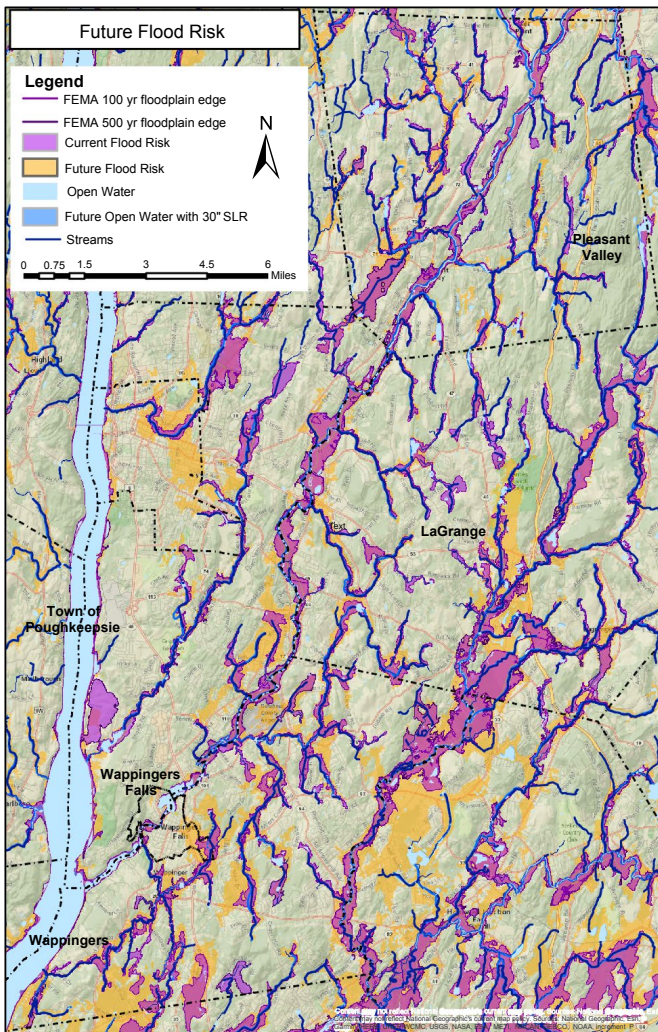
# Table of Contents

Overview.....	1
Projected Future Conditions.....	2
Climate Smart Community Resiliency Planning Tool Recommendations.....	6
Summary of Findings	
Top Hazards.....	9
Key Assets and Areas of Concern.....	9
Current Vulnerabilities.....	11
Current Strengths.....	12
Top Recommendations to Improve Resilience.....	13
Workshop Participants.....	17
Workshop Facilitation Team and Acknowledgements.....	18
Recommended Citation Format.....	18
Appendices	
CRB Workshop Base Maps and Asset Identification.....	20
Available State and Federal Resources.....	25
Climate Smart Resilience Tool Summary Presentation.....	26



# OVERVIEW

Extreme weather events and mounting natural hazards cause social, environmental, and infrastructure damages and losses. Municipalities, regional planning organizations, states and federal agencies will need to increase their resiliency and adapt to these conditions if they are to avoid damages today and into the future. For communities in the Hudson Valley, this need is strikingly evident. Recent devastating events such as Tropical Storm Irene and Superstorm Sandy have reinforced this urgency and compelled leading communities to proactively plan and mitigate potential risks. Ultimately, this type of leadership will reduce the exposure and vulnerability of citizens, infrastructure, and ecosystems, and will serve as a model for communities across the Hudson Valley, New York State, and the country.



**Figure 1.** Current and future flood risk for the study areas including the Towns of Poughkeepsie, Pleasant Valley, LaGrange, Wappinger and Village of Wappinger Falls.

In the fall of 2018, The Nature Conservancy and the Hudson River Watershed Alliance approached municipal officials in the Wappinger Creek watershed to discuss and identify resilience needs relative to infrastructure, habitat restoration, and community resilience. A strategy was developed to incorporate recommendations from an existing planning and code review tool (NYS Climate Smart Community Resilience Tool) with a process that identifies community assets and areas of risk and proposes initial adaptation strategies.

The Community Resilience Building (CRB) Workshop, is a unique “anywhere at any scale” community-driven process ([www.CommunityResilienceBuilding.com](http://www.CommunityResilienceBuilding.com)), that provides an appropriate platform to engage elected officials, municipal staff, and other key stakeholders from participating communities. This integrated planning process offers participating communities the opportunity to identify specific next steps for local policies, planning, and assets related to climate resilience. The purpose of this facilitated, multi-community workshop was to guide implementation of priority adaptation actions for municipalities in the lower Wappinger Creek watershed (Village of Wappingers Falls, Town of Wappinger, Town of Poughkeepsie, Town of LaGrange, and



Town of Pleasant Valley) (Figure 1). These communities are already working together on water issues through the Wappinger Creek Watershed Intermunicipal Council.

The workshop’s central objectives were to:

- Define extreme weather and articulate local natural and climate-related hazards,
- Identify existing and future vulnerabilities and strengths,
- Develop prioritized actions for the municipalities and broader stakeholder networks, and
- Identify opportunities for the community to advance actions to reduce risk and increase resilience.

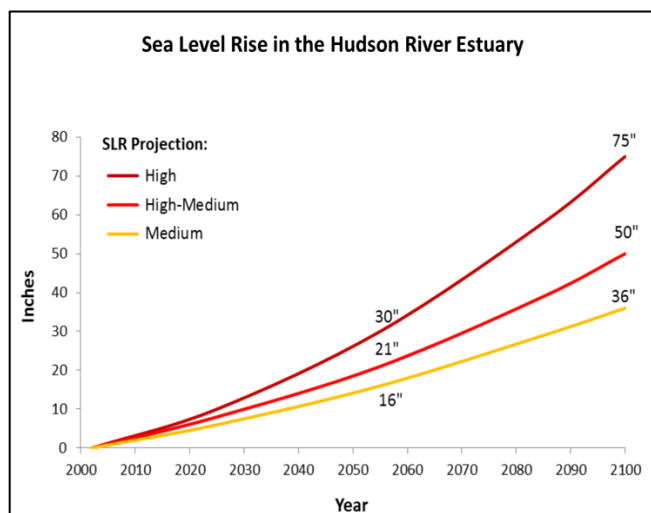
This report provides an overview of the top hazards, the current community strengths and concerns, and the suggested actions to improve resilience to natural and climate-related hazards in lower Wappinger Creek watershed municipalities today and in the future. The summary of findings will benefit from further comments, corrections, and updates from workshop attendees and additional stakeholders alike. The participation of all those concerned in the communities will help continue and expand collective leadership on hazards and community resilience.

## PROJECTED FUTURE CONDITIONS

Current climate and environmental conditions) are projected to change in ways that will profoundly influence current interactions with natural resources. This includes the magnitude and intensity of storms and drought, rising sea level in the Hudson River and tidal tributaries, and other changes. Various platforms are available to better understand and evaluate how different climate change scenarios are likely to impact Hudson Valley communities, including:

- The Nature Conservancy’s [Natural Resource Navigator](#),
- Scenic Hudson’s [Sea Level Rise Mapper](#),
- Columbia University’s [Hudson River Flood Decision Support Tool](#), and
- New York State [Climate Change Science Clearinghouse](#).

As these and other tools clearly indicate, there are many possible scenarios that could manifest themselves over the course of this century. The numerous factors, both global and local, that influence these outcomes make the extent of these scenarios difficult to predict. Thus, it is important to plan for a range of scenarios as evidenced by [NY’s Community Risk](#)



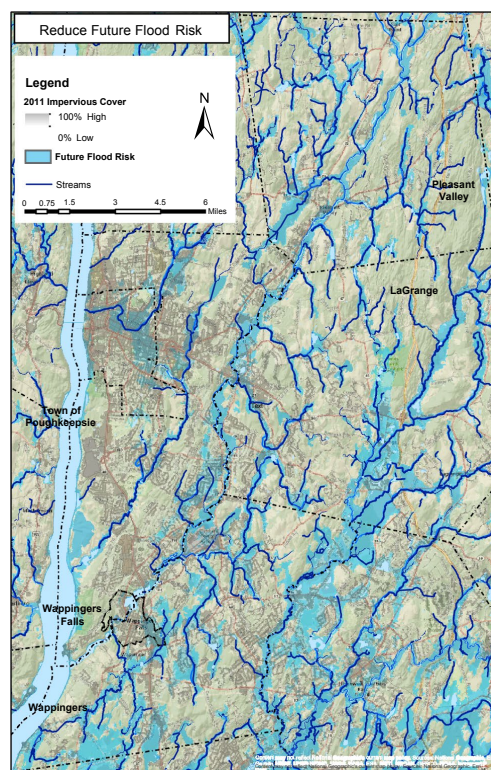
**Figure 2.** Projected sea level rise scenarios for the Hudson River Estuary.



[and Resiliency Act](#). For the purpose of adaptation planning, general trends and rough estimates can be employed. For example, riverfront communities in the Mid-Hudson region should be preparing for a *minimum* of 3-6 feet of mean sea level rise by 2100. All communities in the Hudson Valley should consider the potential ramifications of:

- Increased severity and frequency of big storms, including
  - More winter precipitation (if rain, then more flooding, if snow, then 10” of snow or more per storm) and
  - More flooding due to slightly increased precipitation and increased development and impervious surfaces;
- Hotter summers;
- Increased frequency and length of heat waves and droughts; and
- Shorter, milder winters.

Details on the ranges of projected future conditions are available through the [New York State Water Resources Institute](#) and through the previously referenced tools referenced (Figure 1 and Table 1).



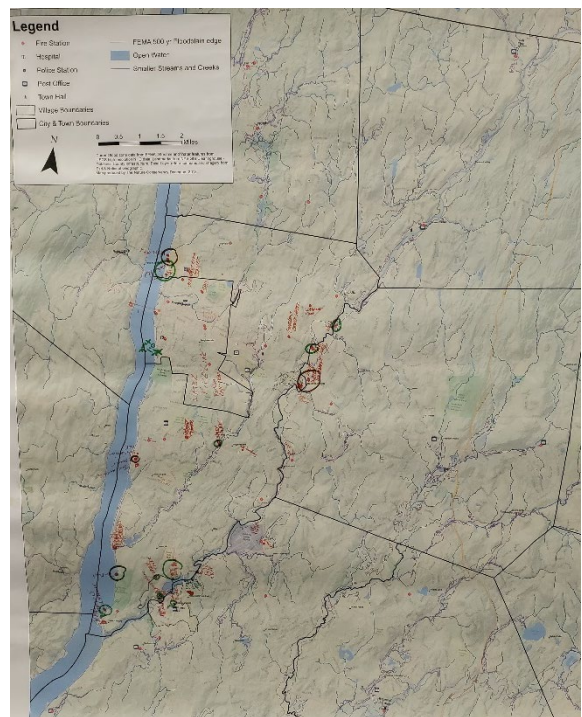
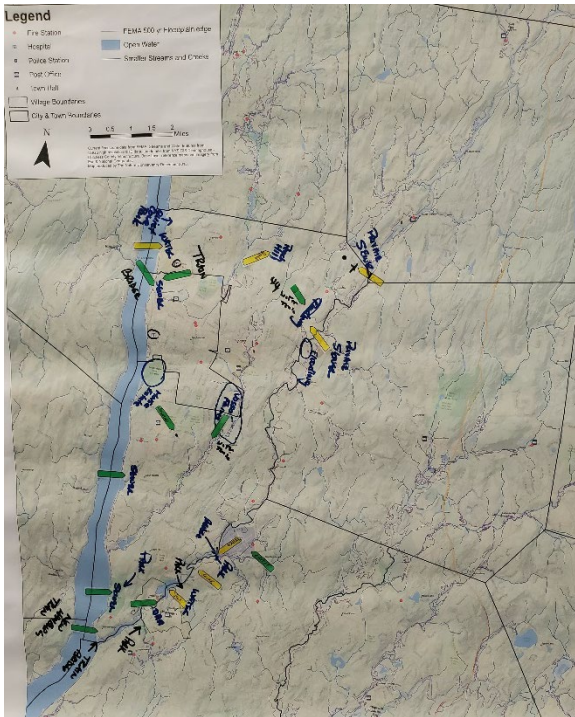
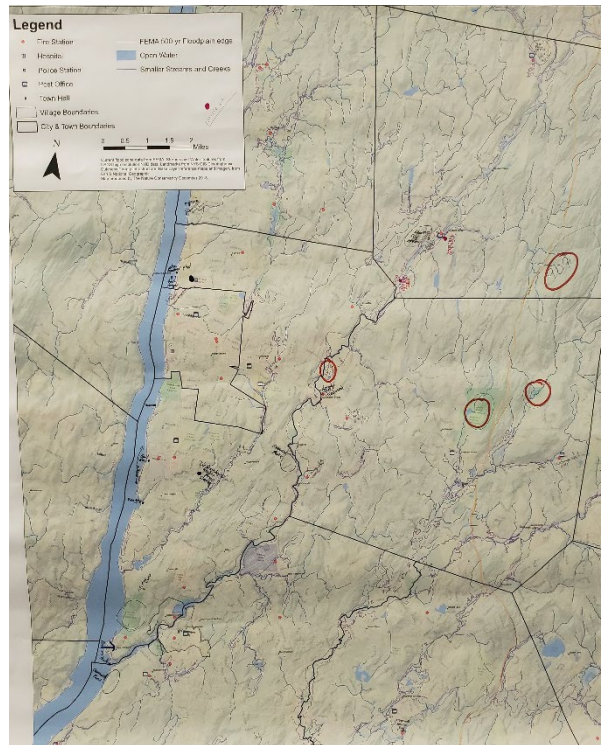
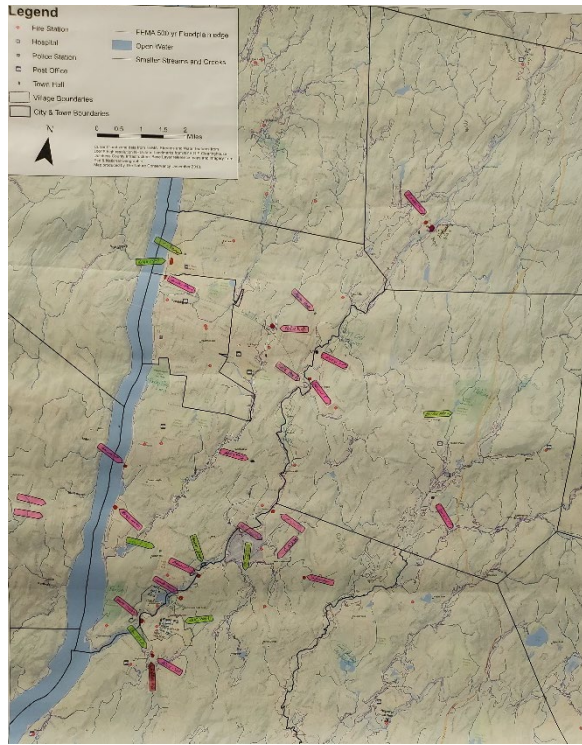
**Figure 3.** Projected future flood risk areas (blue shaded area) throughout the 5-municipality region’s inundation areas. Grey shaded areas represent possible areas of future development. Development activities in areas where the blue and grey shaded areas overlap should be carefully considered and evaluated before construction is allowed to begin.



Impact Scenarios for Towns of Poughkeepsie (PK) and Wappinger (WP)						
Type of Impact	18" of SLR with current 100 YR Storm		30" of SLR with current 100 YR Storm		48" of SLR with current 100 YR Storm	
	PK	WP	PK	WP	PK	WP
<i>Infrastructure</i>						
Total Damaged Buildings	60	13	72	19	89	29
EIA Powerplants	1		1		1	
Bridges	0	3		3	1	3
SPDES Wastewater	2	1	2	1	2	1
Roads (linear miles)	1	1	1	1	2	1
Railroads (linear miles)	5	2	6	3	6	3
Power Transmission Lines (linear miles)	1	0	1		1	
<i>Environment</i>						
Inundated Land Area (Acres)	493	74	513	83	523	85
Inundated Impervious Surface Area (Acres)	27	18	29	22	32	23
Inundated NWI and Tidal Wetlands (Acres)	52	1	53	1	53	1
<i>Social Vulnerability Index (unitless)</i>						
Impacted Census Blocks	5	7	5	7	5	7
Entire Municipality	5	4	5	4	5	4

**Table 1.** Community assets (Infrastructure, Environment, and Social) at risk with various sea level rise scenarios and current 100-year storm across the Towns of Poughkeepsie (PK) and Wappinger (WP), as modeled by the Hudson River Flood Decision Support Tool. The output was produced using Columbia University’s Center for International Earth Science Information Network Hudson River Flood Decision Support Tool 2.0.





**Figure 4.** Maps showing the location of identified assets were developed by each sub-group during the workshop.



# CLIMATE SMART RESILIENCY PLANNING TOOL RECOMMENDATIONS

In order to better prepare for the Community Resilience Building workshop, the Village of Wappingers Falls, Town of Wappinger, Town of Poughkeepsie, Town of LaGrange, and Town of Pleasant Valley, worked with Cornell Cooperative Extension Dutchess County to complete the [Climate Smart Resiliency Planning Tool \(CSRPT\)](#). The CSRPT, an action of the [NYS Climate Smart Communities \(CSC\) Certification](#) program, reviews a municipality's existing plans and ordinances to identify where climate adaptation recommendations could be made to help the community work toward becoming more resilient. The municipality receives a copy of the finished tool, as well as a recommendations document to use as a roadmap to move forward with resiliency projects.

The tool itself is broken down into six sections to analyze each municipality's documents on several different resiliency sub-topics. The first section is a list of all the relevant plans and ordinances that were taken into account throughout the tool. Section 2 examines how well the municipality addresses climate vulnerabilities and assesses climate risk. Section 3 looks at how the municipality includes the public in resiliency discussions and informs them how to be more climate resilient. Section 4 assesses the degree to which the plans are integrated with one another. Section 5 examines the municipality's preparedness level for climate events and recovery procedures. Finally, Section 6 looks at how well the municipality attempts to mitigate climate hazards.

Some recommendations that all five municipalities have in common include:

- Continue to pursue Climate Smart Community certification. All five communities have already adopted the pledge; therefore, the next step is to submit evidence of actions.
- In the 2021 update of the Hazard Mitigation plan, the municipalities can expand to include more climate adaptation strategies in the list of mitigation strategies.
- Share information, or links to information, on storm preparedness and flood mitigation in an easy to identify location on the municipality's website.
- Consider creating or updating maps that show populations (especially vulnerable populations), building stock, and natural and cultural resources in relation to identified hazards. Municipalities could work with Dutchess County to complete these maps.
- Participate in the Community Rating System (CRS), which recognizes and encourages community floodplain management activities that exceed the minimum National Flood Insurance Program (NFIP) standards.

Some recommendations for the Village of Wappingers Falls from this process include:

- Consider creating a municipal Emergency Management Plan that contains an evacuation plan as well as includes a general warning system, contains the best available projections concerning the frequency and severity of extreme storm events, includes evacuation routes and where they are prone to flooding, and identify local and state evacuation assistance programs for hospitals, nursing homes, prisons, residents without personal transportation, elderly, disabled, and schools.





- Designate an Emergency Operations Center and storm shelters that are located outside of flood-hazard areas, designated to withstand high winds, and have elevated back-up power.

Some recommendations for the Town of Wappinger from this process include:

- Create a webpage on the Town’s website that is dedicated to storm/emergency preparedness and flood mitigation. This website can include information such as general flood mitigation information, publicizing the availability of floodplain information to property owners, businesses, insurance agents, real estate agents, and lenders, and FEMA-suggested means to protect homes against storm and wind damage with property owners in the community.
- In the current update of the Emergency Preparedness Plan, consider including coastal flooding as a hazard, including the best available projections concerning the frequency and severity of extreme storm events, and including coordination and communication methods among critical stakeholders such as community-based organizations, local businesses, local health departments, utilities and local government leaders.

Some recommendations for the Town of Poughkeepsie from this process include:

- Continue to track riverine repetitive loss properties with the National Flood Insurance Program and notifying emergency managers and public works officials of the location of riverine repetitive loss properties.
- Complete a build-out analysis using existing zoning ordinances as part of the Comprehensive Plan update and consider comparing it to the extent of storm surge scenarios and projected sea-level rise scenarios
- Provide the public with information on the natural and beneficial functions of floodplains, wetlands, and green infrastructure.

Some recommendations for the Town of LaGrange from this process include:

- Update the Town of LaGrange Comprehensive Emergency Management Plan on a yearly basis (as recommended in the manual). Ideally, it would exist in an easy to update electronic format. The update could include the best available projections concerning the frequency and severity of extreme storm events, and a plan for coordination and communication among critical stakeholders such as community-based organizations, local businesses, local health departments, utilities in addition to local government leaders, county agencies and emergency responders that are included in the plan.
- When next updating the Town’s comprehensive plan, consider including sustainability elements such as explicitly mentioning and incorporating resilience within the plan’s mission, vision and goals as well as including strategies that determine whether to relocate structures that repeatedly flood, including identifying an equitable approach for community involvement in decision-making and potential funding sources.

Some recommendations for the Town of Pleasant Valley from this process include:

- Train and develop staff capacity for using vulnerability assessment (like FEMA’s HAZUS-MH) and risk-mapping tools (like flood insurance rate maps and cumulative



risk assessments). Also, have community officials complete post-flood stream intervention training. If it is beyond Pleasant Valley's capacity, look to Dutchess County staff who have the capacity to use these resources.

- When next updating the Town's comprehensive plan, consider including sustainability elements such as explicitly mentioning and incorporating resilience within the plan's mission, vision and goals as well as including strategies that determine whether to relocate structures that repeatedly flood, including identifying an equitable approach for community involvement in decision-making and potential funding sources.
- Consider engaging in wetland or shoreline restoration, including controlling invasive plant species, of the Wappinger Creek and other waterbodies.



**Figure 5.** Danielle Salisbury with Cornell Cooperative Extension Dutchess County shared the preliminary findings of The Climate Smart Community Resilience Tool during the workshop. ©E. Vail, HRWA 2019.



# SUMMARY OF FINDINGS

## Top Hazards

During the core team meetings that took place prior to the workshop and at the start of the Community Resilience Building workshop, workshop participants confirmed the top natural climate hazards as the following:

1. **Sea level rise and storm surge:** Projected rises in future mean sea levels, combined with severe coastal storms such as Superstorm Sandy, capable of producing storm surge and coastal flooding.
2. **Inland flooding:** Inland flooding caused by intense precipitation, storms and subsequent runoff from rain or snow, especially in the Wappinger Creek and other waterways.
3. **Drought and wildfires:** Higher peak temperatures in summer with sporadic precipitation events which may stress municipal and private resources, especially public water supplies and private wells. In addition, the threat of wildfires was brought up repeatedly at the Community Resilience Building workshop as an additional hazard, related to drought and dry conditions.
4. **Wind:** Storms with high winds capable of damaging infrastructure.

The above hazards have a growing impact on residents and businesses in Village of Wappingers Falls, Town of Wappinger, Town of Poughkeepsie, Town of LaGrange, and Town of Pleasant Valley, all located in Dutchess County and within the Wappinger Creek watershed. Participants in the Community Resilience Building Workshop were asked to identify environmental, infrastructural, and social assets in their communities; determine whether those assets are strengths, vulnerabilities or both; and identify and prioritize actions. The following sections summarize the results of this workshop, which were identified by participants from all five municipalities.

## Key Assets and Areas of Concern

Numerous environmental, infrastructural, and social assets were identified, which have been grouped in several categories.

There were four major areas of concern related to **environmental assets**:

- **Watersheds, waterbodies and shorelines** including floodplains and wetlands associated with the Hudson River, Wappinger Creek, and other tributaries.
- **Public and private parklands and open spaces** which recognize the various local, county, state and non-profit protected areas acquired through easements or fee acquisition, throughout the five municipalities.



- **Other environmental features** such as the groundwater aquifers that supply drinking water to most communities, along with the rail trail systems that support healthy lifestyles and access to green space.

There were six major areas of concern related to **infrastructural assets**:

- **Wastewater infrastructure assets** were identified as the highest priority concern by workshop participants, including more than seven wastewater treatment plants and private septic systems.



**Figure 6.** Participants discussed a wide array of community assets during the workshop, most were associated with infrastructure elements. © E. Vail, HRWA 2019.

- **The municipal drinking water supply** for all communities, whether the source is community wells or the Hudson River.
- **Transportation infrastructure:** These represent a multitude of bridges, rail lines and commuter stations, roads, dams and culverts. Examples of specific systems identified were Route 9, Route 44/55, Taconic State Parkway, Dutchess Turnpike, and Noxon Road at Jackson Creek.
- **Vulnerable infrastructure and neighborhoods** like the Shady Brook mobile home community and the Pleasant Valley Fire Department.
- **Communication, utility, and power systems**, representing cell towers, telephone lines, and power generation and distribution.

There were four major areas of concern related to **social assets**:

- **Emergency services and communication**, including various cooling shelters and emergency shelters, municipal and county emergency management committees, the ambulance corps and volunteer fire departments, municipal and county emergency communication such as 911 and reverse 911, and a regional food pantry.
- **Emergency Management Plans** are not consistent across municipalities; LaGrange and Pleasant Valley have older plans that are in need of updating and annual training may not be occurring.
- **The Emergency Management Center** is vulnerable to flooding-induced isolation.
- **Vulnerable populations and neighborhoods:** These include transient populations in hotels along Routes 44 and 55, various group homes, assisted living facilities, mobile home communities, Fallkill Creek neighborhoods, and the community of New Hamburg.





**Figure 7.** Participants mapped community assets performing critical functions. © E. Vail HRWA 2019

- **Other key facilities** identified as vulnerable include assets belonging to Central Hudson, Metro North, and Housing Authority, as well as municipal assets located in floodplains such as town halls, fire stations, and police stations.

## Current Vulnerabilities

Most of the environmental assets identified by workshop participants serve as a strength related to the four main climate hazards. Environmental assets provide open space, natural resources, flood water storage, and other ecosystem services. In some instances, however, these resources are also vulnerable to damage from flood waters and storm surge, and potential susceptibility to drought and wildfires. This was especially true for all of the parklands and open spaces identified in the workshop. Examples of vulnerability include the recommendation

to raise the building elevations at Katie Park in Pleasant Valley, while also developing fire and forest management plans for all park and open space facilities. In addition to publicly held lands, privately-owned open space was identified as a unique and important environmental asset worthy of special considerations. Drinking water wells, such as the Overlook Wells in LaGrange, were also identified as vulnerable. Floodplains and wetlands (including wetland complexes developed under compensatory mitigation agreements) are also vulnerable assets within the study area because of their prevalence and possible impacts from higher storm flows and future salt intrusion, should the salt front shift north with sea level rise.

The most vulnerable infrastructure assets relate to wastewater collection and treatment, drinking water sources and distribution, transportation (road and rail), and community buildings. Seven wastewater treatment and collection systems throughout the five municipalities were highlighted many times due to their vulnerability to flooding impacts, age, and reliability. The Spackenkill Road Pump Station in the Town of Poughkeepsie (along the Casperskill Creek) was identified for relocation. Sewer infrastructure in the Scenic Hills neighborhood in LaGrange was also identified as a vulnerability due to problems with inundation, infiltration, and inflow. Drinking water sources and infrastructure were also high priority, with particular concern associated with the Town of Poughkeepsie water treatment plant which draws from the Hudson River and Overlook Wells in LaGrange. Both road and rail infrastructure, including culverts, are also challenges in these municipalities. These transportation-related issues are made worse when ingress/egress to fire and police stations are inundated. Other important public infrastructure vulnerable to flooding includes fuel depots, several town halls, commuter rail lines, and the LaGrange highway department garage.



The primary social vulnerabilities are related to vulnerable populations and neighborhoods. Although Hudson River Housing's buildings and properties were identified as strengths, the low-income resident population were characterized as vulnerable. Other highly vulnerable populations are residents with perceived lack of mobility who are likely unable to evacuate. These populations include transient populations residing in the motels along Routes 44 and 55, Fallkill Creek neighborhoods, the Shady Brook and Little Falls Trailer Parks, and patients of the regional hospitals.

## **Current Strengths**

As stated earlier, many environmental assets serve as both vulnerabilities and strengths, but the greatest strengths among the environmental assets are associated with open space, watercourses, wetlands, floodplains, and recreational infrastructure. Although the lower Wappinger Creek does represent a significant management challenge, it is considered valuable by the community and is a significant cultural feature within the region. The floodplain complexes associated the Wappinger Creek were repeatedly recognized for their flood protection and water quality roles. The wetlands and floodplains of other waterbodies within the five municipalities, including the Fallkill and Casperkill, were also identified as important. Recreational areas are extremely prevalent in the study area and include state and local parks, preserves managed by private entities and academic institutions, and lands owned by the municipalities along creek corridors, such as those found on the Town of LaGrange. Other important strengths in the study area include strong wetland/watercourse ordinances, presence of extensive forest cover, and a county easement program.

There were several public infrastructural assets identified as strengths in these municipalities, particularly around fire stations and water infrastructure. The Wappinger Creek watershed has a clear development gradient that goes from rural in the East/Northeast to urban/highly developed with more proximity to the Hudson River. The Town of Poughkeepsie draws its drinking water from the Hudson River, while other municipalities have wellfields. Although specific elements of the various systems are in need of repair, the systems as a whole seem highly functional. There are seven wastewater treatment facilities that were identified throughout this region, all of which support economic activity in the area and are closely monitored and highly regarded. Other strengths identified included the various fire stations, fuel depots, and town halls that are located outside of floodplains.

There were more assets identified as strengths in the social category than any other, indicators of an integrated community network of private and public resources. Principal social strengths emanate from study area's strong institutions including hospitals, community colleges and universities, local government agencies, non-governmental agencies, and emergency response personnel. From the Dutchess County Office of Emergency Response to the local fire and police stations, emergency planning, emergency communications and emergency response were all primary core strengths for each of the participating communities. Other strong assets include access to health care resources, senior centers and housing, and school facilities. Other assets included a highly functional County Office of the



Aging, pro-active Public Works departments and engaged religious affiliated initiatives such as the Red Cross, Meals-on-wheels, and food pantries. Strong social safety nets are vibrant throughout the region, but they should not be taken for granted.

## Top Recommendations to Improve Resilience

### *Highest Environmental Priorities:*

The most resounding environmental priorities were associated with the protection of existing natural water assets including streams and rivers, shorelines, wetlands, riparian areas, and drinking water sources.



**Figure 7.** Discussion of environment concerns in the area were prevalent and thoroughly considered. © E. Vail, HRWA 2019.

- Protecting existing natural assets is far cheaper than restoring them and more likely to be successful. This could be accomplished through stream corridor overlay districts or protection ordinances. It will be valuable to enhance existing programs, such as the county easement program, and build more robust organizational relationships with local and regional non-profit organizations, including land trusts, to share resources.
- Restoration and management were identified as important next steps for specific assets identified as vulnerabilities. These areas include, but are not limited to, the Superfund Site in Lower Wappinger Creek, the

Fallkill Creek watershed, and the Casperkill Creek watershed. Implementation activities should be monitored for viability and, ultimately, success. This could also be accomplished through stream corridor overlay districts or protection ordinances.

Updating existing watershed management plans for the Fallkill Creek and Casperkill Creek could be a helpful process to identify specific actions to improve these assets.

- Wappinger Lake was identified as both a strength and vulnerability. Although a key environmental asset for the communities, there is a need to assess and identify contamination sources and then design and implement remediation actions.
- Fully implementing the Wappinger Creek Management Recommendations should serve as a guide, while recognized other resources are available to reference (e.g. Hudson River Estuary Program Action Agenda, Hudson River Comprehensive Restoration Plan). It was also recommended that the Wappinger Creek Watershed Intermunicipal Council remain active and continue sharing new information and insights.



- Drinking water sources in the study area include surface water (Hudson River) and groundwater sources. Both are vulnerable to changes in upstream consumption and environmental conditions. Significant attention should be given to the security of existing primary *and backup* sources.
- The study area has an outstanding amount of public space available. Maintaining these assets into the future will require active monitoring for changes in condition as well as implementation of an adaptive management approach to keep pace with changing environmental conditions.

### ***Highest Infrastructural Priorities:***

Infrastructural assets included transportation, drinking water distribution, wastewater treatment, vulnerable housing and townhalls located in the floodplain. The highest priorities in all areas of concern include the following:

- Address ponding/overwash, culverts and flooding/debris passage for the various roads in the municipalities, including Route 9, Routes 44 and 55, Smith Crossing Road/Seacore Farm, Overlook Road/DiGarmo Road, River Road, Noxon Road at Jackson Creek, and the Taconic Highway.
- The rails, commuter station, roads and infrastructure located in New Hamburg require a detailed vulnerability assessment and identification of implementation pathways.
- Culvert and bridge vulnerability assessments for both road and rail infrastructure is necessary; this assessment should evaluate the ability to pass water/debris torrents, implications of failure to neighborhood traffic patterns and surrounding infrastructure, as well as impacts to vulnerable residents.
- There are numerous drinking water distribution and wastewater treatment systems in the study area that are both strengths and vulnerabilities. Individually, many of these systems were prioritized as “medium,” however the total number of systems present elevates the management of this collection of systems to a “high” priority. Though the condition of the infrastructure is variable across systems, so too is the risk/vulnerability. A prioritized comprehensive asset management plan should be developed that would guide implementation efforts to ensure functionality into the future. This should be done through a coordinated approach, as many systems may cross political boundaries and new solutions may emerge that allow for greater collaboration.
- Installing emergency power supplies to significant community resources such as gas stations, town halls, municipal fuel storage facilities and Public Works facilities. Emergency shelters and other support facilities should be explored and strategically implemented.
- The removal of the Fallkill Dam was recommended.
- Shady Brook mobile home park and Sutton Park were identified as areas with vulnerable housing facilities. These communities should be deeply and authentically engaged to determine the source of vulnerability and develop equitable strategies that are realistic and effective for everyone engaged.





### ***Highest Social Priorities:***

Actions related to social assets were associated with support institutions, emergency communication and management facilities, and municipal programming. The following represent the highest priorities identified by workshop participants:

- Municipalities should create or update emergency plans to include shelters with water and power and energy providers. They should also ensure the adequacy and feasibility of emergency and energy plans.
- The several emergency response facilities should undergo a facility vulnerability assessment to ensure access and overall resilience during flood events. Facilities of concern include town halls (e.g. LaGrange and Wappinger) located within floodplains, the Emergency Management Center, the Pleasant Valley Fire Department, and the Salt Point Fire Department.
- There are diverse and numerous social service and non-profit agencies serving the community including The Red Cross, Meals on Wheels, Office on the Aging, land trusts, and Dutchess County Soil and Water Conservation District. These agencies require continued public and private support and the ability to access resources.
- County and local programs (i.e. easement program) and regulations (i.e. floodplain and wetland protection ordinances) are valuable tools that should be enhanced when appropriate relative to new information and/or conditions.
- Regional and facility-specific emergency communications are critical to reduce impacts during events. Focused attention to multi-lingual communication platforms that provide advanced warning through emergency response are essential and may be in need of an update or review.
- There are vulnerable communities with these municipalities. The hamlet of New Hamburg in the Town of Poughkeepsie is particularly vulnerable to flooding. Beyond communicating evacuation plans and flood-proofing buildings, this community requires a more thorough vulnerability assessment that results in a comprehensive, community-generated resilience strategy. Other vulnerable communities include transient populations, various mobile home communities, and residents of senior housing facilities.

### ***Medium Environmental Priorities:***

- Evaluate the condition, viability and alternatives associated with the Overlook Wells.
- The recreational assets of the study are impressive including hiking and rail trails. These resources will require monitoring and implementation of adaptive management techniques as conditions warrant.
- Aging septic systems are becoming an increasing concern for water quality and human health concerns throughout the region, particularly systems located in floodplains. The municipalities should consider assessing the current condition and vulnerability of these systems and develop resilience strategies to reduce the risk of current or future failure and/or contamination.
- Initiatives to further protect and/or restore wetlands and watercourses within the study area should be encouraged, with an eye toward likely future conditions. The



watershed planning process is a very good way to comprehensively capture this information and develop solutions.

- The municipalities should consider working on wildfire prevention and planning, perhaps in a future meeting or workshop, in collaboration with county and state natural resource managers as well as emergency responders.

### ***Medium Infrastructural Priorities:***

- The Town of Poughkeepsie, Town of Wappinger, and Hamlet of New Hamburg with shorelines along the mainstem of the Hudson and tidal Wappinger Creek (below the Wappinger Creek dam) should develop detailed vulnerability assessments and implement proactive resilience measures to reduce the likely impacts of sea level rise and increasing storm surge characteristics.
- The bridge at Route 9 may be particularly vulnerable to inland flooding and the Wappinger Creek dam should be monitored and maintained. The dam should not be considered for removal before the Superfund reclamation is complete.
- River Road in New Hamburg represents a significant challenge that will require US Army Corps of Engineer and NYS DEC engagement, opening a dialogue about the challenges and possible solutions. This will be long-term project.
- The Town of Poughkeepsie Police Station is located in a floodplain and a relocation plan should be developed and implemented.
- There are institutions of higher learning with seasonal populations with highly variable means of evacuation. Establishing and communicating clear evacuation and emergency response protocols is prudent. Alternatively, the facilities at these institutions may provide a community strength by also serving as shelters during emergency scenarios.
- Managing stormwater runoff into retention basins, as well as management of the basins themselves, is a challenge that will only get worse as precipitation events intensify. Improving and modifying design and management standards for these systems and implementing adaptive management plans should be an increasing priority.

### ***Medium Social Priorities:***

- Several marinas, boathouses, or clubs are located within the Town of Poughkeepsie and Town of Wappinger. Their viability hinges on sound and active management of sediment deposition and resilience to flooding events. Facilities should go through a vulnerability assessment and implement resilience upgrades such as moving utilities top floors and permanently anchoring fuel tanks become standard minimum practices. Local emergency management plans and hazard mitigation plans should be reviewed and updated based on new environmental conditions and projected future conditions on a regular interval.
- Stormwater Management Plans in LaGrange and Wappinger need to be implemented, reviewed and enforced through inspection and maintenance.



Other actions were identified related to the municipal assets but were deemed low priority and therefore not included in this report.



## WORKSHOP PARTICIPANTS

First Name	Last Name	Municipality/Affiliation	Title
Alan	Bell**	Town of LaGrange	Supervisor
Ann	Shershin	Town of Poughkeepsie	Council Person
Anthony	Champion	Town of LaGrange	LaGrange Fire Department Lieutenant
Brad	Barclay	Dutchess County	
Bridget	Gannon	Village of Wappingers Falls	Zoning Board of Appeals
Carl	Whitehead	Town of Poughkeepsie	Planning Board Chairman Ward 2
Chris	Rohrbach**	Town of LaGrange	ZBA and representative to the WIC
Christopher	Maeder	Town of Poughkeepsie	Fairview Fire Chief
Debbie	Glynn	Town of Pleasant Valley	CAC Member
Franco	Zani	Town of Poughkeepsie	Superintendent of Sewers
Jay	Baisley**	Town of Poughkeepsie	Supervisor
Joey	Cavacinni	Town of Wappinger	Town Historian
John	Sommer	Town of LaGrange	Conservation Advisory Committee
John	Karge	Town of Wappinger Falls	
Kevin	Faber	Town of Poughkeepsie Police	Captain
Kevin	Hathorn	Town of Wappinger	Deputy Supervisor
Kristen	Gaynor**	Town of Poughkeepsie	AICP, Planner
Mark	Figliozi	Town of Pleasant Valley	Supervisor
Mary	Albrecht**	Town of Pleasant Valley	Councilwoman
Matt	Alexander**	Village of Wappingers Falls	Mayor
Meta	Plotnik**	Town of Pleasant Valley	CAC Chair
Michael	Welti	Town of Poughkeepsie	AICP, Director of Municipal Development
Nivo	Rovedo	Town of LaGrange	Conservation Advisory Committee
Rebecca	Seamen	Town of Pleasant Valley	
Richard	Thurston**	Town of Wappinger	Supervisor
Robin	Moore	Central Hudson Gas & Electric Corp.	District Director
Sandra	Vacchio	Town of Wappinger	Assistant to Supervisor
Stephen	Bodie	Village of Wappingers Falls	volunteer
Thomas	Lynch	Trout Unlimited	
Timothy	Sickles	Town of Poughkeepsie	Building Inspector
Tom	Wiacek	Town of Poughkeepsie	Deputy Building Inspector
Tom	Colgan	Town of Poughkeepsie	
Valerie	Carlisle	Town of LaGrange	CAC LaGrange
Walter	Artus	Town of Wappinger	Stormwater Management
Wanda	Livigni**	Town of LaGrange	Administrator of Planning and Public Works

\*\* Identifies local representatives to workshop planning team



## **WORKSHOP FACILITATION TEAM**

### **Workshop Organizers and Lead Facilitators**

Andrew Peck, The Nature Conservancy (Project Lead)

[apec@tnc.org](mailto:apec@tnc.org)

(845) 322-8076

Emily Vail, Hudson River Watershed Alliance

[emily@hudsonwatershed.org](mailto:emily@hudsonwatershed.org)

### **Workshop Presenters**

Carolyn Klocker, Cornell Cooperative Extension of Dutchess County

Danielle Salisbury, Cornell Cooperative Extension of Dutchess County

### **Workshop Facilitation Team**

Brent Gotsch, Cornell Cooperative Extension Ulster County

Brianna Rosmilia, Rockland County Soil and Water Conservation District

Carolyn Klocker, Cornell Cooperative Extension Dutchess County

Danielle Salisbury, Cornell Cooperative Extension Dutchess County

Europa McGovern, Hudson Valley Regional Council

Kristin France, The Nature Conservancy

Nicole Liable, Rockland County Soil and Water Conservation District

Melinda Herzog, Cornell Cooperative Extension Ulster County

Michelle Gluck, Cornell Cooperative Extension Dutchess County

Karen Strong, Strong Outcomes

## **ACKNOWLEDGMENTS**

Special thanks to the Wappinger Creek Watershed Intermunicipal Council, Town of LaGrange, Town of Pleasant Valley, Town of Poughkeepsie, Town of Wappinger, and Village of Wappinger Falls for their willingness to embrace this process, and to the Salt Point Fire Station and the Town of Pleasant Valley for providing the facilities to convene the group.

This project was made possible in part through funding from the New York State Conservation Partnership Program, a partnership between NYS Department of Environmental Conservation and The Land Trust Alliance New York Program.

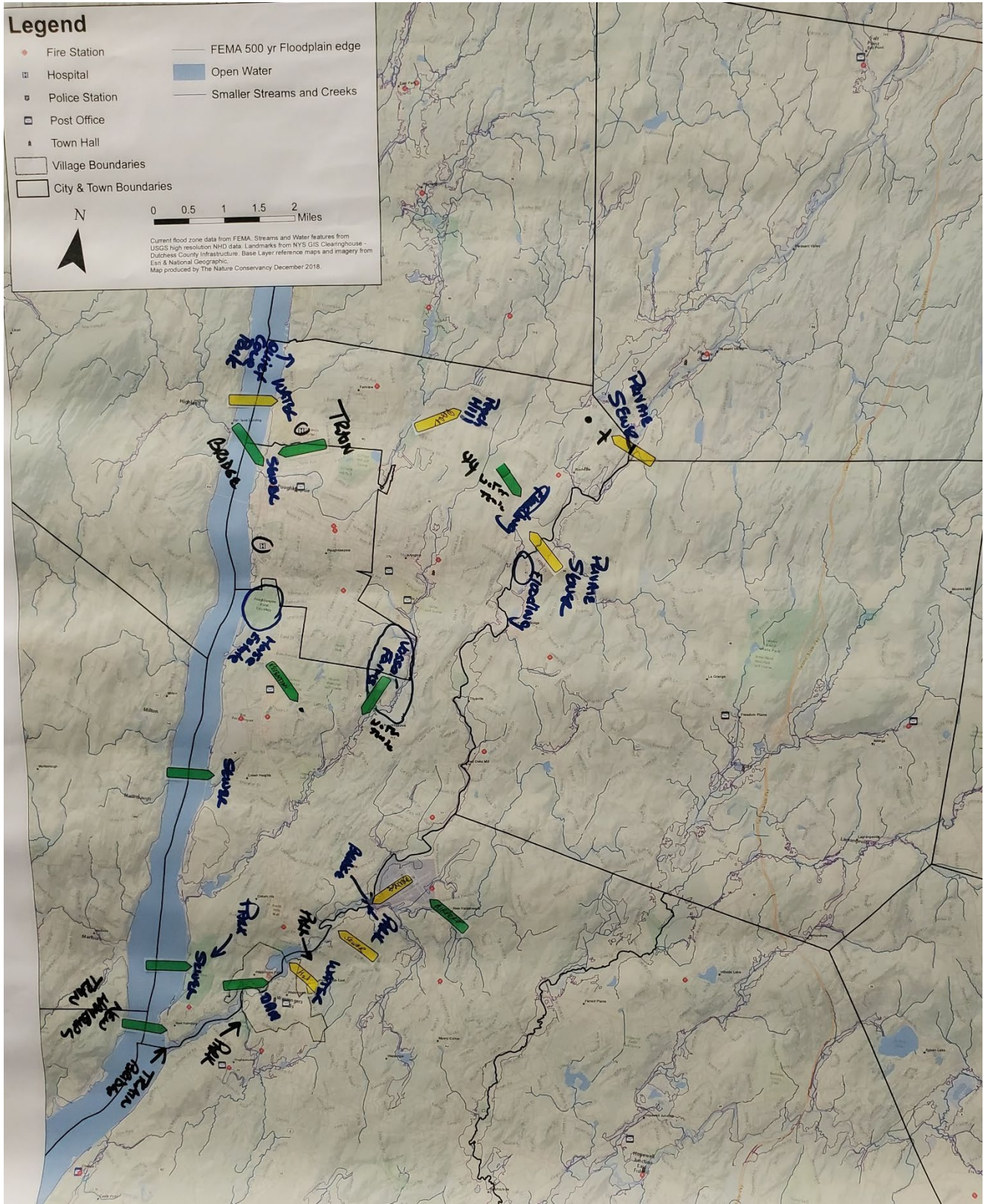
## **RECOMMENDED REPORT CITATION**

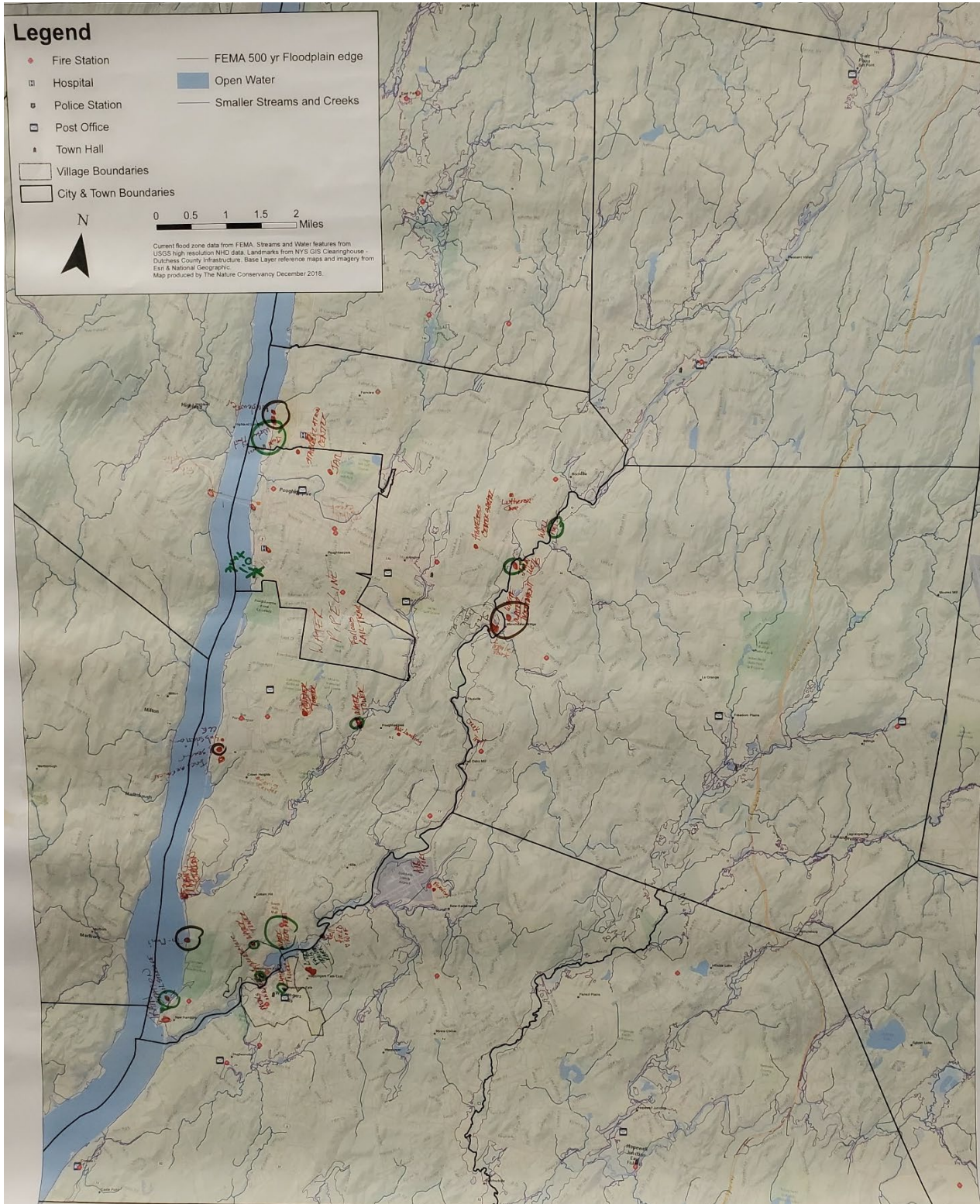
Peck, A., C. Klocker, D. Salisbury and E. Vail. 2019. Lower Wappinger Creek Community Resilience Building Workshop: Summary of Findings. The Nature Conservancy, Cornell Cooperative Extension Dutchess County, and the Hudson River Watershed Alliance.



**APPENDIX I.**  
**CRB Workshop Base Map and Asset Identification Maps**

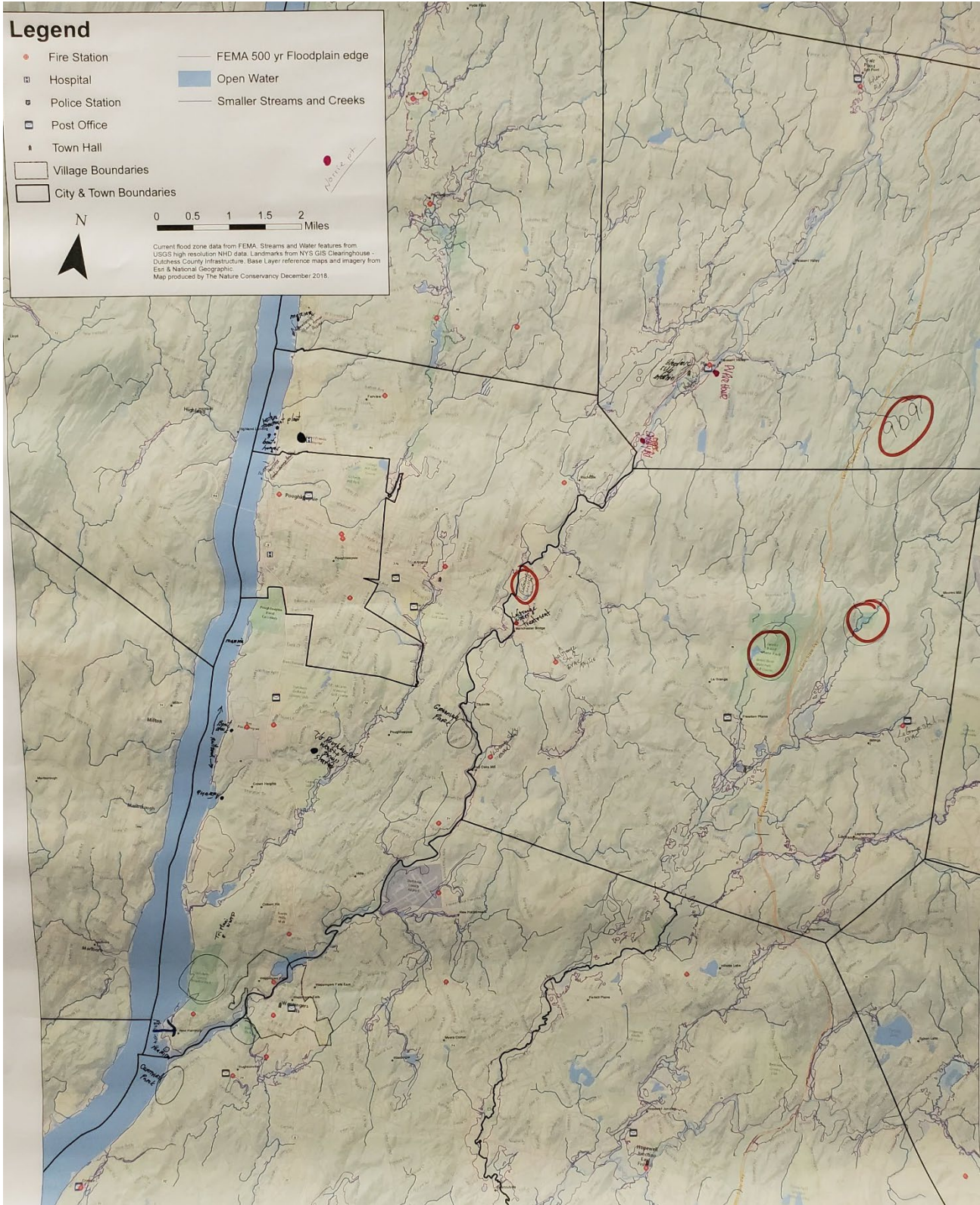


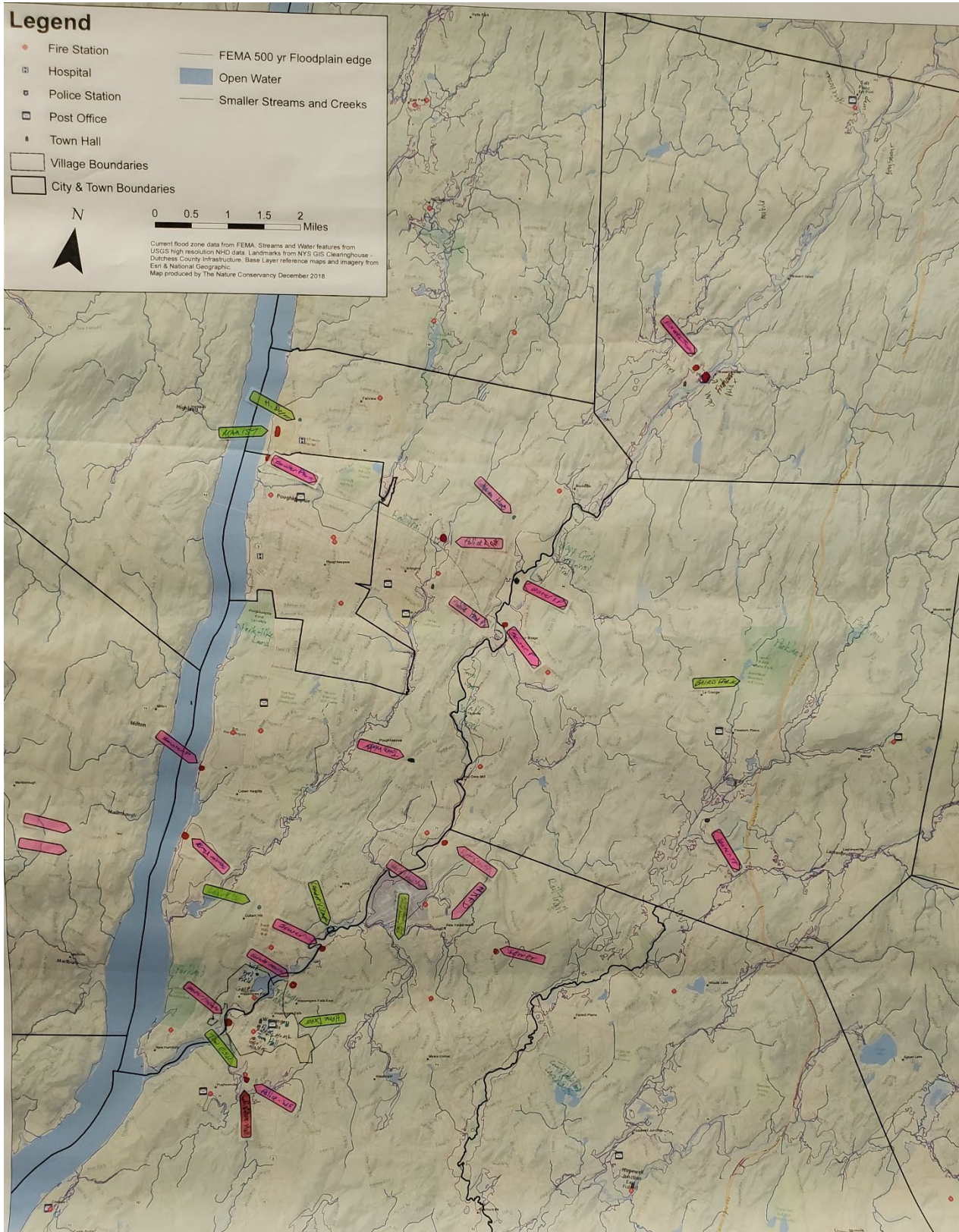




Lower Wappinger Creek Community Resilience Building Workshop - Summary of Findings  
August 2019







## **APPENDIX 2: Available State and Federal Resources**



# FINANCING WATERFRONT RESILIENCE



Hudson River Estuary Program

## 2019 New York State and federal resources for communities

### New York State and federal agencies offer over \$150 million in assistance to municipalities and non-profit organizations to build waterfront resilience and adapt to flooding, sea-level rise and other climate risks.

This document provides an overview of these assistance programs, how to apply and local examples, *with a focus on the Hudson Valley region*. Eligible activities include municipal planning, resilient infrastructure and structures, emergency management, economic revitalization, public outreach, and natural solutions like sustainable shorelines, green infrastructure and floodplain protection. A summary table of all resources, organized by agency, areas of assistance, funding amounts and deadlines, can be found at the end of this document. [Sign up for our Climate Resilience newsletter](#) to receive the latest funding announcements. Programs covered in this document are:

- **NYS Department of Environmental Conservation (DEC):** Hudson River Estuary Stewardship Planning Grants, Climate Smart Communities Grants, Water Quality Improvements Program, Non-Agricultural Nonpoint Source Planning Grant and Trees for Tribes
- **Department of State (DOS):** Local Waterfront Revitalization Program and Brownfield Opportunity Area
- **Environmental Facilities Corporation (EFC):** Green Innovation Grant Program, Wastewater Infrastructure Engineering Planning, Clean Water and Drinking Water Revolving State Funds
- **Federal Emergency Management Agency (FEMA):** Hazard Mitigation Assistance, Public Assistance and Community Rating System
- **Additional assistance programs**
  - **New York State Energy Research and Development Authority (NYSERDA):** Clean Energy Communities Program
  - **NYS Office of Parks, Recreation and Historic Preservation (OPRHP):** Parks, Preservation and Heritage Grants and Recreational Trails Grants
  - **US Housing and Urban Development (HUD)** Community Block Grant Program
  - **Empire State Development (ESD)** Grant Program
  - **Hudson River Greenway** Communities Grant Program
  - **Open Space Funding Options**



View of flooded road in Stony Point following Hurricane Sandy in 2012 (L. Konopko)

### LOCAL EXAMPLE: CONSOLIDATED FUNDING APPLICATION



Kingston received a \$1.2 million grant for a public-private intermunicipal partnership to design and build a one mile promenade along the Hudson River. The promenade will feature green infrastructure and offer public access and recreation and keep open space along the waterfront. The funds were awarded from the Department of State's Local Waterfront Revitalization Program through a CFA application.

### [NYS Consolidated Funding Application](#)

New York State's Consolidated Funding Application (CFA) allows communities to design comprehensive projects and with one application, apply to multiple state funding sources. Communities may not apply to federal programs such as FEMA through the CFA. You can download [the 2019 CFA Available Resources \(PDF\)](#) online.

## Overview of Financial Assistance Programs

Below is a summary of financial assistance programs identified by their funding categories related to flood resilience.



Municipal planning



Public outreach



Resilient infrastructure



Economic revitalization



Emergency management



Natural solutions (e.g., sustainable shorelines, green infrastructure + floodplain protection)

CFA = grants included in the NYS Consolidated Funding Application

## New York State Department of Environmental Conservation (NYS DEC)

The NYS DEC is a state agency focused on the conservation, enhancement, and enjoyment of environmental resources.



### Hudson River Estuary Program Local Stewardship Planning Grant

The Estuary Program provides funding (\$350,000) to help communities and local organizations advance four categories of local projects and programs through planning, feasibility studies, and/or design. Award amounts range from \$10,500 to \$50,000 with 15% match required. All prospective applicants must register in advance in the [New York State Grants Gateway](#) where they can also search and download the full RFA by searching for 'Hudson River Estuary.' Funding for the grants is provided by the New York State Environmental Protection Fund (EPF). Eligible planning categories:

- Adapt land uses and decision-making to factor in climate change, flooding, heat, drought, and sea-level rise projections in Hudson River shoreline communities
- Improve water infrastructure to make it more resilient to flooding and/or sea-level rise
- Create a natural resources inventory, open space inventory/index, open space plan, open space funding feasibility study, conservation overlay zone, or connectivity plan
- Develop a watershed and/or source water management plan

Contact: [HREPGGrants@dec.ny.gov](mailto:HREPGGrants@dec.ny.gov)

Deadline: 3:00 pm, July 10, 2019

#### LOCAL EXAMPLE: LOCAL STEWARDSHIP PLANNING GRANT



The Village of Catskill received \$68,000 in Local Stewardship grants in 2016 to analyze their wastewater treatment plant and zoning codes to look for opportunities to address flooding and sea-level rise.

## Climate Smart Communities (CSC) Grants

The [Climate Smart Community](#) (CSC) program offers grants (\$11.7M) to support municipal projects that implement certain CSC actions and help them become certified in the program. 50% match required.

**Adaptation implementation projects** fund \$10,000 and \$2 million and include, but are not limited to the following:

- Increasing or preserving natural resilience, such as construction of living shorelines and other nature-based landscape features to decrease vulnerability to the effects of climate change and to improve or facilitate conservation, management, and/or restoration of natural floodplain areas and/or wetland systems.
- Flood-risk reduction, including, but not limited to, strategic relocation or retrofit of climate-vulnerable critical municipal facilities or infrastructure to reduce future climate-change induced risks to those facilities.
- Replacing or right-sizing flow barriers, including, but not limited to, right-sizing bridges or culverts, or improving flow barriers to facilitate emergency response or protection of population centers, critical facilities, infrastructure, and/or natural resources, based on assessment of projected future conditions.
- Extreme-heat preparation, including, but not limited to, establishment of cooling centers, construction of permanent shade structures, and implementation of other cooling features or programs.
- Emergency preparedness, including, but not limited to, establishment of emergency warning systems or implementation of emergency preparedness and/or response programs (excluding radio communications).

**Certification projects** fund \$10,000 to \$100,000 to complete the following and additional actions:

- PE2 Action: Government Operations Climate Action Plan
- PE2 Action: Community Climate Action Plan
- PE6 Action: Comprehensive Plan with Sustainability Elements
- PE6 Action: Complete Streets Policy
- PE6 Action: Planning and Infrastructure for Bicycling and Walking (planning only)
- PE6 Action: Natural Resources Inventory
- PE7 Action: Climate Vulnerability Assessment
- PE7 Action: Climate-Smart Resiliency Planning
- PE7 Action: Climate Adaptation Strategies
- PE7 Action: Heat Emergency Plan

Contact: [Climatechange@dec.ny.gov](mailto:Climatechange@dec.ny.gov), 518-402-8448

Deadline: 4:00 pm, July 26, 2019, CFA

## Water Quality Improvement Project (WQIP)

The WQIP program (\$70M) is a competitive, reimbursement grant program that directs funds from the New York State Environmental Protection Fund to projects that reduce polluted runoff, improve water quality and restore habitat in New York's waterbodies. Eligible activities include:

- **Wastewater Treatment Improvement**, \$1-10M max award depending on project type, 25% match for high priority projects, or 60% for secondary priority projects, contact Robert Wither, (518) 402-8123, [Robert.Wither@dec.ny.gov](mailto:Robert.Wither@dec.ny.gov)

### LOCAL EXAMPLE: CLIMATE SMART COMMUNITIES GRANT



The Village of Haverstraw received a \$100,000 Climate Smart Communities grant in 2018 to update and incorporate climate resilience into their Comprehensive Plan.

- Wastewater Effluent Disinfection, \$1M max award, 25% match
- Projects to upgrade municipal systems to meet discharge requirements for Combined Sewer Overflow (CSO) or Sanitary Sewer Overflow (SSO), \$5-10M max award, 25% match
- Watershed Plan Implementation, \$5-10M max award, 25% match
- Municipal Systems to Serve Multiple Properties with Inadequate On-site Septic Systems, \$5-10M max award, 25% match
- Other Wastewater Treatment Improvements, \$5-10M max award, 60% match
- **Non-Agricultural Nonpoint Source Abatement and Control**, \$500,000-\$3M max award depending on project type, 25% match, see contacts by project type:
  - Decentralized Wastewater Treatment Facilities for Failing On-Site Treatment Systems, \$3M max award, 25% match, contact Ken Kosinski, (518) 402-8086, [Ken.Kosinski@dec.ny.gov](mailto:Ken.Kosinski@dec.ny.gov)
  - Green Infrastructure Practice and Stormwater Retrofits, \$1M max award, 25% match, contact Ryan Waldron, (518) 402-8244, [Ryan.Waldron@dec.ny.gov](mailto:Ryan.Waldron@dec.ny.gov)
  - Streambank Stabilization and Riparian Buffers, \$1M max award, 25% match, contact Lauren Townley, (518)402-8283, [Lauren.Townley@dec.ny.gov](mailto:Lauren.Townley@dec.ny.gov)
  - Beach Restoration, \$1M max award, 25% match, contact Karen Stainbrook, (518) 402-8095
  - Culvert Repair and Replacement, \$1M max award, 25% match, contact Lauren Townley, (518) 402-8283, [Lauren.Townley@dec.ny.gov](mailto:Lauren.Townley@dec.ny.gov)
- **Aquatic Connectivity Restoration**, \$250,000 max award, 25% match, contact Corbin Gosier, 518-402-8872, [Corbin.Gosier@dec.ny.gov](mailto:Corbin.Gosier@dec.ny.gov)
- **Land Acquisition for Source Water Protection**, \$4M max award, 25% match, contact Kristin Martinez, (518) 402-8086, [Kristin.Martinez@dec.ny.gov](mailto:Kristin.Martinez@dec.ny.gov)
- **Municipal Separate Storm Sewer Systems (MS4s)**, \$500,000-600,000 max award depending on project type, 25% match, contact Ethan Sullivan, (518) 402-1382, [Ethan.Sullivan@dec.ny.gov](mailto:Ethan.Sullivan@dec.ny.gov)
  - Mapping of stormwater systems, \$500,000 max award, 25% match
  - Vacuum truck purchase, \$600,000 max award, 25% match

Contact: [User.Water@dec.ny.gov](mailto:User.Water@dec.ny.gov)

Deadline: 4:00 pm, July 26, 2019, CFA

### [Non-Agricultural Nonpoint Source Planning Grant Program](#)

The DEC will fund planning (\$1M) for decentralized wastewater treatment facilities, green infrastructure practice/stormwater retrofits, streambank stabilization, beach restoration and culvert repair and replacement. \$30,000 award maximum, 10% match.

Contact: Lauren Townley, 518-402-8283, [Lauren.Townley@dec.ny.gov](mailto:Lauren.Townley@dec.ny.gov)

Deadline: 4:00 pm, July 26, 2019, CFA

### [Trees for Tribs](#)

Do you own or manage land along a stream? You can apply for free native plants to help reduce erosion and improve habitat along your stream! The [Hudson Estuary Trees for Tribs](#) Program offers free native trees and shrubs for planting along the tributary streams in the [Hudson River Estuary watershed](#). Our staff can help you with a planting plan and work with your volunteers.

Contact: Beth Roessler, NYS DEC, 845-256-2253, [HudsonEstuaryTFT@dec.ny.gov](mailto:HudsonEstuaryTFT@dec.ny.gov)

Deadline: Apply by March 1, 2019 for Spring plantings, August 1, 2019 for Fall plantings



## Department of State (DOS)

The DOS is a planning agency that focuses on economic revitalization and resilient, livable communities.



### Local Waterfront Revitalization Program (LWRP)

The [Local Waterfront Revitalization Program](#) (LWRP) provides technical assistance and grants (\$15M) on a reimbursement basis to villages, towns, cities, and counties located along New York's coasts or designated inland waterways, to prepare or implement strategies for community and waterfront revitalization. Funds require a 25% match (15% for environmental justice communities) and the grant categories currently are:

- Preparing or updating a Local Waterfront Revitalization Program (LWRP)
- Preparing an LWRP Component, including a Watershed Management Plan
- Updating an LWRP to Mitigate Future Physical Climate Risks
- Implementing a Local Waterfront Revitalization Program or a completed LWRP Component

Contact: NYS DOS, Office of Planning, Development & Community Infrastructure, [opd@dos.ny.gov](mailto:opd@dos.ny.gov)

Deadline: 4:00 pm, July 26, 2019, CFA

#### LOCAL EXAMPLE: LOCAL WATERFRONT REVITALIZATION PROGRAM



The Village of Piermont received a \$35,000 grant in 2015 to update its Local Waterfront Revitalization Plan, first written in 1992, to include strategies from the Task Force's final Resilience Roadmap Report.

### Brownfield Opportunity Area (BOA)

The [Brownfield Opportunity Area](#) (BOA) program takes a neighborhood-wide approach to contaminated lands and provides grants (\$2M) that support communities to comprehensively assess existing economic and environmental conditions associated with brownfield blight and impacted areas, identify and prioritize community supported redevelopment opportunities, and attract public and private investment. Project awards up to \$300,000 with 10% required match, and option to request up to 25% of funds upfront. Eligible activities are:

- BOA nomination: a study that includes a community vision, goals and strategies for revitalization of an area affected by a concentration of known or suspected brownfields
- Pre-development activities in a State-designated BOA:
  - Development and implementation of marketing strategies;
  - Development of plans and specifications;
  - Real estate services;
  - Building conditions studies;
  - Infrastructure analyses;
  - Zoning and regulatory updates;
  - Environmental, housing and economic studies, analyses and reports; and
  - Public outreach.

Contact: NYS DOS, Office of Planning, Development & Community Infrastructure, [opd@dos.ny.gov](mailto:opd@dos.ny.gov)

Deadline: 4:00 pm, July 26, 2019, CFA



## Environmental Facility Corporation (EFC)

The EFC is a state agency that assists public and private entities to comply with federal and state environmental quality standards through technical assistance, low cost financing, and green innovation grants.



### Green Innovation Grant Program (GIGP)

The Green Innovation Grant Program (GIGP, \$15M) funds projects across New York State that utilize unique stormwater infrastructure design and create cutting-edge green technologies. 10% to 60% match required. GIGP funds highly-visible projects that are directly attributable to the improvement or protection of water quality and integral to the success of the following specific green infrastructure practices:

- Bioretention
- Downspout disconnection
- Establishment or Restoration of Floodplains, Riparian buffers, Streams or Wetlands
- Green roofs and green walls
- Permeable pavements
- Stormwater Harvesting and Reuse, e.g. Rain Barrel and Cistern Projects
- Stormwater Street Trees / Urban Forestry Programs Designed to Manage Stormwater

Contact: Brian Hahn, 518-402-6924, [GIGP@efc.ny.gov](mailto:GIGP@efc.ny.gov)

Deadline: 4:00 pm, July 26, 2019, CFA

### Wastewater Infrastructure Engineering Planning Grant (WIEP)

The EFC, in cooperation with NYS DEC, offers WIEPG grants (\$3 million) for engineering and consulting services to produce engineering reports to construct or improve municipal wastewater systems. Funding level is based on population size and the municipality must provide a 20% match. The final engineering report can be implemented using EFC or other financing sources.

- \$30,000 max award for communities with a population of 50,000 or less
- \$50,000 max award for communities with a population of 50,000 or more
- \$100,000 max award for inflow and infiltration projects based on an Order on Consent or SPDES Permit Compliance Schedule

Contact: Susan Van Patten, NYS DEC, 518-402-8267,  
[CFAWater@qw.dec.state.ny.us](mailto:CFAWater@qw.dec.state.ny.us)

Deadline: 4:00 pm, July 26, 2019, CFA

### Clean Water (CWSRF) and Drinking Water State Revolving Funds (DWSRF)

The EFC provides various forms of project finance for water-quality protection projects through the [Clean Water State Revolving Fund \(CWSRF\)](#) and the [Drinking Water State Revolving Fund \(DWSRF\)](#). A variety of publicly-owned water quality improvement projects are eligible for financing, including point source projects such as wastewater treatment facilities, and nonpoint source projects such as stormwater management projects and landfill closures, as well as certain habitat restoration and protection projects in national estuary program areas. Short and long-term loans are available at no interest and low interest rates. Clean Water applicants may apply for [Integrated Solutions Construction grant](#) (\$8M) to support green infrastructure by funding 50% of construction costs.

#### LOCAL EXAMPLE: WASTEWATER INFRASTRUCTURE ENGINEERING PLANNING



The City of Kingston received a \$25,000 grant to examine long-term adaptive planning for their wastewater treatment plant. They will implement the plan using low interest loans from the CWSRF.

Contact for Clean Water: Dwight Brown, EFC, 518-402-7396, [CWSRInfo@efc.ny.gov](mailto:CWSRInfo@efc.ny.gov)

Contact for Drinking Water: Michael Montysko, DOH, 518-402-7650, [bpwsp@health.ny.gov](mailto:bpwsp@health.ny.gov)

Contact for Integrated Solutions Construction grant: Dwight Brown, EFC, 518-402-7396, [ISC@efc.ny.gov](mailto:ISC@efc.ny.gov)

Deadline: Open enrollment

## Federal Emergency Management Agency (FEMA)

FEMA is a national agency that administers programs providing flood insurance, hazard mitigation assistance, and public assistance grants.



### Hazard Mitigation Assistance

FEMA currently provide three types of hazard mitigation assistance (HMA):

- [Hazard Mitigation Grant Program \(HMGP\)](#) assists in implementing long-term hazard mitigation measures. HMGP funds are triggered by a declared disaster and funneled to individual municipalities through the NYS Division of Homeland Security and Emergency Services (DHSES).
- [Pre-Disaster Mitigation \(PDM\)](#) provides funds on an annual basis for hazard mitigation planning and projects.
- [Flood Mitigation Assistance \(FMA\)](#) provides funds on an annual basis for projects to reduce or eliminate risk of flood damage to buildings that are insured under the National Flood Insurance Program (NFIP).

### Public Assistance Grant Program

Through the Public Assistance (PA) Program, FEMA provides supplemental Federal disaster grant assistance for debris removal, emergency protective measures, and the repair, replacement, or restoration of disaster-damaged, publicly-owned facilities, and the facilities of certain private Non-Profit (PNP) organizations. The PA Program also encourages protection of these damaged facilities from future events by providing assistance for hazard mitigation measures during the recovery process. 25% match required.

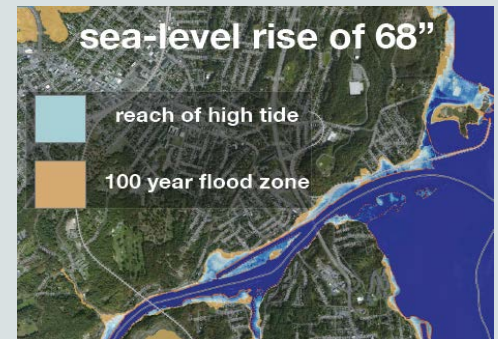
Contact: FEMA grants are administered by NYS Division of Homeland Security and Emergency Services (DHSES). Visit their website for current grant opportunities: <http://www.dhSES.ny.gov/grants/>

### Community Rating System (CRS)

FEMA also administers the National Flood Insurance Program (NFIP) and the related Community Rating System (CRS), which allows municipalities to reduce flood insurance rates for all policyholders by instating community-scale projects and policies regarding flood resilience.

Contact: 317-848-2898, [nfipcrs@iso.com](mailto:nfipcrs@iso.com)

#### LOCAL EXAMPLE: HAZARD MITIGATION GRANT



Kingston applied for a \$5 million grant from Hurricanes Irene and Sandy Relief Funds to implement Task Force recommendations for riparian buffers, buyouts, the adaptation and fortification of infrastructure, and the purchase emergency generators for pumping stations. The City is awaiting notification of the application's status.

#### LOCAL EXAMPLE: COMMUNITY RATING SYSTEM



The Village of Scarsdale is Class 8 certified in the Community Rating System (CRS), which means the village residents receive a 10% discount on flood insurance. The Village of Hyde Park is currently seeking CRS certification.

## New York State Energy Research and Development Authority (NYSERDA)

NYSERDA is a state authority dedicated to promoting energy efficiency and renewable energy sources.



### Clean Energy Communities (CEC) Program

Municipalities that complete four of 10 priority actions will be considered Clean Energy Communities (CEC). Locally based outreach and implementation coordinators will provide free, on-demand technical assistance, including step-by-step guidance, case studies, and template contracts to help municipalities implement the Climate Smart Communities and Clean Energy Communities programs.

Contact: [cec@nyserda.ny.gov](mailto:cec@nyserda.ny.gov) or Europa McGovern, Mid-Hudson CEC Coordinator, 845-564-4075, [emcgovern@hudsonvalleyrc.org](mailto:emcgovern@hudsonvalleyrc.org)

## NYS Office of Parks, Recreation & Historic Preservation (OPRHP)

THE NYS OPRHP is a state agency dedicated to preserving and enhancing parks, historic assets and heritage areas.



### Grant Program for Parks, Preservation and Heritage

The OPRHP is providing grants (\$19.5M) for acquisition, planning, development, and improvement of parks, historic properties, and heritage areas. Project awards up to \$600,000 with 50% required match, or 25% match for projects that are in a high-poverty district.

Contact: Erin Drost, (845) 889-3866, [erin.drost@parks.ny.gov](mailto:erin.drost@parks.ny.gov)

Deadline: 4:00 pm, July 26, 2019, CFA

### Recreational Trails Program

The OPRHP is providing grants (\$1.9M) for design, right-of-way and construction of recreational trails. Project awards up to \$250,000 with 20% required match.

Contact: Erin Drost, (845) 889-3866, [erin.drost@parks.ny.gov](mailto:erin.drost@parks.ny.gov)

Deadline: 4:00 pm, July 26, 2019, CFA

## US Department of Housing and Urban Development (HUD)

HUD is a federal agency aimed to support sustainable, inclusive and affordable communities.



### Community Development Block Grant Program (CDBG)

HUD is offering competitive grants (\$20M) for development projects in small communities and counties.

#### LOCAL EXAMPLE: PARK DEVELOPMENT



The Village of Freeport received a \$250,000 Parks grant to replace over 1,000 feet of bulkhead at Waterfront Park to reduce soil erosion and improve public safety and recreational access.

- Resilient drinking water, clean water and stormwater infrastructure projects may be applied for under Category 1: Public Infrastructure, \$750,000 max, \$900,000 for joint applicants, no match required
- Construction and renovation projects may be applied for under Category 2: Public Facilities, \$300,000 max
- Risk assessment and engineering projects may be applied for under Category 4: Community Planning, \$50,000 per project, 5% match

Contact: 518-474-2057, [HCR\\_CFA@nyshcr.org](mailto:HCR_CFA@nyshcr.org)

Deadline: 4:00 PM, July 26, 2019, CFA

## Empire State Development (ESD)

ESD is the New York state agency focused on economic development.



### Empire State Development Grant Funds

The ESD is offering grant funds (\$150M) in the 2019 consolidated funding application. Infrastructure investment that can foster new economic development is eligible under Category 1: Strategic Community Development Investment (grant funds cover up to 25% of project soft costs).

Contact: 845-567-4882, [nys-midhudson@esd.ny.gov](mailto:nys-midhudson@esd.ny.gov)

Deadline: 4:00 pm, July 26, 2019, CFA

## NYS Hudson River Valley Greenway

The Greenway is state agency focused on using regional collaboration to conserve and enhance the natural, scenic and historic resources of the unique Hudson River Valley.



### Greenway Communities Grant Program

Financial assistance for planning (\$5,000 to \$10,000 per project, more if multiple municipalities involved) is available to designated “Greenway Communities” within the Greenway Area. Projects funded under this program include those that relate to community planning, economic development, natural resource protection, cultural resource protection, scenic resource protection, and open space protection. Greenway Compact communities are eligible for greater funds to develop, approve, and implement a regional compact strategy consistent with the Greenway criteria and the Greenway act.

Contact: 518-473-3835, [grants@hudsongreenway.ny.gov](mailto:grants@hudsongreenway.ny.gov)

Deadline: September 6 and November 8, 2019

#### LOCAL EXAMPLE: GREENWAY COMMUNITIES GRANT



The Village of Ossining received a \$15,000 grant to create a Waterfront Recreational Resource Plan to identify ways to promote water-related uses on their 3 miles of Hudson River waterfront, and to outline strategies to increase public access, catalog existing recreational assets, and engage stakeholders to determine demand for possible upgrades.

## Open Space Funding Options



Preserving land as open space in floodplains and in coastal areas is an important aspect of flood resilience recommendations. Here are several options for municipalities looking to preserve open space in their community:

- The municipality can advocate to have their land included in the [NYS Open Space Plan](#) that is updated every 5 years. This helps the community to show that the land has value outside of traditional development and is a good way to prepare for purchase of the land for open space. The State receives annual funding to purchase lands specifically mentioned in the plan. Municipalities can also seek grant funds to write or update their own Open Space Plan and include floodplain protection as one of the important values that open space provides.
- The municipality can work with a local or regional land trust, like the [Walkkill Valley Land Trust](#) or the [Open Space Institute](#) to purchase the land using easements if it has scenic, ecological and/or agricultural value. Then, the community may be able to work with the land trust to make the property more valuable as floodplain protection.
- The municipality can purchase the land for open space by taking on debt (bonds) or instigating a tax levy. One example of a relevant tax levy is called a Real Estate Transfer Tax, which has been passable by local law since NYS passed the Hudson Valley Community Preservation Act of 2007. This tax is applied to mortgages on local real estate and is used to create a conservation fund for the community, which can be used to preserve open space.

### LOCAL EXAMPLE: REAL ESTATE TRANSFER TAX



The Town of Warwick passed a 0.75% Real Estate Transfer Tax and the Town of Red Hook a 2% tax to create a conservation fund to help provide financial support for their Open Space Plans.

## Summary table of all funding assistance programs

Agency	Assistance Program	Categories	Grant amount, match	Deadline, CFA
DEC	✓ <a href="#">Estuary Program</a>		\$10,500-\$50,000, 15%	7/10/19
	✓ <a href="#">CSC</a>		\$10,000-\$2M, 50%	7/26/19 ☑CFA
	✓ <a href="#">WQIP</a>		\$1-10M, 25-60%	7/26/19 ☑CFA
	✓ <a href="#">NANS Planning</a>		≤\$30,000, 10%	7/26/19 ☑CFA
	✓ <a href="#">T4T</a>		N/A	3/1, 8/1/19
DOS	✓ <a href="#">LWRP</a>		No max, 15-25%	7/26/19 ☑CFA
	✓ <a href="#">BOA</a>		≤\$300,000, 10%	7/26/19 ☑CFA
EFC	✓ <a href="#">GIGP</a>		No max, 10-60%	7/26/19 ☑CFA
	✓ <a href="#">WIEP</a>		\$30,000-100,000, 20%	Open
	✓ <a href="#">CWRSEF / DWRSEF</a>		N/A	7/26/19 ☑CFA
FEMA	✓ <a href="#">HMA</a>		N/A	Natural disaster trigger
	✓ <a href="#">PA</a>		25%	Open
	✓ <a href="#">CRS</a>		N/A	Open
ADDITIONAL	✓ <a href="#">NYSERDA CEC</a>		N/A	Open
	✓ <a href="#">OPRHP Parks</a>		≤\$600,000, 25-50%	7/26/19 ☑CFA
	✓ <a href="#">OPRHP Rec Trails</a>		\$250,000, 20%	7/26/19 ☑CFA
	✓ <a href="#">HUD CBDG</a>		\$50,000 - \$900,000, 0-5%	7/26/19 ☑CFA
	✓ <a href="#">ESD</a>		75% for soft costs	7/26/19 ☑CFA
	✓ <a href="#">Greenway</a>		\$5,000 - \$10,000+	9/6, 11/8/19
	✓ Open Space		N/A	N/A

### CONTACT INFORMATION

#### Libby Zemaitis

Climate Outreach Specialist, Hudson River Estuary Program  
**New York State Department of Environmental Conservation**  
 (845) 256-3153 | [Libby.zemaitis@dec.ny.gov](mailto:Libby.zemaitis@dec.ny.gov) | [www.dec.ny.gov](http://www.dec.ny.gov)