

Town and Village of Saugerties



Community Resilience Building Workshop Summary of Findings January 2020

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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

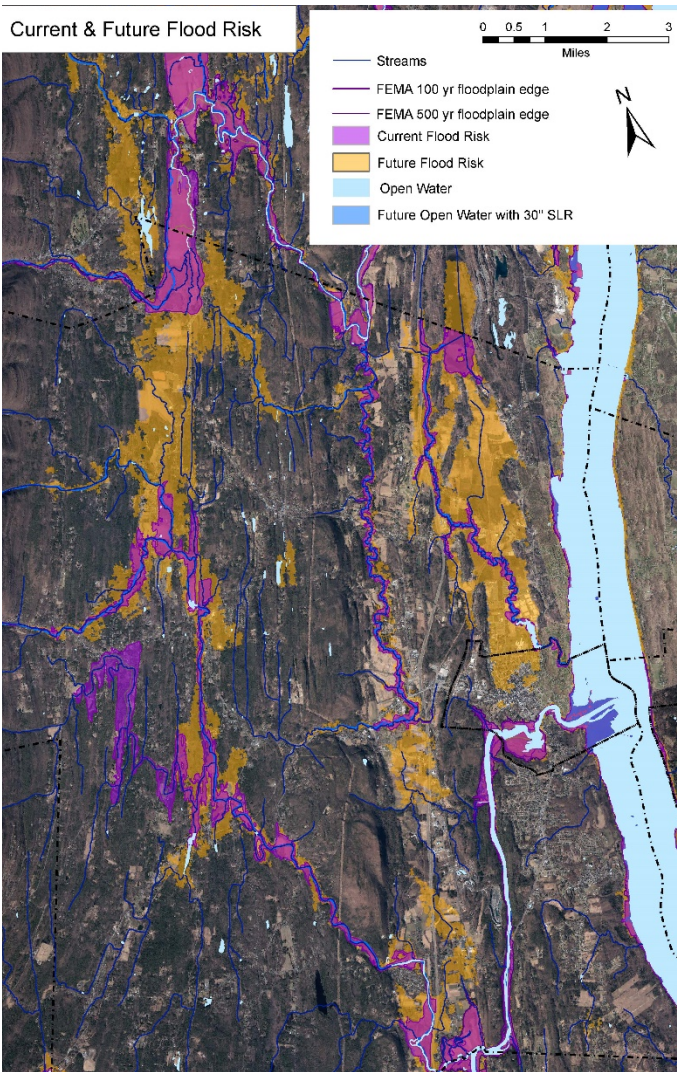


Figure 1. Current and future flood risk for the study areas including the Town and Village of Saugerties.

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.

In the summer of 2019, The Nature Conservancy and the Hudson River Watershed Alliance approached municipal officials in the Town and Village of Saugerties 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 Communities Climate Smart Resiliency Planning 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) 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 across the Town and Village of Saugerties, with a focus on reducing the impacts of flooding (Figure 1).



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 the Town and Village of Saugerties today and in the future. The summary of findings will benefit from further comments, feedback, 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.

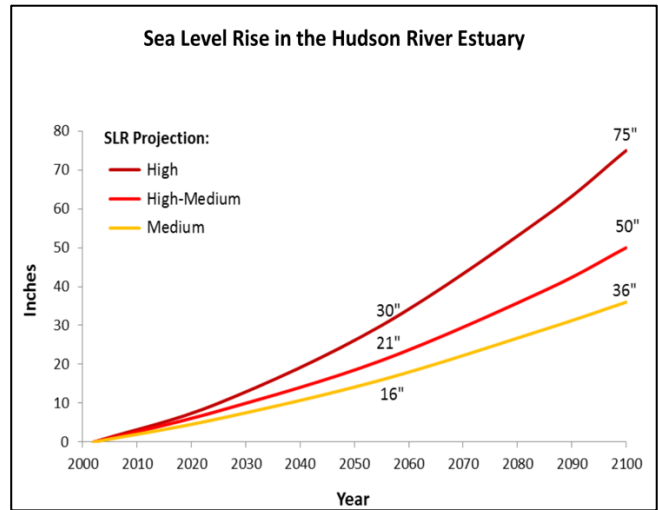


Figure 2. Projected sea level rise scenarios for the Hudson River Estuary.

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 and Resiliency Act](#).



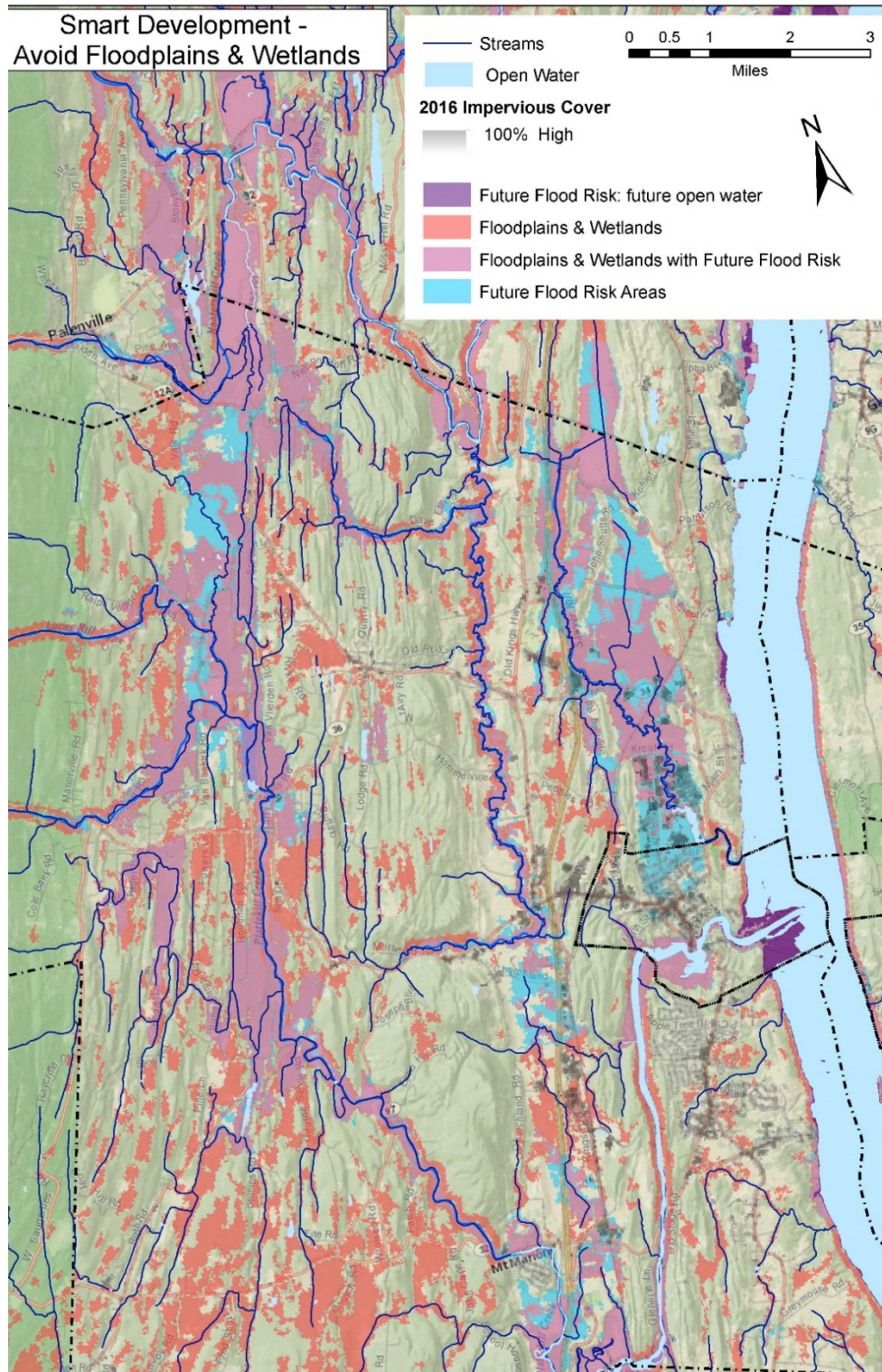


Figure 3. Projected future flood risk areas (blue shaded area) throughout the Town and Village of Saugerties. Pink shaded areas represent possible areas of future floodplains and wetlands as a result of higher flood levels. Development activities in areas where the blue and pink shaded areas overlap should be carefully considered and evaluated before construction is allowed to begin.



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 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 (Figures 1-3 and Table 1).

Table 1. Community assets (Infrastructure, Environment, and Social) at risk with various sea level rise scenarios and current 100-year storm in the Town of Saugerties, 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.

Impact Scenarios for Town of Saugerties			
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
<i>Infrastructure</i>			
Total Damaged Buildings	93	97	100
SPDES Wastewater	1	1	1
Roads (linear miles)	2	2	2
<i>Environment</i>			
Inundated Land Area (Acres)	247	259	277
Inundated Impervious Surface Area (Acres)	6	7	7
Inundated NWI and Tidal Wetlands (Acres)	1	1	1
<i>Social</i>			
Social Vulnerability Index of Impacted Census Blocks (Index Score is unitless)	4	4	4
Social Vulnerability Index of Entire Municipality	4	4	4



CLIMATE SMART RESILIENCY PLANNING TOOL RECOMMENDATIONS

To prepare for the Climate Resiliency Building workshop, Cornell Cooperative Extension of Ulster County worked with the Town of Saugerties in 2019 and Cornell Cooperative Extension of Columbia & Greene Counties worked with the Village of Saugerties in 2018 to complete a [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 opportunities 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 resiliency planning tool is comprised of the following six sections. 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 about 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.

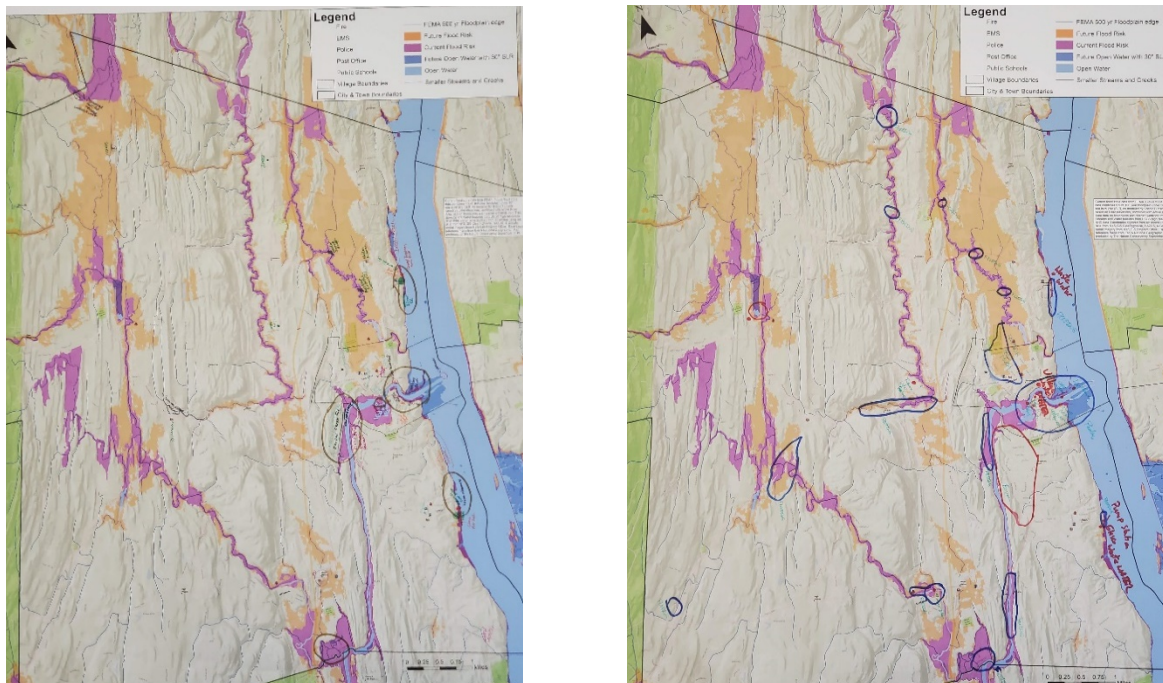


Figure 4. Maps showing the location of identified assets were developed by each subgroup during the Community Resilience Building workshop.

Some of the recommendations shared with the Town of Saugerties are highlighted below:

- Consider including the sustainability elements located in [CSC PE6 Action: Comprehensive Plan with Sustainability Elements](#) when updating the joint Town-Village Comprehensive Plan.
- Conduct a full vulnerability assessment detailing the magnitude of consequences associated with current and future climate hazards. Consider using the Department of State's Inventory Worksheet and Risk Assessment Tool.
- Consider developing public-information plans for disasters and inform residents about available disaster resources through website, social media, radio, television and print.
- Relay weather threats to the public via multiple forms of communication in addition to developing a formal early flood warning system.
- Create a Flood Hazard Mitigation Plan.
- Seek out training opportunities for municipal staff related to floodplain and emergency management issues, and the use of available risk tools like FEMA's HAZUS-MH and vulnerability tools like flood insurance rate maps and cumulative risk assessments.
- In the next update of the Town Open Space Plan, review and incorporate elements from the State Open Space Plan where appropriate.
- Ensure that Town budgets include adequate funds for costs related to adapting infrastructure for greater flood and projected sea-level rise resiliency.
- Create a local wetland ordinance as recommended in the Town and Village of Saugerties Comprehensive plan, Goal #8.
- Consider participating in FEMA's Community Rating System.
- Support land-acquisition programs to purchase land conservation easements in hazard prone areas.
- Engage in shoreline, wetland, or riparian buffer restoration and protection.

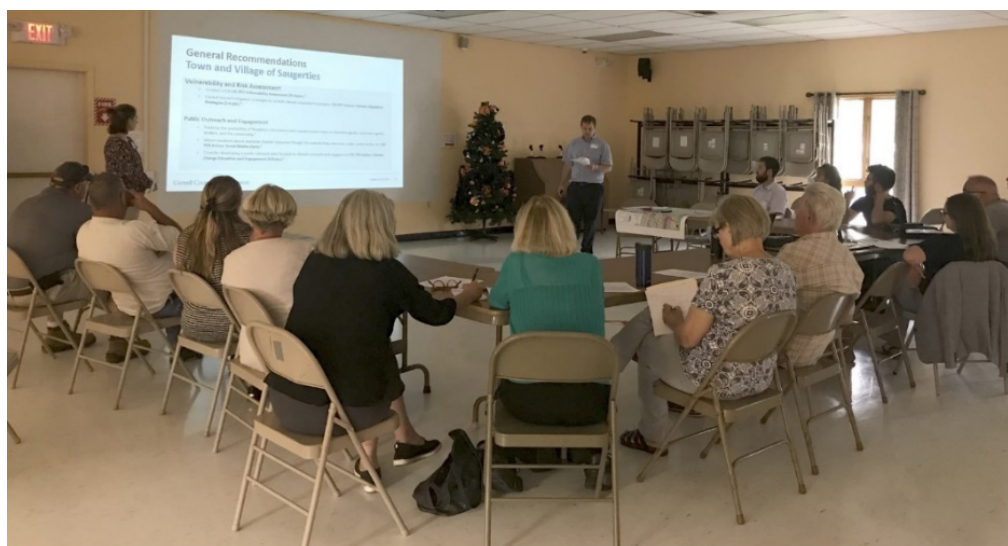


Figure 5. Cornell Cooperative Extension of Ulster and Columbia/Greene Counties shared the preliminary findings of The Climate Smart Community Resilience Tool during the workshop. ©E. Vail, HRWA 2019.

Some of the recommendations shared with the Village of Saugerties are highlighted below:

- **Vulnerability and Risk Assessment:** The Town and Village Comprehensive plan and the Ulster County Multi-Jurisdictional Hazard Mitigation Plan both address climate risks. These documents, with the addition of participation in the Community Resilience Building workshop, are great tools for assessing and understanding climate vulnerability.
- **Public Outreach and Engagement:** The Village has an opportunity to increase public outreach and engagement through the existing website, which could include floodplain and coastal erosion maps, disaster resources, and public information plans to provide residents with information about inundation areas, evacuation route, and shelter.
- **Hazard Mitigation Implementation Section and Integration of Municipal Plans:** The Ulster County Multi-Jurisdictional Hazard Mitigation Plan addresses hazard mitigation implementation and disaster preparedness, but more measures could be taken by the Village of Saugerties to mitigate flood and climate risks. Examples could include retrofitting public infrastructure and critical facilities to withstand flood damage. Ensure that the Village budgets include adequate funds for costs related to adapting infrastructure for greater resiliency.
- **Disaster Preparedness and Recovery:** The Village could create a long-term recovery plan that identifies redevelopment opportunities outside of flood-hazard areas, opportunities to retrofit or relocate existing structures, advocates for the use of advisory flood maps to define post-disaster redevelopment, and identifies functions of officials and agencies to provide maximum benefit to disaster areas.

COMMUNITY RESILIENCE BUILDING WORKSHOP 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 Esopus 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 as an additional hazard, related to drought and dry conditions.



The above hazards have a growing impact on residents and businesses in both the Town and Village of Saugerties, both located in Ulster County. During the Community Resilience Building Workshop, participants 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. These assets and actions were identified by a diverse mix of participants from both municipalities. The following sections summarize the results of this process.

Key Assets and Areas of Concern

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

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

- **Watersheds and waterbodies**, including floodplains, smaller tributaries, and wetlands associated with the Hudson River and Esopus, Sawyerkill, Plattekill, Beaverkill and Kaaterskill Creeks.
- **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 both jurisdictions.

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

- **Wastewater and drinking water infrastructure** were identified as the high priority concern by workshop participants, including more than three wastewater treatment plants and associated collection infrastructure, along with private septic systems.
- **Transportation infrastructure** represents a multitude of bridges, roads, and culverts. Examples of specific systems identified were Route 9W, Route 212, Ferry Street, Riverside Drive, and Hudson Street.
- **Vulnerable dams and shoreline infrastructure** including Cantine (Mullen's) Dam and the Mt. Marion Dam along with bulkheads at Bridge Street, Ferry Street, and Lighthouse Drive.
- **Vulnerable neighborhoods** including the Lighthouse Drive, Ferry Street, and lower East Bridge Street residential areas.

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

- **Emergency Management Planning** needs associated with existing shelters, healthcare facilities, and first responder facilities and communication systems.
- **Vulnerable populations** predominantly associated with elderly housing such as The Mill and two senior centers along with Ferry Street, Lighthouse Drive and Lower East Bridge Street, Oakledge Drive, and Lower Partition Street neighborhoods.
- Working with the **US Coast Guard Station** to understand their emergency or contingency plans.





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

Current Vulnerabilities

Most of the environmental assets identified by workshop participants were characterized as strengths that are vulnerable to the three hazard categories of sea level rise/storm surge, inland flooding, and drought. Environmental assets capture community elements such as open space, water resources, flood water storage, and other ecosystem services. In some instances, these resources are also vulnerable to damage from flood waters and storm surge with increasing storm frequency and intensity, and potential susceptibility to drought and wildfires. This was especially true for many of the parklands and open

spaces identified in the workshop. Examples of identified vulnerabilities included invasive species in tidal and inland waters, Sawyerkill watershed flooding, Kaaterskill Creek flooding, Esopus Creek and Esopus Bend Nature Preserve flooding, wetland conversion to open water, loss of beaches, and public access points. Publicly held lands should continue to be protected and maintained. “Nine Element Watershed Plans” were recommended for Esopus, Plattekill, Kaaterskill and Sawyerkill watersheds.

Floodplains and wetlands, specifically the “Vly Wetland,” were recognized as assets requiring additional consideration and, likely, more active management. These same coastal wetlands and floodplains are also vulnerable assets within the study area because of their prevalence and possible impacts from higher storm surge or future salt intrusion, should the salt front shift north with sea level rise or during major droughts.

The most vulnerable infrastructure assets relate to wastewater collection and treatment, drinking water sources and distribution, and road corridors. Three wastewater treatment and collection systems serving both communities were repeatedly highlighted due to their vulnerability to flooding impacts, age, and reliability. All three wastewater treatment plants and associated infrastructure (i.e. pumps and collection systems) are in need of formal vulnerability assessments focusing on streambank erosion, inflow and infiltration (I&I), and collection systems. Flooding impacts to several transportation corridors were listed as high priority, including Lighthouse Drive, Dock Street, Main and Partition Street (storm drain), Clint Finger Road, Route 212 north of the Hamlet of Veteran, and Esopus Creek Road. These will likely require collaboration with NYS DOT, the Village’s Department of Public Works, and the Town’s Highway Department. Additionally, specific bridge structures were also identified as vulnerable including Herrick Bridge, Schoolhouse Road Bridge, and a pair of Sawyerkill Creek crossings at Malden and Krout Road. The final infrastructure assets identified as high priority were the Mt. Marion and Cantine

(Mullen's) Dams; the Mt. Marion Dam has been replaced, while emergency plans should be completed and updated for the Cantine Dam.

The primary social vulnerabilities are related to vulnerable populations and neighborhoods. There are several communities that are susceptible to flooding including Lighthouse Drive, Oakledge Drive, Lower East Bridge Street, Lower Malden, Lower Glasco, and Ferry Street. The Emergency Care facility on 9W was listed as vulnerable to flooding, and vulnerability of the Diaz Ambulance facility should be assessed. Ivy Lodge and the Mill, both privately-owned and -operated senior citizen residences, were also identified as possibly vulnerable and warranting follow up.

Current Strengths



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

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. Though much of this region directly interacts with both coastal and inland waterways, many environmental assets are contributing to resilience. There are more than a dozen locally owned and managed parks and open spaces between the two communities. Many have elements which could be impacted by changes to environmental conditions, but none of these are considered devastating to the resource. Turkey Point State Forest is an example of a public environmental asset assessed as a current strength and reasonably expected to remain so with appropriate management actions. Gaging stations in the municipalities also contribute to resilience. The Turkey Point tide station on the Hudson River, operated by the Hudson River National Estuarine Research Reserve, can provide detailed information about Hudson River water level and flooding. The USGS Gaging Station measures discharge and water level in the Esopus Creek at Mt.

Marion, downstream of the Ashokan Reservoir. This gage is part of New York City Department of Environmental Protection's water supply operations, and tied to water release protocol. These stations contribute to resilience, as they provide important flood flow information, which can serve as an early warning tool for residents and first responders.

There were several public infrastructure assets identified as strengths in these municipalities, particularly around wastewater and drinking water infrastructure. Although vulnerabilities associated with the three wastewater treatment plants were identified (i.e. a need for inflow and infiltration analysis) they are not yet catastrophic, and measures can be taken to improve the resilience of these assets. Currently these are highly functioning systems and are expected to remain as such with continued evaluation and investment. Drinking water assets were also identified as strengths including the Village Reservoir and back-up water supplies located in the Beaverkill Watershed.

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 emergency response and community support institutions. Perhaps the most robust strength among the two communities are the emergency response institutions and associated assets. All eight identified fire departments and station houses and the shared police department and station house were identified as strengths with recommendations of “business as usual,” indicating a low level of impact from the evaluated hazards. Additionally, the Saugerties Public Library was identified as an important institution for information sharing and communication. Other public assets exist such as the Coast Guard Station, the town Parks Department and Village Public Works Department, bilingual first responders, and a bevy of emergency shelters including senior centers and the ice arena.

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.

- Protecting existing natural assets is far cheaper than restoring them and more likely to be successful. Understanding current conditions, trends and risks to watersheds can be accomplished through a concerted evaluation and planning process, such as a Nine Element Watershed Plan. These kinds of efforts that characterize the interactions between people, infrastructure, and water should be seriously considered for all Hudson River tributaries. Watershed systems can also be evaluated through the specific lens of flooding at the small watershed scale; Plattekill Creek would be a prime candidate for this type of assessment.
- Protection of environmental assets could also be accomplished through review and enforcement of existing stream corridor overlay districts or protection ordinances. Regardless of the actions to be pursued, it will be valuable to enhance use of existing programs and build or revive more robust organizational relationships with federal and state agencies, along with local and regional non-profit organizations, to share resources and experiences.
- Restoration and management were identified as important next steps for specific environmental assets identified as vulnerable. For example, invasive species are a major threat to the Esopus Creek, the Sawyerkill watershed, and the Hudson River estuary north of the Lighthouse and adjacent to Falling Waters Preserve.



- 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, and vulnerable housing. The highest priorities in all areas of concern include the following:

- Culvert and bridge vulnerability assessments for both road and rail infrastructure are necessary. Highlighted areas included Route 9W, Lighthouse Drive, Dock Street, Main Street, Partition Street, Clint Finger Road, Route 212 (north of the hamlet of Veteran), and Esopus Creek Road. A road/stream crossing assessment was recently completed, which evaluated the ability for culverts and bridges to pass water and debris. Active steps should be taken to implement assessment’s recommendations, which begins to identify implications of crossing failure to neighborhood traffic patterns and surrounding infrastructure, as well as impacts to vulnerable residents. Implementation actions are also likely to require heightened engagement with NYS Department of Transportation and Ulster County Department of Public Works.
- 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 “high” or “medium.” However, the total number of systems and assets elevates their management to a “high” priority. The condition and vulnerability of assets within the systems varies. An asset management plan for water or wastewater systems could 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 between the town and the village.
- The Mt. Marion and Cantine (Mullen’s) Dams were identified high priorities as well. The proposed actions associated with these structures are to simply monitor and manage, particularly now that the Mt. Marion Dam repairs are complete.

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:

- The highest priority action item is to ensure that Town and Village Police Department coordinate to make existing emergency management plans available to other municipal departments. Plans should be updated as needed.
- The Ice Arena, identified as one of the area’s future alternative shelters, does not currently have a generator. However, the dome structure was recently replaced, and the Senior Center currently serves as an emergency shelter.



- The Coast Guard Station at the mouth of Esopus Creek is a significant local and regional asset, yet little is known in municipal circles about management, planning or response measures at this facility. Enhanced dialogue with the Coast Guard would be beneficial and may uncover previously unknown resources.
- 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, Ulster County Soil and Water Conservation District, and USGS Stream Gaging Stations. These agencies and assets 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.



Figure 8. Participants mapped community assets performing critical functions. © E. Vail, HRWA 2019.

Medium Environmental Priorities:

- Assess options for upgrades around the Esopus Creek, including shoreline revitalization and installation of water and sewer lines on Esopus Creek Road.
- There are environmental education opportunities to be explored with many of the local park facilities including Falling Waters Preserve, Tina Chorvas Park, Bristol Beach State Park, and George Terpening Park.
- 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 assessing wildfire risk assessment and prevention planning, in collaboration with county and state natural resource managers as well as emergency responders.

Medium Infrastructural Priorities:

- The Village of Saugerties Wastewater Treatment Plant and collection system is in need of inflow and infiltration assessment (I&I) as well as stormwater mitigation

planning. In addition, the sewer lines at East Bridge Street and the Hudson Street Pump Station would benefit from stormwater assessments and development of floodproofing options.

- Lighthouse Drive, Ferry Street, and Lower East Bridge Street are all vulnerable to flooding. Residents would benefit from more dialogue and communication of risks, as well as mitigation options such as raising structures or voluntary relocation.
- Existing bulkheads, such those on Bridge Street, Ferry Street, and Lighthouse Drive, should be evaluated for elevation adjustment and refacing needs.

Medium Social Priorities:

- All three of the wastewater treatment plants and collection systems would benefit from inflow and infiltration assessments (I&I), evaluation of floodproofing options (i.e. berms, pumps, etc.).
- Although current primary and back-up drinking water supplies are considered safe, conversations with local land conservancies, NYS Department of Health, and NYS Department of Environmental Conservation to ensure source water protection is achieved are warranted.

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

WORKSHOP PARTICIPANTS

First Name	Last Name	Municipality/Affiliation	Title
Kevin	Brown	Town of Saugerties	Assistant Building Inspector
Fred	Costello**	Town of Saugerties	Supervisor
Brent	Gotsch	Cornell Cooperative Extension Ulster County	
Michele	Haines	Town of Saugerties	Town of Saugerties Water & Wastewater Secretary
Jeff	Helmuth**	Village of Saugerties	Trustee
Melinda	Herzog	Cornell Cooperative Extension Ulster County	
Mary	McNamara**	Hudson River Watershed Alliance	
Bill	Murphy**	Village of Saugerties	Mayor
Stan	O'Dell	Village of Saugerties	Waterfront Advisory board
Mary	O'Donnell	Town of Saugerties	Conservation Advisory Council and Climate Smart Task Force
Sebastian	Pillitteri	Riverkeeper	
Gail	Porter	I Paddle NY	Business Owner
Mark	Resso	Town of Saugerties	Water and Sewer Superintendent
Mark	Smith	Saugerties Chamber of Commerce	Chamber of Commerce
Leanne	Thorton**	Town of Saugerties	Deputy Supervisor
Nava	Tabak	Scenic Hudson	
Kelsey	West	Cornell Cooperative Extension Columbia & Greene Counties	

** Identifies local representatives to workshop planning team



WORKSHOP FACILITATION TEAM

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ACKNOWLEDGMENTS

Special thanks to the Town and Village of Saugerties for their willingness to embrace this process, and to both municipalities for providing the facilities to convene the group.

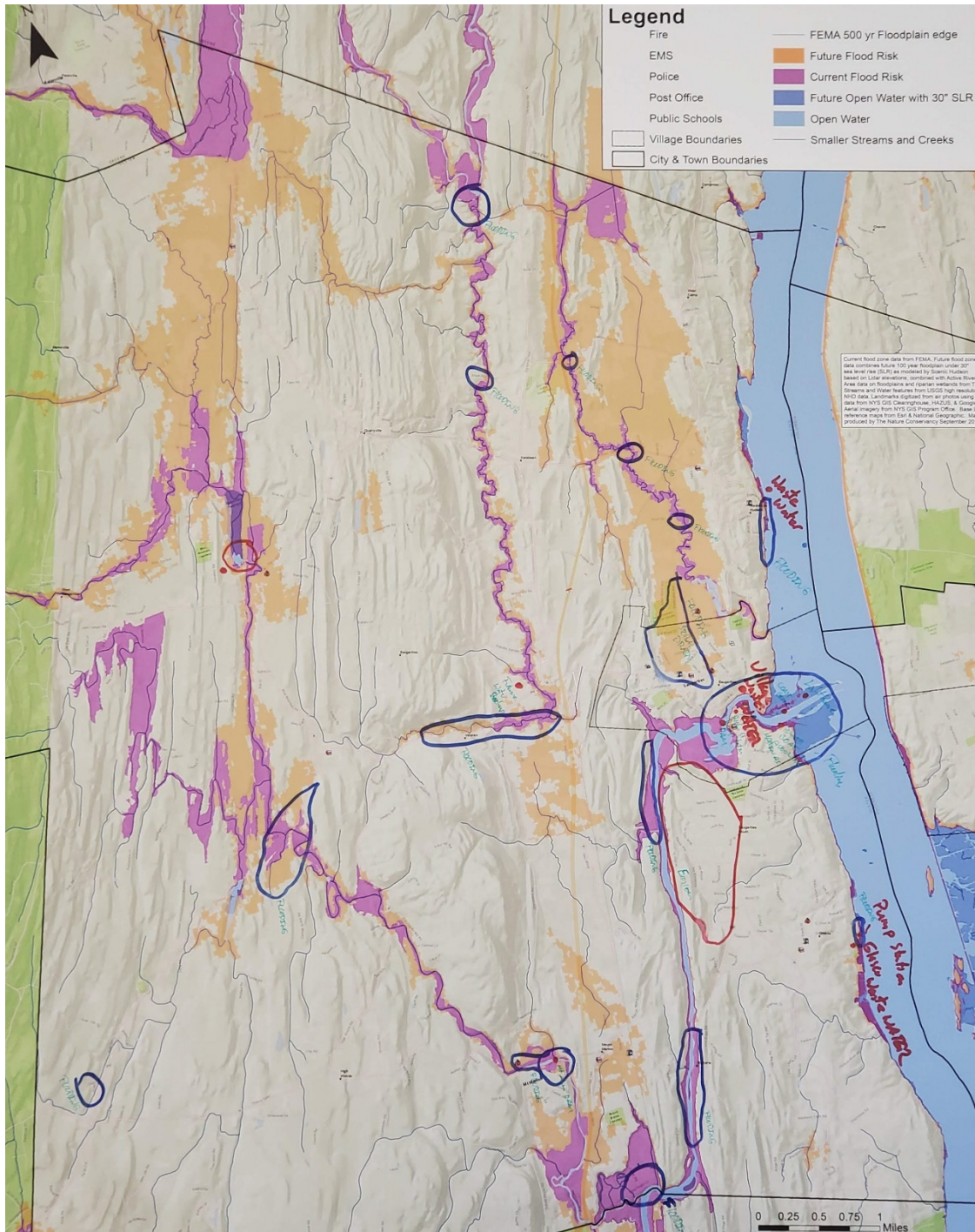
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APPENDIX I: CRB Workshop Base Map and Asset Identification Maps





APPENDIX 2: Climate Smart Community Resilience Tool Recommendations: Town of Saugerties

Town of Saugerties Climate Smart Planning

November 6, 2019

Prepared by Melinda Herzog and Brent Gotsch, Cornell Cooperative Extension of Ulster County

Climate Smart Resiliency Planning Tool is a checklist to identify gaps in a community's planning process.

The Climate Smart Resiliency Planning Tool was used to evaluate opportunities for the Town of Saugerties to improve its community's resilience to flooding and climate change. The Planning Tool reviews many long- and short- term aspects of storm and climate change preparedness by reviewing Town and County planning documents, activities and management. Documents were reviewed, and municipal staff members were consulted in the process of completing the assessment. The assessment and recommendations have been shared through discussions at Town Board meetings.

Municipal staff engaged in the Town of Saugerties Climate Smart Planning assessment:

Vernon Benjamin, Special Operations Coordinator
Kevin Brown, Assistant Building Inspector
Fred Costello, Jr., Town Supervisor
Stephen Gakenheimer, Highway Department
Kathleen Gray, Assistant Special Operations Coordinator
Mary McNamara, Lower Esopus Watershed Partnership
Doug Myers, Highway Superintendent
Joseph Sinagra, Police Chief

The completed assessment and recommendations highlight areas of opportunity for the Town of Saugerties to integrate flood and climate change preparedness into its municipal operations and planning.

Areas of Strength

- The Town and Village of Saugerties Comprehensive Plan¹ is successful in identifying resilience as a goal and identifying climate hazards. The plan recommends implementing green infrastructure techniques and land use planning to reduce climate hazard

¹ Town and Village of Saugerties Comprehensive Plan:
<https://villagesaugerties.digitaltowpath.org:10064/content/Generic/View/47:field=documents:/content/Documents/File/380.pdfm>



vulnerability. For example, a plan for developing river launch sites to accommodate flood water and other open space development in floodways is incorporated. The Comprehensive Plan also involved a broad base of the community in the planning process and provides a clear explanation of their participation.

- The Town has completed a Climate Action Plan and has an active Conservation Advisory Council and associated Climate Smart Task Force that has completed a Climate Action Plan for the Town government operations. **CSC PE2 Action: Government Operations Climate Action Plan (12-16 pts)**. This body can be utilized to gain points in the Climate Smart Communities Program by completing additional actions as identified in the Climate Smart Communities Certification Action Checklist.
- The Town has participated in the New York Rising Community Reconstruction Program² and received over \$3 million to complete projects that make the Town more resilient including culvert and bridge replacement, sewer upgrades, and stream bank rehabilitation.
- The Town has an Open Space Plan that identifies important areas in need of protection as well as areas that can be built out. Plan can be complementary to other future plans and analysis.
- The Town is part of the National Flood Insurance Program and tracks Repetitive Loss Properties.
- The Town is a Climate Smart Community³ and is working proactively to engage with that program.

Areas of Opportunity

- The Town of Saugerties adopted the Ulster County Multi-Jurisdictional Hazard Mitigation Plan, which makes the community eligible to receive FEMA grants such as the Flood Mitigation Assistance Program, Hazard Mitigation Grant Program, and Pre-Disaster Mitigation Grant Program for completion of hazard mitigation actions. Note that beginning in 2020 the Pre-Disaster Mitigation Grant Program will be replaced by the Building Resilient Infrastructure and Communities (BRIC) program.
- The Town of Saugerties has a website that is capable of sharing documents, links, and plans to the public. It is possible to make this site more intuitive and user friendly. Some examples include:
 - Consider adding a page for floodplain information and disaster preparedness. More information is provided below in Section 3- Public Outreach and Engagement.
 - Have a “Departments” page that lists all of the Town municipal departments along with contact information and relevant documents.

²New York Rising Community Reconstruction Program: <https://stormrecovery.ny.gov/community-reconstruction-program>

³Climate Smart Communities Portal: <https://climatesmart.ny.gov/>



- Have a “Documents” page where important documents like the Town Comprehensive Plan can be accessed easily and downloaded quickly.
- Participate in The Nature Conservancy Community Resilience Building Workshop⁴, which helps community participants identify hazards, challenges, strengths, and priority actions for community resilience.
- Seek out training opportunities for municipal staff related to floodplain and emergency management issues.
- The Town of Saugerties can leverage completion of this Climate Smart Resiliency Planning Tool for points toward Climate Smart Communities certification. **CSC PE7 Action: Climate Smart Resiliency Planning (6 pts.)**. For more information on the Climate Smart Communities Program and the actions listed in this document, visit the Climate Smart Communities portal.⁵

Recommendations

The following opportunities emerged under each of the sections of the Climate Smart Planning assessment:

Section 2- Vulnerability and Risk Assessment

- Conduct a full vulnerability assessment detailing the magnitude of consequences associated with current and future climate hazards. **CSC PE7 Action: Climate Vulnerability Assessment (4-16 pts)**. Include how these events will effect internal operations, people, public health, the environment, the economy, and capital and operating costs. Consider using the Department of the State’s Asset Inventory Worksheet and Risk Assessment Tool⁶. Ensure that vulnerability and risk assessments are shared with all relevant municipal officials and emergency manager.
- Train municipal managers on the use of available risk (like FEMA’s HAZUS-MH) and vulnerability tools (like flood insurance rate maps and cumulative risk assessments). Use these to report estimated future financial losses from natural hazards.
- Expand beyond mitigation strategies to include climate adaptation strategies. **CSC PE7Action: Climate Adaptation Strategies (2-8 pts)**.
 - Identify and categorize them by type, administration, condition, timing and geography
 - Evaluate and prioritize adaptation strategies using metrics, such as strategy cost, feasibility, timing of implementation, efficacy and co-benefits.
 - Consider linking these strategies to capital budget cycles.

⁴ The Nature Conservancy Community Resilience Building Workshop (CRB): www.communityresiliencebuilding.com/crbworkshopguide

⁵ Climate Smart Communities Portal: <https://climatesmart.ny.gov/>

⁶ Department of the State’s Asset Inventory Worksheet and Risk Assessment Tool: <https://stormrecovery.ny.gov/community-regions/hudson-valley-and-westchester>



- ☐ Consider creating maps that show populations (especially vulnerable populations), building stock, and natural and cultural resources in relation to identified hazards.
- ☐ Incorporate estimates of future financial losses resulting from flooding into plans.
- ☐ Utilize Open Space Plan’s build out analysis and overlay it with risk areas, such as Special Flood Hazard Area on FEMA Flood Insurance Rate Map (FIRM).

Section 3- Public Outreach and Engagement

- ☐ Consider installing high water mark signs at public locations.
- ☐ Publicize the availability of floodplain information and coastal erosion maps to insurance agents, real estate agents, lenders, and the community. Encourage them to attend the “Floodplain Management for Real Estate Professionals Course” offered twice a year by Cornell Cooperative Extension of Ulster County and the Ulster County Department of the Environment. Contact Ulster County Board of Realtors for training dates.
- ☐ Consider developing public-information plans to provide residents with information about expected inundation areas, evacuation routes and pick up locations, location of severe weather shelters, and location of pet shelters prior to the threat of a storm. **CSC PE7 Action: Early Warning Systems and Evacuation Plans** (under review).
- ☐ Inform residents about available disaster resources through City website links, television, radio, social media, etc. **CSC PE9 Action: Social Media (3pts)**. Resources could include:
 - ASPCA’s disaster preparedness steps for domesticated animals⁷.
 - FEMA’s “Are You Ready” guide.⁸
 - FEMA’s Coastal Construction Manual⁹.
 - FEMA’s Homeowner’s Guide to Retrofitting¹⁰
 - Provide residents with guidance on the development of personal and family evacuation plans or what to include in emergency or evacuation kits (FEMA’s Ready.gov checklist).
- ☐ Consider developing a public outreach plan focused on climate outreach and engagement **CSC PE9 Action: Climate Change Education and Engagement (4-8 pts.)**.

Section 4- Integration of Municipal Plans

- ☐ When updating the joint Town-Village Comprehensive Plan be sure to include sustainability elements within it **CSC PE6 Action: Comprehensive Plan with Sustainability Elements (3-21 pts)**.
 - Reference and incorporate components of any relevant plans (e.g. Open Space Plan)

⁷ ASPCA’s Disaster Preparedness for Domesticated Animals: <https://www.aspc.org/pet-care/general-pet-care/disaster-preparedness>

⁸ FEMA’s “Are You Ready” Guide: <https://www.fema.gov/media-library/assets/documents/7877>

⁹ FEMA’s Coastal Construction Manual: <https://www.fema.gov/media-library/assets/documents/3293?id=1671>

¹⁰ FEMA’s Homeowner’s Guide to Retrofitting: <https://www.fema.gov/media-library/assets/documents/480>



- Explain the support and involvement of emergency managers and publicworks officials
- Explicitly mention and incorporate resilience within the plan’s mission, vision, and goals
- Link recommendations to reducing hazard vulnerability through land-use planning
- Emphasize non-structural pre-disaster mitigation measures, such as acquiring flood-prone lands
- Consider 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
- Review and incorporate elements from the state open space plan into the next update of the Town Open Space Plan where appropriate.
- Ensure that the Town budgets include adequate funds for costs related to adapting infrastructure for greater flood and projected sea-level rise resiliency. Incorporating adaptation consideration into an asset management or capital improvement plan is an ideal method to build resiliency into routine maintenance and upgrades. **CSC PE8 Action: Green Economic Development Plans (4 pts).**
- Create a Flood Hazard Mitigation Plan:
 - Include a current Certified Floodplain Manager (CFM) in the planning process
 - Involve municipal officials, community boards, businesses, and residents in the planning process
 - Ensure that it lines up with National Flood Insurance Program (NFIP) Community Rating System (CRS) standards. **CSC PE7: National Flood Insurance Program Community Rating System (3-9 pts.).** If adopted this will net Town points in the CRS that will in turn reduce NFIP flood insurance premiums Town-wide.
- Create a local wetland ordinance as recommended in the Town and Village of Saugerties Comprehensive plan, Goal #8.
- Consider adopting the Association of Floodplain Managers No Adverse Impact concepts.¹¹
- Consider creating a plan combining elements of a capital improvements plan and economic development plan. **CSC PE8 Action: Green Economic Development Plans (4 pts.). The plan could:**
 - Include a licensed professional planner and engineer in the planning process
 - Consider the risk of flooding when upgrading existing municipal infrastructure and on proposed infrastructure projects
 - Incorporate projections of flooding into risk assessments over the expected service life of municipal infrastructure

¹¹ Association of State Floodplains No Adverse Impact: <https://www.floods.org/index.asp?menuID=349&firstlevelmenuID=187&siteID=1>



- Incorporate existing plans, studies, reports and technical information
- Identify economic vulnerabilities due to hazards
- Incorporate climate change effects into its assessments of economic vulnerabilities

Section 5- Disaster Preparedness and Recovery

- Consider participating in the National Weather Service Storm Ready Community program¹², which helps communities take a proactive approach to prepare for extreme weather and natural disasters.
- Relay weather threats to the public via multiple forms of communication (website, radio, television, social media, etc.) in addition to developing a formal early flood warning system **CSC PE7 Action: Early Warning Systems and Evacuation Plans (under review)**.
- Inform the public of the NY-Alert¹³ program and how to sign up.
- Participate in FEMA’s Community Emergency Response Team (CERT)¹⁴ training to better prepare for disasters.
- Create a heat-warning system.
- Create a long-term recovery plan with lines of coordination in transitions from the short term plan that:
 - Identifies redevelopment opportunities outside of flood-hazard areas or opportunities to retrofit or relocate existing structures or infrastructure in hazard-prone areas.
 - Advocates for the use of advisory flood maps to define post-disaster redevelopment building elevations.
 - Identifies roles and functions of elected and appointed officials, state and federal agencies, and NGOs in coordination to provide maximum benefit to disaster areas.
 - Includes provisions to reduce greenhouse gas emissions from reconstructed areas.
- Create an evacuation plan that could include:
 - Clearly defined municipal responsibilities.
 - Multiple evacuation routes with flood-prone areas identified.
 - Identification of vulnerable populations that may require assistance.

¹² National Weather Service Storm Ready Community Program: <https://www.weather.gov/StormReady>

¹³ NY-Alert is a New York State service that alerts citizens of hazards and emergencies via email or telephone. <https://nyalert.gov/>

¹⁴ CERT program is offered by FEMA to train volunteers in basic response skills to assist in community disaster relief. <https://www.fema.gov/community-emergency-response-teams>



Section 6- Hazard Mitigation Implementation

- Adopt higher regulatory standards for floodplain administration and management such as:
 - Higher floodway standards based on less than the federally allowed 1-foot rise (e.g. floodways based on .5 feet or 0 feet rise standard) or prohibition of new development in floodways
 - Cumulative substantial improvement over a defined set of years (5 or 10 years for example) and have building department track it.
 - Higher freeboard than NYS Mandated 2-feet for new and substantially improved/substantially damaged construction (e.g. 3 feet of freeboard)
- Consider adopting regulations that state that all road-stream crossings (e.g. bridges, culverts) must pass 1% Annual Chance (100-year storm) flow.
- Take part in FEMA's Community Rating System¹⁵ **PE7 Action: National Flood Insurance Program Community Rating System (3-9 pts).**
- Propose retrofitting public infrastructure and critical facilities to withstand flood damage, and provide training in retrofitting flood-prone residential buildings and NYSDEC Post Flood Stream Intervention training for appropriate staff¹⁶.
- Consider utilizing tools such as transfer/purchase of development rights, conservation overlay districts or cluster development, zoning for open or recreational space, protective buffer ordinances, rolling easement, or buyouts of vulnerable properties to manage development in hazard prone areas.
- Support land-acquisition programs to purchase land conservation easements in hazard-prone areas. **CSC PE7 Action: Restoration of Floodplains and Riparian Buffers (2 pts).**
- Engage in shoreline, wetland, or riparian buffer restoration and protection by **CSC PE7 Actions: Restoration of Floodplains and Riparian Buffers (1-10 pts)** or **PE7 Action: Nature-based Shoreline Protection (under review).**
 - Encouraging sustainable enhanced methods of shoreline protection encouraged through incentives or regulation.
 - Establishing special area ordinances for habitat preservation.
 - Implementing impact fees to pay for restoration and protection efforts.
 - Developing a plan to control invasive species.
- Consider using grant programs such as the FEMA Hazard Mitigation Grant Program, FEMA pre-disaster Mitigation Grant Program, and FEMA Flood Mitigation Assistance Program to implement mitigation projects.

¹⁵FEMA's Community Rating System is a voluntary incentive program that encourages community floodplain management that exceeds the minimum National Flood Insurance requirements. <https://fema.gov/national-flood-insurance-program-community-rating-system>

¹⁶NYSDEC Post Flood Stream Intervention Trainings: <https://www.dec.ny.gov/lands/86450.html>



Potential Funding Sources

- DEC Climate Smart Communities Grant Program: <https://www.dec.ny.gov/energy/109181.html>
- DEC Grant Applications: <https://www.dec.ny.gov/pubs/grants.html>
- DEC Hudson River Estuary Program Grants: <https://www.dec.ny.gov/lands/5091.html>
- FEMA Hazard Mitigation Grant Program: <https://www.fema.gov/hazard-mitigation-grant-program>
- FEMA Pre-disaster Mitigation Grant Program: <https://www.fema.gov/pre-disaster-mitigation-grant-program>
- FEMA Flood Mitigation Assistance Grant Program: <https://www.fema.gov/flood-mitigation-assistance-grant-program>
- HUD Community Development Block Grants: https://www.hud.gov/program_offices/comm_planning/communitydevelopment/programs
- NYS Department of State Grants (including Local Waterfront Revitalization Program): <https://www.dos.ny.gov/funding/>



APPENDIX 3: Climate Smart Community Resilience Tool Recommendations: Village of Saugerties

Village of Saugerties Climate Smart Planning

November, 30, 2018

Prepared by Audrey Kropp, Tracey Testo, Kelsey West, Cornell Cooperative Extension of Columbia and Greene Counties.

Climate Smart Resiliency Planning Tool is a checklist to identify gaps in a community's planning process.

The Climate Smart Resiliency Planning Tool was used to evaluate opportunities for the Village of Saugerties to improve its community's resilience to flooding and climate change. The Planning Tool reviews many long- and short- term aspects of storm and climate change preparedness by reviewing Village and County planning documents, activities and management. Documents were reviewed, and municipal staff members were consulted in the process of completing the assessment. The assessment and recommendations have been shared through discussions at Village Board meetings.

Municipal staff engaged in the Village of Saugerties Climate Smart Planning assessment:

Jeff Helmuth, Village Trustee

Alex Wade, Special Projects

Eyal Saad, Zoning/Code Enforcement Officer, Building Inspector, Safety Officer, Stormwater Management

Lisa Mayone, Village Clerk

The completed assessment and recommendations highlight areas of opportunity for the Village of Saugerties to integrate flood and climate change preparedness into its municipal operations and planning.

Areas of Strength

- The Town and Village of Saugerties Comprehensive Plan¹ is successful in identifying resilience as a goal and identifying climate hazards. The plan recommends implementing green infrastructure techniques and land use planning to reduce climate hazard

¹ Town and Village of Saugerties Comprehensive Plan:

<https://villagesaugerties.digitaltownpath.org:10064/content/Generic/View/47?field=documents:/content/Documents/File/380.pdf>

vulnerability. For example, a plan for developing river launch sites to accommodate flood water and other open space development in floodways is incorporated. The Comprehensive Plan also involved a broad base of the community in the planning process and provides a clear explanation of their participation.

- The Village of Saugerties Local Waterfront Revitalization Program (1985) identifies natural hazard risks and identifies and maps social, cultural, natural, and historical vulnerabilities in relationship to these risks. It also incorporates plans to minimize damage to natural resources and property through non-structural measures.
- Projects are completed and underway through participation in New York Rising Community Reconstruction Program² that incorporate shoreline stabilization of public parks, protecting vulnerable cultural resources, and erosion mitigation through plantings.
- The Village is part of the National Flood Insurance Program and tracks Repetitive Loss Properties.

Areas of Opportunity

- Consider participating in the Climate Smart Communities (CSC) certification program³, which provides the Village increased access to funding opportunities for implementation of projects. The Village has already addressed some of the certification requirements, including the Climate Smart Resiliency Planning Tool. **CSC PE7 Action: Climate Smart Resilience Planning (6pts)** and the Town and Village of Saugerties Comprehensive Plan **CSC PE6 Action: Comprehensive Plan with Sustainability Elements (3-21 pts)**.
- The Village of Saugerties adopted the Ulster County Multi-Jurisdictional Hazard Mitigation Plan, which makes the community eligible to receive FEMA grants such as the Flood Mitigation Assistance Program, Hazard Mitigation Grant Program, and Pre-Disaster Mitigation Grant Program for completion of hazard mitigation actions.
- While the community is currently updating the Local Waterfront Revitalization Program, consider incorporating the threat of sea level rise to the identified climate hazards and specify when the plan should next be updated.
- The Village of Saugerties has a website that effectively shares documents, links, and plans to the public. Consider adding a page for floodplain information and disaster preparedness. More information is provided below in Section 3- Public Outreach and Engagement.
- Participate in The Nature Conservancy Community Resilience Building Workshop⁴, which helps community participants identify hazards, challenges, strengths, and priority actions for community resilience.

² New York Rising Community Reconstruction Program: <https://stormrecovery.ny.gov/community-reconstruction-program>

³ Climate Smart Communities Portal: <https://climatesmart.ny.gov/>

⁴ The Nature Conservancy Community Resilience Building Workshop (CRB) www.communityresiliencybuilding.com/crbworkshopguide

Recommendations

The following opportunities emerged under each of the sections of the Climate Smart Planning assessment:

Section 2- Vulnerability and Risk Assessment

- Conduct a full vulnerability assessment detailing the magnitude of consequences associated with current and future climate hazards. **PE7 Action: Climate Vulnerability Assessment (4-16 pts)**. Include how these events will effect internal operations, people, public health, the environment, the economy, and capital and operating costs. Consider using the Department of the State’s Asset Inventory Worksheet and Risk Assessment Tool⁵. Ensure that vulnerability and risk assessments are shared with all relevant municipal officials and emergency manager.
- Train municipal managers on the use of available risk (like FEMA’s HAZUS-MH) and vulnerability tools (like flood insurance rate maps and cumulative risk assessments). Use these to report estimated future financial losses from natural hazards.
- Expand beyond mitigation strategies to include climate adaptation strategies. **CSC PE7Action: Climate Adaptation Strategies (2-8 pts)**.
 - Evaluate and prioritize adaptation strategies using metrics, such as strategy cost, feasibility, timing of implementation, efficacy and co-benefits.
 - Consider linking these strategies to capital budget cycles.
- Develop a build-out analysis using existing zoning ordinances and incorporate projected sea-level rise.

Section 3- Public Outreach and Engagement

- Consider installing high water mark signs at public locations.
- Publicize the availability of floodplain information and coastal erosion maps to insurance agents, real estate agents, lenders, and the community.
- Consider developing public-information plans to provide residents with information about expected inundation areas, evacuation routes and pick up locations, location of severe weather shelters, and location of pet shelters prior to the threat of a storm. **CSC PE7 Action: Early Warning Systems and Evacuation Plans** (under review).
- Inform residents about available disaster resources though City website links, television, radio, social media, etc. **CSC PE9 Action: Social Media (3pts)**. Resources could include:
 - ASPCA’s disaster preparedness steps for domesticated animals⁶.
 - FEMA’s “Are You Ready” guide.

⁵ Department of the State’s Asset Inventory Worksheet and Risk Assessment Tool: <https://stormrecovery.ny.gov/community-regions/udson-valley-and-westchester>

⁶ ASPCA’s Disaster Preparedness for Domesticated Animals: <https://www.aspc.org/pet-care/general-pet-care/disaster-preparedness>



- FEMA’s Coastal Construction Manual⁷.
- Provide residents with guidance on the development of personal and family evacuation plans or what to include in emergency or evacuation kits (FEMA’s Ready.gov checklist).

Section 4- Integration of Municipal Plans

- Consider adopting the International Building Code or American Society of Civil Engineers (ASCE) standards that promote flood resistant buildings.
- Ensure that the Village budgets include adequate funds for costs related to adapting infrastructure for greater flood and projected sea-level rise resiliency. Incorporating adaptation consideration into an asset management or capital improvement plan is an ideal method to build resiliency into routine maintenance and upgrades. **CSC PE8 Action: Green Economic Development Plans (4 pts).**
- Consider developing an open space or natural resource plan that coordinates with the New York State Open Space Plan⁸. **PE7 Action: Conservation of Natural Habitats (4-16 pts).**
- Create a local wetland ordinance as recommended in the Town and Village of Saugerties Comprehensive plan, Goal #8.

Section 5- Disaster Preparedness and Recovery

- Consider participating in the National Weather Service Storm Ready Community program⁹, which helps communities take a proactive approach to prepare for extreme weather and natural disasters.
- Relay weather threats to the public via multiple forms of communication (website, radio, television, social media, etc.) in addition to developing a formal early flood warning system **CSC PE7 Action: Early Warning Systems and Evacuation Plans (under review).**
- Inform the public of the NY-Alert¹⁰ program and how to sign up.
- Participate in FEMA’s Community Emergency Response Team (CERT)¹¹ training to better prepare for disasters.
- Create a heat-warning system.
- Create a long-term recovery plan with lines of coordination in transitions from the short term plan that:

⁷ FEMA’s Coastal Construction Manual: <https://www.fema.gov/media-library/assets/documents/3293?id=1671>

⁸ New York State Open Space Plan: <http://www.dec.ny.gov/lands/317.html>

⁹ National Weather Service Storm Ready Community Program: <https://www.weather.gov/StormReady>

¹⁰ NY-Alert is a New York State service that alerts citizens of hazards and emergencies via email or telephone. <https://nyalert.gov/>

¹¹ CERT program is offered by FEMA to train volunteers in basic response skills to assist in community disaster relief. <https://www.fema.gov/community-emergency-response-teams>



- Identifies redevelopment opportunities outside of flood-hazard areas or opportunities to retrofit or relocate existing structures or infrastructure in hazard-prone areas.
- Advocates for the use of advisory flood maps to define post-disaster redevelopment building elevations.
- Identifies roles and functions of elected and appointed officials, state and federal agencies, and NGOs in coordination to provide maximum benefit to disaster areas.
- Includes provisions to reduce greenhouse gas emissions from reconstructed areas.

Section 6- Hazard Mitigation Implementation

- Consider taking the Climate Smart Communities Pledge.
- Create a Climate Action Plan to enact measures and polices to reduce greenhouse gas emissions and increase the community’s resilience to climate change. **CSC PE2 Action: Government Operations Climate Action Plans (12-16 pts) or Community Climate Action Plan (16 pts).**
- Take part in FEMA’s Community Rating System¹² **PE7 Action: National Flood Insurance Program Community Rating System (3-9 pts).**
- Propose retrofitting public infrastructure and critical facilities to withstand flood damage, and provide training in retrofitting flood-prone residential buildings and NYDEC Post Flood Stream Intervention training for appropriate staff¹³.
- Consider utilizing tools such as transfer/purchase of development rights, conservation overlay districts or cluster development, zoning for open or recreational space, protective buffer ordinances, rolling easement, or buyouts of vulnerable properties to manage development in hazard prone areas.
- Support land-acquisition programs to purchase land conservation easements in hazard-prone areas. **CSC PE7 Action: Restoration of Floodplains and Riparian Buffers (2 pts).**
- Engage in shoreline, wetland, or riparian buffer restoration and protection by **CSC PE7 Actions: Restoration of Floodplains and Riparian Buffers (1-10 pts) or PE7 Action: Nature-based Shoreline Protection (under review).**
 - Encouraging sustainable enhanced methods of shoreline protection encouraged through incentives or regulation.
 - Establishing special area ordinances for habitat preservation.
 - Implementing impact fees to pay for restoration and protection efforts.
 - Developing a plan to control invasive species.

¹²FEMA’s Community Rating System is a voluntary incentive program that encourages community floodplain management that exceeds the minimum National Flood Insurance requirements. <https://fema.gov/national-flood-insurance-program-community-rating-system>

¹³NYSDEC Post Flood Stream Intervention Trainings: <https://www.dec.ny.gov/lands/86450.html>



- Consider using grant programs such as the FEMA Hazard Mitigation Grant Program, FEMA pre-disaster Mitigation Grant Program, and FEMA Flood Mitigation Assistance Program to implement mitigation projects.

Potential Funding Sources

- DEC Climate Smart Communities Grant Program: <https://www.dec.ny.gov/energy/109181.html>
- DEC Grant Applications: <https://www.dec.ny.gov/pubs/grants.html>
- DEC Hudson River Estuary Program Grants: <https://www.dec.ny.gov/lands/5091.html>
- FEMA Hazard Mitigation Grant Program: <https://www.fema.gov/hazard-mitigation-grant-program>
- FEMA Pre-disaster Mitigation Grant Program: <https://www.fema.gov/pre-disaster-mitigation-grant-program>
- FEMA Flood Mitigation Assistance Grant Program: <https://www.fema.gov/flood-mitigation-assistance-grant-program>
- HUD Community Development Block Grants: https://www.hud.gov/program_offices/comm_planning/communitydevelopment/programs
- NYS Department of State Grants (including Local Waterfront Revitalization Program): <https://www.dos.ny.gov/funding/>



APPENDIX 4: 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

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, 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

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
 - Green Infrastructure Practice and Stormwater Retrofits, \$1M max award, 25% match, contact Ryan Waldron, (518) 402-8244, 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
 - 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
- **Aquatic Connectivity Restoration**, \$250,000 max award, 25% match, contact Corbin Gosier, 518-402-8872, 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
- **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
 - 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

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

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

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

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

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

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@gw.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, CWSRFinfo@efc.ny.gov

Contact for Drinking Water: Michael Montysko, DOH, 518-402-7650, bpwsp@health.ny.gov

Contact for Integrated Solutions Construction grant: Dwight Brown, EFC, 518-402-7396, 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.

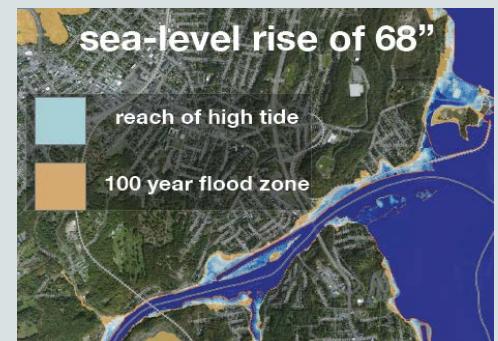
Contact: FEMA grants are administered by NYS Division of Homeland Security and Emergency Services (DHSES). Visit their website for current grant opportunities: <http://www.dhSES.ny.gov/grants/>

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

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 or Europa McGovern, Mid-Hudson CEC Coordinator, 845-564-4075, 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

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

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

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

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

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

CONTACT INFORMATION

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