

Town of Red Hook Climate Smart Resiliency Planning

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The Climate Smart Resiliency Planning Tool (CSRP) 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 Red Hook to improve 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, municipal codes, 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 meeting discussions with the Town Supervisor, Planning Consultants, Conservation Advisory Council, and Disaster Preparedness Committee and presented at the January 23, 2018 Town Board meeting.

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

Robert McKeon, Town Supervisor

Steve Cole, Building Inspector

Michelle Greig, Planning Consultant

Jen Cavanaugh, Consultant and Conservation Advisory Council Member

Laurie Husted, Bard Chief Sustainability Officer and Conservation Advisory Council Chair

Hai-Ping Yeh, Disaster Preparedness Committee Chair

Eleanor Troy, Disaster Preparedness Committee

Perry Sheldon, Disaster Preparedness Committee and Director of Facilities and Operations for Red Hook Central School District

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

Areas of Strength

- The Town has a very active Conservation Advisory Council (CAC). The CAC could prove to be a valuable asset in implementing CSRP recommendations.
- The Town has a collaborative relationship with Bard College. This provides resources and potential for partnership on resiliency related initiatives.
- The Town has active committees and working groups, which could act as vehicles to implement CSRP recommendations (i.e. Disaster Preparedness, Senior Services, Zoning Review, LWRP, Complete Streets, Agriculture and Open Space, Economic Development)

- The Town of Red Hook and Villages of Tivoli and Red Hook have inter-municipal working groups including a task force and shared services group. This provides as a strength in resource sharing.
- The Town has a Community Preservation Fund which can be used to purchase and preserve open space lands in conjunction with resiliency planning (flood mitigation, etc).
- The Saw Kill Watershed Community is an active community organization that could provide assistance in implementing recommendations involving flooding within the Saw Kill Watershed.
- Town of Red Hook is part of the Greenway Compact Program of Dutchess County. This could be a resource and guide for funding implementation of CSRP recommendations.
- The Town has taken the Climate Smart Communities Program Pledge and is pursuing CSC Certification. Becoming Certified would provide the Town with an advantage in available CSC Program funding for implementing CSRP recommendations. For more information on the CSC Program and the actions listed in this document, visit the CSC portal: <https://climatesmart.ny.gov/>.

Areas of Opportunity

- The Town has recently reinvigorated its Disaster Preparedness Committee. The Committee is working to update the Town’s Disaster Preparedness Plan.
- The Saw Kill Watershed and Flood Mitigation Assessment recently completed by Fuss & O’Neill could help achieve recommendations and prioritize flood mitigation projects.
- The Town recently updated its website. This provides an opportunity to add content related to climate smart resiliency planning.
- There is interest in conducting outreach to residents to sign up for weather alert systems through existing mailings (such as tax form mailings).
- The Town is actively pursuing to update their Local Waterfront Revitalization Program¹ (LWRP) plan and Comprehensive Plan. These are opportunities to incorporate CSRP recommendations.
- The Town has many senior residents and is pursuing ways to keep track of vulnerable populations and ensuring that there is a plan of action if power outages occur.
 - The Town has identified that vulnerable populations include a migrant worker population, the majority of whom are Spanish speaking.
- The Town experiences repetitive flooding due to extreme rain events and would like to keep better track of these areas as well as track storm damage due to downed trees.
- Accessibility to aid residents during and after an extreme weather event is a concern and challenge of the Town. CSRP recommendations could provide a solution for this challenge.
- The Town has interest in creating a Resiliency Plan. This summary could inform its content.
- Completion of the CSRP (**CSC PE7 Action: Climate Smart Resiliency Planning (6 pts)**), counts towards Climate Smart Communities Program (CSC) Certification, which the Town is actively pursuing with assistance from CCEDC staff. For more information on the CSC Program and the actions listed in this document, visit the CSC portal: <https://climatesmart.ny.gov/>. CSC Certification is one of the 10 High Impact Actions of the NYSERDA Clean Energy Communities Program (CEC), which the Town is also actively pursuing.

¹ <https://www.dos.ny.gov/opd/programs/lwrp.html>

Recommendations

The following opportunities emerged under each of the sections of the CSRP assessment.

Section 2- Vulnerability and Risk Assessment

- Create a Resiliency Plan and include;
 - Community visioning
 - A full Climate Vulnerability Assessment
 - Content from various other plans, reports, assessments and initiatives such as the Saw Kill Watershed and Flood Mitigation Assessment.
 - Climate change trends and predictions
 - Environmental/social/economic consequences of failure to address natural hazards.
 - Riverine and waterfront flooding concerns and floodplain/stormwater management.
 - Maintain a list of properties that have been flood damaged. The Saw Kill Watershed and Flood Mitigation Assessment could help inform this list. The Community Preservation Plan also lists 1000 properties that have value for water protection, some of which may experience flooding.
 - Strategies to reduce vulnerability through non-structural measures where possible.
 - Identification of areas of significant public investment, water dependent uses, and critical infrastructure that require structural protection because options for relocation, elevation, or employment of non-structural measures are not feasible.
- Complete a full Climate Vulnerability Assessment **CSC PE7 Action: Climate Vulnerability Assessment (4-16 pts.) *CSC Grant Funding Available.** Include;
 - Identification of climate hazards, past events, and details such as magnitude of consequences, operations disruptions, operating costs, number of persons affected.
 - Information from the Hazard Mitigation Plan (municipal annex) Section 9.3.4 Hazard Risk/Vulnerabilities and Ranking.
 - Future estimates of losses that may result from hazards using the Department of State's Asset Inventory Worksheet and Risk Assessment Tool² to identify vulnerabilities.
 - Categorized adaptation strategies prioritized by cost, type, administration, geography, feasibility, timing of implementation, efficacy, and co-benefits. **CSC PE7 Action: Climate Adaptation Strategies (2-8 pts.)**
- Consider creating maps of vulnerabilities in relationship to risks; vulnerable populations, natural resources, cultural resources, landslides, sea-level rise. The Town could work with Dutchess County to complete these maps.
- Ensure staff capacity for using vulnerability assessment (like FEMA's HAZUS-MH) and risk-mapping tools (like flood insurance rate maps). If it is beyond the Town's capacity, look to Dutchess County staff who have the capacity to use these resources.
- Compare the Town build-out analysis to projected sea-level rise scenarios.
- Work with The Nature Conservancy through their Community Resilience Building process³.

² <https://stormrecovery.ny.gov/community-regions/hudson-valley-and-westchester>

³ www.communityresiliencebuilding.com/crbworkshopguide

- Use all available authorities to restrict or prohibit any activities, development or other actions in erosion hazard areas, in order to minimize damage to property, and to prevent the exacerbation of erosion hazards.
- Adopt the projections of sea-level rise from the State Sea Level Rise Task Force report.

Section 3- Public Outreach and Engagement

- Involve the public in more opportunities (public surveys/stakeholder meetings) to identify historic storm effects including storm-surge elevations, flood-prone streets, or property loss.
- Install publicly visible high water mark signs along the Saw Kill. Consider involving local artists.
- Publicize the availability of floodplain information to property owners, businesses, insurance agents, real estate agents, and lenders through trainings on Parcel Access, or other means such as webpages, brochures, or educational trainings.
 - Collaborate with the Saw Kill Watershed Community
 - Provide property owners with guidelines to retrofit existing development for flood risks. Consider providing a “new homeowner” package to share this and related information.
- Conduct public outreach on the natural and beneficial functions of floodplains, wetlands, and green infrastructure and other flood mitigation practices through webpage content, brochures, educational programs, public art, and increased signage.
- Improve public outreach on storm preparedness (including: expected inundation areas, evacuation routes, bus pick-up locations, severe weather shelter locations, pet shelters). Use the Town’s website to conduct outreach to residents and businesses by adding a link to directing residents and businesses to Dutchess County’s webpage on storm-preparedness⁴, brochures and newsletters, community meetings, television, radio or on social media pages. **CSC PE9 Action: Social Media (3 pts.)**
- Add a link to the Town’s website directing residents to Dutchess County’s webpages⁵ on developing personal and family evacuation plans, at-home emergency kits, emergency supplies, evacuation kits (FEMA’s Ready.gov checklist), and ASPCA’s disaster preparedness steps for domesticated animals. Other public outreach on these topics could be conducted through social media pages, brochures, community newsletters, etc. **CSC PE9 Action: Social Media (3 pts.)**
- Employ multilingual and culturally sensitive approaches when providing outreach to residents.
- Consider developing a public outreach plan on climate outreach and engagement comprised of the elements above. **CSC PE9 Action: Climate Change Education and Engagement (4-8 pts.).**

Section 4- Integration of Municipal Plans

- Update Comprehensive Plan with Sustainability Elements. **CSC PE6 Action: Comprehensive Plan with Sustainability Elements (3-21 pts.) *CSC Grant Funding Available.**
 - Reference and integrate plans and initiatives such as the Complete Streets initiative and Saw Kill Watershed Assessment (2018).
 - Involve emergency managers, floodplain manager, and public works officials.
 - Incorporate resilience within the mission, vision, and goals.

⁴ <http://www.co.dutchess.ny.us/QuickLinks/17006.htm>

⁵ <http://www.co.dutchess.ny.us/QuickLinks/17006.htm>

- Address flood hazards in plan; including making recommendations to reduce hazard vulnerability through land-use planning.
 - Identify flood-prone areas and discourage development in those areas as well as require strategies to reduce flood damage to buildings.
 - Include strategies to reduce stormwater runoff from roads, driveways and parking lots (i.e. green infrastructure techniques to help prevent flooding.)
- Emphasize non-structural pre-disaster mitigation measures such as acquiring flood-prone lands and adopting No Adverse Impact floodplain regulations.
- Identify strategies to determine whether to relocate structures that have been repeatedly flooded. Include an equitable approach for community involvement in relocation decisions and potential funding sources.
- Plan for costs associated with inspection and enforcement of building and zoning codes.
- Ensure codes are updated to promote more flood resistant buildings.
- Consider incorporating the Planning for Resilient Connected Natural Areas and Habitats (2014) report into a Natural Resources Inventory.
 - Identify floodplain management as a priority
 - Include guidance to manage open space so that it provides flood protection.
 - Coordinate plan with the New York State Open Space Plan.
 - Include guidance to control invasive plant species, especially near riparian buffers and shorelines of the Saw Kill and Hudson River.
- Consider creating a Stormwater Management Plan.
 - Provide a procedure for coordinating with neighboring jurisdictions to explore a watershed-wide approach to stormwater management.
 - Describe municipal responsibilities for inspection and maintenance of facilities.
 - Include green infrastructure and low impact development strategies and regulations.
 - Tree protection ordinances, impervious cover limits, riparian buffers, vegetated drainage channels, cluster development
 - Implement green infrastructure installation projects at strategic locations to relieve stress on combined sewers during heavy rain events.
- Consider creating a Capital Improvements Plan and include;
 - Flood risk, coastal hazards and sea-level rise projections into risk assessments over the expected service life of proposed infrastructure projects and municipal infrastructure.
 - Integration of existing plans, studies, reports, and technical information.
 - Identifying threats of coastal storms, erosion, sea-level rise, and other climate hazards.
 - Identifying the vulnerability of wildlife and habitat to coastal hazards.

Section 5- Disaster Preparedness and Recovery

- Become a Storm Ready Community⁶
- Create an Emergency Response and Short-term Recovery Plan.
 - Include a hierarchy of authority during emergencies and identify first responders.
 - Include a list of contacts for operators of municipal facilities.

⁶ National Weather Service “Storm Ready” Program <https://www.weather.gov/stormready/>

- Include steps for emergency protective measures (sandbagging, erecting warning devices, search and rescue).
- Include organizational framework to conduct preliminary damage assessments.
- Ensure that best available projections concerning frequency and severity of extreme storm events are incorporated.
- Include guidance on coordination and communication among critical stakeholders such as community organizations, local businesses, local health departments, utilities, and local government leaders.
- Identify a designated emergency operations center and designated storm shelters that are located outside of flood-hazard areas; designed to withstand high winds; and have an elevated back-up power source.
- Create an Evacuation Plan. **CSC PE7 Action: Early Warning Systems and Evacuation Plans (under review⁷)**.
 - Clearly define responsibilities for municipal evacuation
 - Identify a time frame to evacuate residents from storm hazard areas
 - Identify flood prone locations on evacuation routes and identify more than one route.
 - Provide consideration that neighboring jurisdictions could be evacuating concurrently.
 - Identify evacuation options for populations that rely on public transportation.
 - Identify conditions for which a traffic lane reversal would be implemented.
 - Identify local and state evacuation assistance programs for the following special needs; hospitals, nursing homes, prisons, residents without personal transportation, elderly, disabled, schools.
- Maintain and promote a special needs registry for vulnerable populations.
- Encourage agricultural and other landowners to implement pre-disaster mitigation measures
 - Store hay bales and equipment in areas less likely to be flooded
 - Install ponds or swales to capture storm water
 - Plant vegetation and use land management practices to improve capability of the soil on land to retain water.
- Inform residents of the NY-Alert Program.
- Establish a volunteer community emergency response team.
- Establish an adequate heat-warning system and cooling-center program for vulnerable populations. **PE7 Action: Cooling Centers (under review)**. *CSC Grant Funding Available
- Create a Continuity of Operations Plan including guidance on post-disaster waste management.
- Define procedures to conduct habitability and substantial damage assessments
- Store FEMA elevation certificates outside of flood-hazard areas.
- Consider developing a Long-Term Recovery Plan. This plan could:
 - Identify redevelopment opportunities outside of flood-hazard areas.
 - Employ advisory flood maps to define post-disaster redevelopment building elevations.
 - Identify opportunities to retrofit or relocate existing structures in hazard-prone areas.
 - Utilize risk and vulnerability mapping to determine the location of future development.
 - Identify clear lines of coordination to transition from short-term to long-term recovery.

⁷ Definition of "Under Review": These actions are currently being revised by the Climate Smart Communities interagency team and will be uploaded to the portal within the next few weeks.

- Include organizational framework for coordination and use of state, federal and NGO resources to provide maximum benefit to the disaster area.
- Include provisions to reduce greenhouse gas emissions from reconstructed areas through energy efficiency, use of renewable energy and smart growth principles.
- Establish a temporary post-disaster building moratorium, if possessing the authority to do so.

Section 6- Hazard Mitigation Implementation

- Update the Town’s local Climate Action Plan (2012). **CSC PE2 Action: Government Operations Climate Action Plan (12-16 pts.) or Community Climate Action Plan (16pts.)**.
- Continue to have community officials complete post-flood stream intervention training. For more information, including upcoming scheduled trainings, visit the DEC’s webpage⁸.
- Continue to support land-acquisition programs to purchase land-conservation easements in hazard-prone areas. **CSC PE7 Action: Restoration of Floodplains and Riparian Buffers (2 pts.)**.
- Continue to engage in sustainable wetland or shoreline restoration, including non-structural and ecologically enhanced methods such as controlling invasive plant species along the Saw Kill. **CSC PE7 Action: Restoration of Floodplains and Riparian Buffers (1-10 pts.) or PE7 Action: Nature-based Shoreline Protection (under review)**.

Additional Recommendations

- Ensure all plans have a recommended update frequency, even if it is just a goal for when the plan should be updated or reviewed and not an official, mandated update frequency

Potential Funding Sources

- NYSDEC Climate Smart Communities Grant Program: <https://www.dec.ny.gov/energy/109181.html>
- NYSDEC Grant Applications: <https://www.dec.ny.gov/pubs/grants.html>
- NYSDEC 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/>
- NYS Greenway Compact Program Grants: <https://hudsongreenway.ny.gov/grants-funding>
- NYSDEC Environmental Protection Fund Grants: <http://www.dec.ny.gov/pubs/grants.html>

⁸ <https://www.dec.ny.gov/lands/86450.html>