

Hastings-on-Hastings Climate Smart Community Task Force
Climate Smart Resilience Planning
Last updated: June 2021



Photo Credit: Linda Loeb, 2020

Produced by the
Hastings-on-Hudson Climate Smart Communities Task Force
Climate Smart Resilience Planning Team

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Background and Rationale

Climate Smart Communities

In 2009, New York State launched the Climate Smart Communities (CSC) program, an interagency initiative that encourages local communities to take action on reducing greenhouse gas emissions and adapting to climate change. The CSC program is jointly sponsored by the following six New York State agencies: the Department of Environmental Conservation (DEC); the New York State Energy Research and Development Authority (NYSERDA); the Department of Public Service; the Department of State; the Department of Transportation; the Department of Health; and the New York Power Authority (NYPA). DEC acts as the main administrator of the program. The original focus of the program was on encouraging local governments to commit to acting on climate change by passing a resolution containing the 10-point CSC Pledge. The ten required elements of the CSC pledge are as follows:

1. Build a climate-smart community by forming a CSC task force with community members, and connecting to larger climate action networks
2. Inventory emissions, set goals, and plan for climate action
3. Decrease energy use
4. Shift to clean, renewable energy
5. Use climate-smart materials management
6. Implement climate-smart land use
7. Enhance community resilience to climate change
8. Support a green innovation economy
9. Inform and inspire the public
10. Engage in an evolving process of climate action

The certification program, announced in 2014, was the next step in the evolution of the program and provides specific guidance on how to implement the CSC pledge. To be designated a Certified Climate Smart Community, a municipality must go beyond the CSC pledge by completing and documenting a number of actions that result in climate change mitigation and adaptation at the local level. The CSC program provides a framework for implementing these climate-smart actions and recognizes communities for their accomplishments through a rating system leading to three award levels: bronze, silver, and gold (the gold level is currently under development).

There are numerous benefits for a municipality that becomes CSC-certified. Certification actions generate cost reductions; result in ecological restoration and climate change adaptation; improve public health and environmental quality; foster energy efficiency and independence; and ultimately improve the sustainability and resiliency of a community. In addition to the advantages of the actions themselves, CSC-certified communities receive better scores on certain state grant applications, state-level recognition for their leadership, and access to a network of other certified communities, resources, training, tools, and expert guidance.

The Village of Hastings-on-Hudson was designated by New York State as a Climate Smart Community (CSC) in 2010, with the goal of mitigating and adapting to climate change and reducing its carbon

footprint. The Village secured Bronze level certification in March 2020 (213 points from 39 actions) and Silver certification in September 2020 (340 points from 56 actions). In addition, the Village is participating in a sister initiative, NYSEERDA's Clean Energy Community (CEC) program, and is currently the highest-ranking municipality in New York State with 5,500 points accumulated from 15 actions.

Actions taken by the Village under the auspices of the CSC and CEC include adoption of a Heat Emergency Plan (2020), a Natural Resources Inventory (2020) and a Climate Vulnerability Assessment (2020), each of which identified existing vulnerabilities and key actions the municipality can take to address climate change. Previously, the Village adopted a Comprehensive Plan (2011), a Hazard Mitigation Plan (2015), a Complete Streets Policy (2014), a Shade Structures Policy (2020) and an Environmentally Preferable Purchasing Policy (2020). In 2021, the Village dedicated 112 acres of open space as parkland, which brings the total dedicated parkland to 156 acres, representing about 84% of the open space owned by the Village and more than 8% of the 1,882 acres on which the Village sits.

Hastings-on-Hudson was one of the early adopters of the New York Stretch Energy Code (2020) and Property Assessed Clean Energy (C-PACE) Financing (2020), which together with Uniform Solar Permitting (2017), facilitate the move to clean energy for local residents and businesses. The Village has upgraded the majority of its conventional street lights (90%), traffic lights (75%) and interior lights (52%) with energy efficient LED technology. The Village adopted an Anti-idling Local Law and Resolution (2019), installed an EV charging station (2019), purchased EVs for the municipal fleet (2020-2021) and adopted a Green Fleet Policy (2021). Since 2015, the Village has participated in Community Choice Aggregation (CCA), which ensures that a greater percentage of electricity in the Village is coming from renewable sources. The Village adopted a benchmarking policy (2016) which requires the annual reporting of energy used in municipal buildings; the reports are made available on the Village website. The Village commissioned a Government Building Energy Audit (2019) and is in the process of implementing recommendations.

One of the priority actions not yet completed by the Village under the CSC rubric is Climate Smart Resiliency Planning (CSRP) and this report documents the findings from a Climate Smart Resiliency Planning exercise undertaken by the Village from 2020 to 2021.

Rationale for Climate Smart Resiliency Planning

A Climate Smart Resiliency Planning (CSRP) exercise enables municipalities to better assess the resiliency of their communities to the extreme weather associated with climate change. The process helps local decision makers examine vulnerabilities and take action to protect community assets. The process also helps municipalities identify strategies they are already using in local plans, policies, and projects that build resilience to climate change and those that have failed to consider climate change. By conducting a CSRP evaluation, gaps and vulnerabilities are exposed, enabling municipalities to identify possible modifications to better prepare for the impacts of climate change.

To facilitate this process, communities can use a Climate Smart Resiliency Planning (CSRP) tool that is designed to help identify gaps and stimulate ideas on how to address them. It provides a logical first step to enable local decision makers to make progress on climate change adaptation and creates an opportunity to integrate climate considerations into local government operations. The CSRP Tool encourages municipalities to conduct a detailed self-assessment, geared at reviewing key planning documents, policies, and projects. A climate smart resiliency planning assessment is an important step in developing a climate adaptation vision and strategy because it identifies the core gaps that need to be filled. At its most basic, the planning process helps communities determine whether they can effectively

address severe weather events, flooding, sea level rise, storm surge, increased rainfall, drought, and increased heat – each of which are current and future impacts of climate change.

Within the last decade, the Village of Hastings-on-Hudson has experienced several “100-year” storms that resulted in severe damage, including storm surge and flooding. Some of the most memorable extreme weather events included Hurricane Irene (August 2011), Snowtober (October 2011), Hurricane Sandy (October 2012), the March 2018 Nor’easter and Tropical Storm Isaiás (2020). Upon evaluation, it turns out that several of the Village’s key planning documents, including its 2011 Comprehensive Plan, predate these events. Neither the existing Comprehensive Plan (2011), nor the Hazard Mitigation Plan (2015), adequately address the growing evidence that climate change is causing more extreme weather events. Several of the relevant sections of the Village Code, such as Flood Damage Prevention (2007) while well-crafted, are already quite out of date in light of recent findings and guidance from the 2014 Community Risk and Resilience Act (CRRRA) and the 2020 modifications under the Climate Leadership and Community Protection Act (CLCPA). The Village does not have documented plans in place for emergency response, evacuations, disaster recovery or continuity of operations in the event of a natural disaster. While a Local Waterfront Revitalization Plan (LWRP) was drafted in the early 2000s, it was never adopted. In addition, the Village has not yet developed or adopted a Climate Action Plan. Each of these areas represents an opportunity to continue building resiliency in the Village. This report lays out recommendations on further actions the Village might take to better adapt to climate change in the future.

Climate Smart Resiliency Planning Process

In the fall of 2020, the Hastings-on-Hudson Climate Smart Resiliency Planning team reviewed a range of existing plans, policies, and projects, as well as relevant sections of the Village Code and input received from community engagement processes and events, with the goal of completing the CSC CSRP tool. The team also consulted municipal staff to identify gaps and potential action items that might improve the Village's emergency response preparedness for climate change adaptation.

Municipal staff engaged in the Hastings-on-Hudson Climate Smart Planning assessment were: Nicola Armacost (Mayor); Trustee Morgen Fleisig (Architect and Board Point Person for the Waterfront); Trustee Mary Lambert (Board Point Person for the Climate Smart Communities Task Force and the Conservation Commission); Mary Beth Murphy (Village Manager and CSC Coordinator); Anthony Costantini (Assistant to the Village Manager and CSC Coordinator); Charles Minozzi (Building Inspector/Zoning Enforcement Officer/Floodplain Manager) and Patrick Cleary (Village Planner). In addition, the team consulted Meg Walker (former Village Trustee and Former Village Planner) as well as Kathy Sullivan (former Chair of the Planning Board and former Chair of the Comprehensive Plan Committee). The report was presented to the Board of Trustees on May 18, 2021 and all members of the Board of Trustees reviewed the Report and provided comments. The Report was adopted by the Board of Trustees on June 1, 2021.

Planning documents reviewed in the process included the Comprehensive Plan (2011), the Hazard Mitigation Plan (2015), the Natural Resources Inventory (2020), the Climate Vulnerability Assessment (2020), and the draft Local Waterfront Revitalization Plan (LWRP) (2007). The team also consulted relevant sections of the Village Code including: Zoning, Stormwater Management, Erosion and Water Pollution Control (1994); Floodplain Management (1994); Sub-Division of Land (1994); Flood Damage Prevention (2007); Steep Slopes (2008), Green Building Code (2013) and Gateway Cluster Overlay District (2016).

Climate Vulnerabilities and Risks

In 2020, the Village of Hastings-on-Hudson conducted a Climate Vulnerability Assessment in which it examined data from 33 climate models using **Temperate**, a tool made available to the Village by the Local Governments for Sustainability (ICLEI) network. The results were presented to the community in May and June 2020 in a series of community engagement workshops. The Village also interviewed the Emergency Management team and conducted a survey of residents to identify the top climate hazards facing the Village. The Temperate tool, the interviews, and the Climate Vulnerability Assessment Community Survey all indicated that severe storms and flooding, as well as extreme hot days and heat waves, are the most pressing hazards for which the Village needs to prepare. Excerpts from the Climate Vulnerability Assessment on these two types of hazards are provided below.

Severe Storms and Flooding

The relevant precipitation indicators for the severe storms and flooding climate hazards include extreme precipitation events and precipitation threshold. Both indicators show an increasing trend, meaning that Hastings-on-Hudson will experience more severe storms and flooding in the coming decades than it has in the past. These projections should come as no surprise, as historic precipitation data for the northeastern United States show a 71 percent increase in the amount of precipitation falling during very heavy precipitation events from 1958 to 2012 (Figure 1). In addition, historic data for Atlantic hurricanes from 1970 to 2010 show an increase in the total number of hurricanes as well as an increase in the proportion of those hurricanes becoming Category 3 or higher (Figure 2).

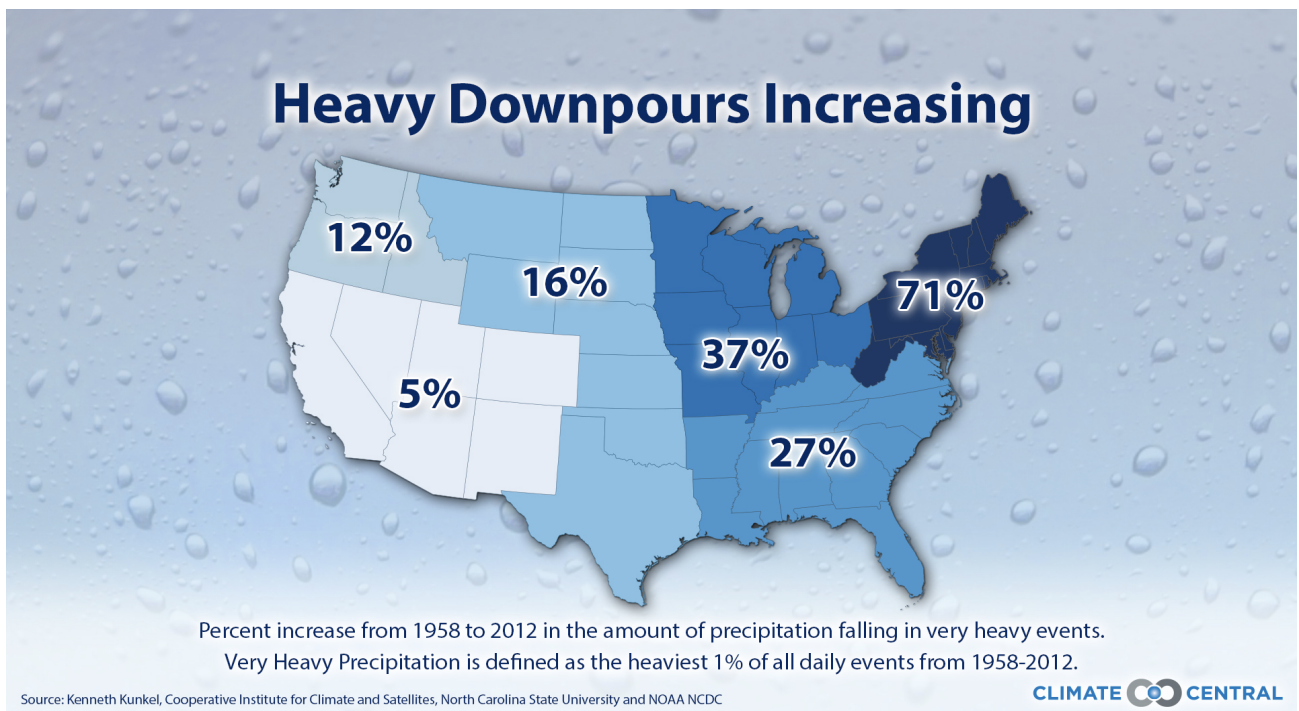


Figure 1. Map of the US with geographic regions showing the percent increase in the amount of precipitation falling in very heavy precipitation events from 1958 to 2012. Source: <https://statesatrisk.org/new-york/all>.

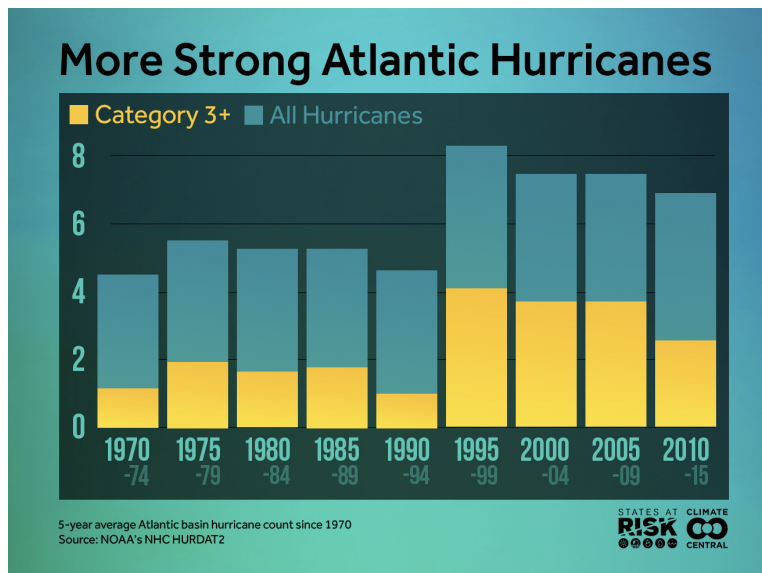


Figure 2. Bar graph showing an increase in the total number of Atlantic hurricanes from 1970 to 2010, as well as an increase in the proportion of those hurricanes becoming Category 3+ hurricanes. Source: <https://statesatrisk.org/new-york/all>.

The number of extreme precipitation events in Hastings-on-Hudson is projected to nearly double by 2100. The Village is projected to experience warmer and more frequent hot days in the coming decades. Higher temperatures in the atmosphere lead to changes in weather patterns and fluctuations in the amount of moisture that is retained in the atmosphere throughout the year. While the total amount of precipitation in Hastings-on-Hudson is anticipated to change only modestly — from an average of 49 inches of annual precipitation today to an average of 54 inches by 2100 — when and how that precipitation falls is likely to change markedly. One change that residents can expect is a doubling of the number of extreme precipitation events in the next 80 years. Extreme precipitation events are defined as any time the average precipitation on a given day is higher than 99 percent of historical precipitation, compared to a historic base range year of 1971. Today, these extreme events of heavy rain or snow occur about twice per year, but that number is anticipated to reach four or more occurrences per year by the end of the century.

A precipitation threshold is defined as the cumulative precipitation amount that generates critical runoffs high enough to cause flooding. Research indicates that peak storm intensity is significantly correlated with a precipitation threshold above which flooding becomes highly probable. This correlation suggests that the projected increases in extreme precipitation events and their intensity will lead to more days where the precipitation exceeds the threshold and causes flooding. The Temperate tool suggests a precipitation threshold of two inches per day for Hastings, and today, the threshold is breached about one day a year. By the end of the century, the precipitation threshold is projected to be exceeded 2.5 days per year.

In addition to the precipitation indicators presented by the Temperate tool, other relevant and important indicators for the severe storms and flooding climate hazards are sea-level rise and storm surges. Historic global average sea level change data from 1880 to 2020 clearly shows a 9-inch increase in sea level, as well as an increase in the rate of sea level rise over time (Figure 3).

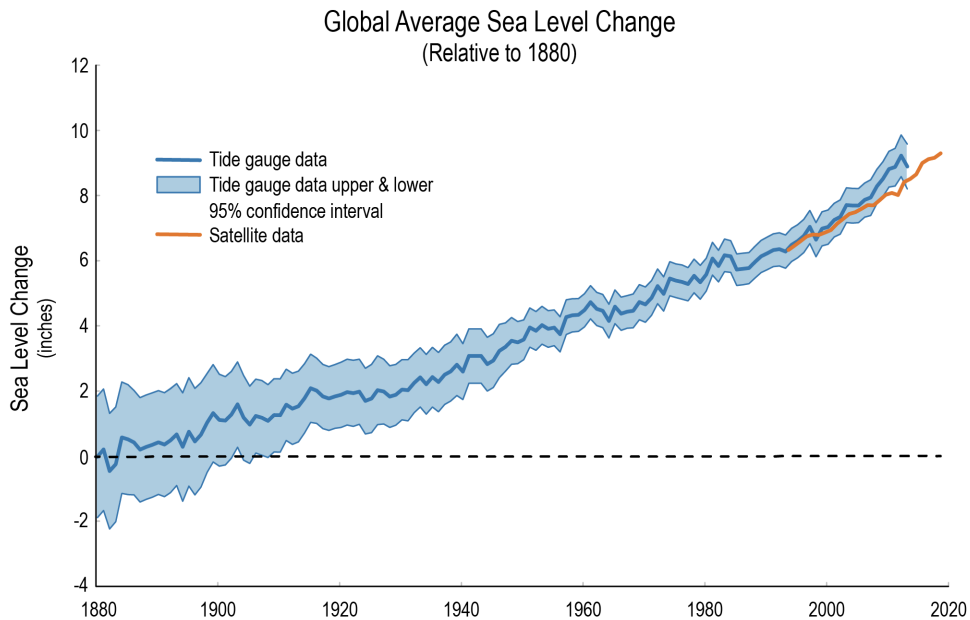


Figure 3. Graph depicting global average sea level change in inches relative to 1880 levels from 1880 to 2020. Source: <https://www.globalchange.gov/browse/indicators/global-sea-level-rise#:~:text=Global%20sea%20level%20has%20risen,has%20increased%20in%20recent%20decades>.

The polar ice caps are melting at a faster rate than scientists predicted, and given its location near the mouth of the Hudson River, Hastings-on-Hudson is located in an area that will be especially susceptible to sea level rise. The Hudson River is tidally influenced all the way to Troy. Rising sea levels pushed upriver during flood tides and channeled between the Palisades to the west and the steep topography of the Rivertowns to the east creates a condition ripe for severe flooding when confronted by runoff from increasingly impervious upland areas. The influx of polar ice melt into the Atlantic Ocean caused by global warming is adding to long-standing regional geological subsidence, causing sea level in the northeastern United States to rise 3 to 4 times faster than the global average.

According to the U.S. government's 2018 National Climate Assessment, the sea-level rise in the northeastern United States will likely be within the range of 2 to 6 feet by the end of the century. In the worst case scenario, where countries are unable to limit the average global warming to less than 4° F and the ice caps melt at the high-end of projections, sea level could rise upwards of 11 feet in the northeastern United States. The effects of sea level rise on the Hastings-on-Hudson waterfront can be visualized using the Scenic Hudson's Sea Level Rise Mapper (Figure 4).



Figure 4. Map of Hastings-on-Hudson Waterfront showing the effect of a six foot rise in sea level.

Source: <https://scenichudson.maps.arcgis.com/apps/MapJournal/index.html?appid=3a3d0dc3884c4637ad0a51f4aa912189#>

Regarding storm surges, while there is limited data on their historic occurrence in the Hudson River and future predictions of their increase or severity, there is anecdotal evidence that storm surges in the Hudson River will increasingly affect Hastings-on-Hudson in the coming years. Hurricane Sandy in 2012 is the most recent severe storm that caused a significant local storm surge. The storm surge flooded a significant portion of the Hastings Waterfront, as it lies only a few feet above sea level. Storm surges necessarily result from severe storms, and the evidence provided earlier in this section showing an increasing trend in the number of Atlantic hurricanes and the number of Category 3 or higher hurricanes suggests there will also be an increase in storm surges that will affect the Village in the future.

Extreme Hot Days and Heat Waves

The relevant temperature indicators for extreme hot days and heat waves include average high temperature, maximum high temperature, extreme heat events, and heat wave incidents. All four indicators show an increasing trend through time, meaning that Hastings-on-Hudson is set to suffer more extreme hot days and heat waves in the coming decades than it has historically experienced.

Today, the average high temperature for Hastings-on-Hudson is 64.6° F, while the maximum high temperature is 99.1° F. In the next decade, the average high temperature is predicted to increase 0.7 degrees to 65.3° F, and the maximum high temperature is predicted to increase to 100.0° F. Changes increase by mid-century, with the average high temperature reaching 67.6° F, an increase of 3.0° F from today, and the maximum high temperature reaching 102.7° F, an increase of 3.6° F from today. By century's end, the changes are striking, as the average high temperature will reach 73.1° F, up a total of 8.5° F from today, and the maximum high temperature is predicted to reach 110.1° F, up a total of 11° F from today. Even if countries are successful in achieving the climate goal of limiting average global warming to less than 4° F, by the end of the century, the climate in Hastings-on-Hudson will likely be comparable to current climate conditions in Fort Myers, Florida.

Extreme heat events, defined as when the daily maximum temperature exceeds 99 percent of historic temperature observations with a historic base range year of 1971, will occur on an average of 8.3 days in 2020. There is a slight increase in extreme heat events by 2030, with the count reaching 11.8 days per year of above historic temperatures. By mid-century, the count of extreme heat events will reach 20.6 days per year, and by century's end, Hastings-on-Hudson will experience 61.4 days of extreme heat, or just over 2 months of above historic temperatures per year, a total increase of 53.1 days from today.

Hastings-on-Hudson is projected to experience 2.1 more heat waves every year by 2035. Heat waves are defined as the number of times the daily high temperatures exceeds 9° F above the historic norm for at least five consecutive days, with a historic base range year of 1971. Today, the Village experiences an average of three heat waves per year. By mid-century, Hastings-on-Hudson will experience 6.5 heat waves per year, and by the end of the century, we will experience almost 15 heat waves per year, an increase of 12 heat wave events from today.

Emergency Preparedness and Hazard Mitigation

The Hazard Mitigation Plan of the Village of Hastings-on-Hudson was drafted in 2015, and can be found as an annex to the Westchester County Plan. That plan is currently being updated by Westchester County. In 2020, the Village developed a Heat Emergency Plan and began to document Emergency Preparedness protocols. These efforts were carried out in coordination with the Hastings-on-Hudson Office of Emergency Management (“HOHOEM”), which oversees all types of emergencies that affect the welfare of the citizens of the Village, including weather emergencies. The HOHOEM is led by the Village Manager, in coordination with the Mayor and Board of Trustees, and consists of the Heads of the Police, Fire and Public Works departments, with the added help of the Village Clerk and Building Inspector. The Technology Department acts as the Public Information Office and disseminates the information to the public as well as media outlets as needed. HOHOEM manages emergencies by first determining the threat, then planning and producing a response, and then putting into action a response that protects and safeguards the public’s welfare. Weather-related emergency alerts are received by the HOHOEM in the following ways:

- National Weather Service (NWS)
- Westchester County Department of Emergency Services (WCDES)
- Con Edison, the primary utility company for the Village
- Local media, including TV and radio
- Westchester specific online news sources

During emergencies HOHOEM coordinates with Con Edison, the local utility that supplies power to residents in the Village. The Village is in regular contact with officials at Con Edison and there is direct communication during conditions that impact power/energy (storms, fire, heat and snow advisories, etc.). There is also ad hoc communication as required. The HOHOEM also coordinates with Suez Water, which supplies water to the Village, and it works with Suez to address any water related issues. Suez is responsible for maintaining the water hydrants located in the Village. In addition, the HOHOEM coordinates with the Westchester County Department of Emergency Services. The Village of Hastings-on-Hudson is part of the Division 60 Control Emergency System deployed by the Westchester County Office of Emergency Management. The Division 60 Control Emergency System allows the Village Fire, EMS, and Police services to receive dispatches, alerts and communications regarding various emergencies including weather related emergencies.

After Tropical Storm Isaias in the summer of 2020, it became clear the emergency management protocols of the Village were not documented in a systematic and clear way. In response, the Village created an emergency preparedness page for the website with a red button linking to it from the home page. The site includes many resources and checklists to help residents better prepare for a range of emergencies. The Village also held an Emergency Preparedness Workshop in September 2020 to solicit feedback from residents about how to improve operations, and to share the checklists and advice that had been gathered.

Recommendations and Next Steps

The Climate Smart Resiliency Planning (CSRP) exercise resulted in a clear set of recommendations related to improving planning, policies, and projects to improve resilience to climate change in the Village of Hastings-on-Hudson. The following areas stand out as requiring attention:

1. Update Comprehensive Plan
2. Update Hazard Mitigation Plan
3. Draft and Adopt Climate Action Plan
4. Draft and Adopt Local Waterfront Revitalization Plan (LWRP)
5. Integrate and Update Emergency Response Plans
6. Improve Floodplain Management Processes
7. Review and Update Village Code
8. Update and Expand Capital improvements Plan
9. Integrate Vulnerable Populations in All Plans
10. Improve Outreach and Education

Update Comprehensive Plan

- Update the Comprehensive Plan (2011) to explicitly address the importance of building resilience, and include recommendations that strengthen adaptation to climate change as well as preparation for and recovery from severe weather events.
- Include a reference to the Multi-Hazard Mitigation Plan, the Heat Emergency Plan, the Natural Resource Inventory and any other major plan/document created in the past 10 years.
- Outline disaster preparedness measures and explain more clearly the role of emergency managers, floodplain managers, and coastal managers.
- Address flooding in a more robust manner, document solutions to address flooding (including the use of green infrastructure and rezoning to open space) and identify Village infrastructure affected during recent flooding events.
- Delineate wetland and encourage wetland protection and/or shoreline restoration of local water bodies.
- Flag that the storm water management requirements in the Village Code require updating.
- State open space plan requirements and identify erosion hazards.
- Commit to integrating “Smart Growth Principles” into land-use policies and regulations, including transit oriented development.
- Encourage landowners to install green infrastructure to capture stormwater and use land management practices to improve water retention in soil.
- Identify capital improvements aimed at climate adaptation and mitigation.
- Establish procedures to coordinate the decision-making process of the Land Use Boards so that climate change and resiliency are key factors in the review process.
- Highlight ecosystem restoration needed to assist with water cycle management and carbon sequestration.

Update Hazard Mitigation Plan

- Update the Hazard Mitigation Plan (2015) and strengthen sections related to improving resiliency and adapting to climate change, especially in relation to coastal hazards, sea level rise and flood-prone areas.
- Include suggestions for capital improvements aimed at disaster mitigation and pre-disaster mitigation program grants and take advantage of federal funding for hazard mitigation.
- Consider including an assessment of mitigation strategies for wind risks (trees, powerlines).

Draft and Adopt Climate Action Plan

- Develop a Climate Action Plan that includes community participation and addresses the importance of building community resilience to climate change.

Draft and Adopt Local Waterfront Revitalization Plan (LWRP)

- Adopt a Local Waterfront Revitalization Plan (LWRP) that includes community participation and addresses the importance of building community resilience to climate change.
- Address the issue of sea level rise and other climate hazards, including the vulnerability of wildlife and habitat, and identify existing habitat that needs to be conserved.
- Utilize the “Projects” portion of the LWRP to define specific climate change and resiliency imperatives that must be included in future waterfront redevelopment projects.
- Define the role and responsibility of the Coastal Zone Commission to avoid duplication of review tasks.

Integrate and Update Emergency Response Plans

- Prepare an Emergency Response Plan and consider including a Continuity of Operations Plan and a Long-Term Recovery Plan.
- Consider specifying evacuation routes/strategies for a variety of emergency scenarios with an eye to flood-prone areas and transportation options commonly used by vulnerable populations.
- Identify more than one route to evacuate the community.
- Develop a strategy to shelter residents during emergencies (consider an MOU with sheltering locations, schools and/or the County).
- Identify conditions that would initiate a traffic lane reversal.
- Work with utilities to improve the storm resiliency of power and communications infrastructure, by more strategic tree maintenance, line burial and increased redundancy. Transformers and power equipment should be raised out of the flood plains.
- Work with the telecoms to improve Wi-Fi and cellular service and make it universally accessible throughout the Village.
- Consider becoming a National Weather Service “Storm Ready Community” (see <https://www.weather.gov/StormReady>).
- Encourage neighborhoods to develop hyper-local plans that identify vulnerable residents.

Improve Floodplain Management Processes

- Develop and adopt a Coastal Resilience Plan.
- Shape all emergency plans acknowledging that the Village is in a Coastal Hazard Zone.
- Adopt the NYS sea level rise projections and update the Village Flood Damage Prevention Code to reflect expected 2022 FIRM updates. Include language in the Code requiring periodic updates, including acceptable source standards for updates should FEMA not provide new maps in a timely manner.
- Set floodplain development limits, restrict further construction and establish minimum elevations with reference to wave strength and crest height guidance.
- Adopt coastal buffer and shoreline stabilization regulations.
- Encourage natural shoreline restoration.
- Levy impact fees for shoreline protection and riparian buffers.
- Consider installing high-water-mark signs in the waterfront area to educate the community about flood risk.
- Use the Hudson River as an emergency access and egress route.
- Adopt a Storm Water Management Plan that includes green infrastructure regulations, identifies runoff and drainage problems, proposes strategies to reduce stormwater runoff from paved surfaces, identifies constraints for reaching permitted impervious coverage levels, collaborates with neighboring jurisdictions, and adequately describes municipal responsibilities for maintaining stormwater structures.
- Assess storm and sanitary sewers and upgrade as necessary.
- Train Village emergency managers in risk and vulnerability tools and maps and ensure the Village Floodplain Manager has the requisite training and expertise to enable use of risk-mapping tools, such as flood insurance rate maps (FIRMs) and cumulative risk assessments.
- Consider participating in FEMA's Community Rating System (CRS), a voluntary incentive program that recognizes and encourages community floodplain management activities that exceeds the minimum National Flood Insurance requirements.
- Day-light streams and tributaries to help in overall flood management, eliminate hidden sources of pollution, provide a natural heat sink, and improve and increase wildlife habitat.

Review and Update Village Code

- Review and revise open space zoning and steep slope codes to better address erosion, heat mitigation and stormwater inundation.
- Adopt land use regulations and land management practices to improve water retention in soil.
- Review and revise zoning to better address flood risk.
- Add zoning overlays to protect old growth forested areas, wetlands and significant wildlife habitat.
- Review and revise tree preservation sections of the Village Code to better protect old growth trees.
- Manage development in hazard-prone areas using techniques such as rolling easements or buyouts of vulnerable properties.
- Review construction types and consider higher fire ratings in the building code especially in flood plains that may be difficult to access in an emergency.

- Amend the Village Code to exceed the State’s 2-foot freeboard above flood elevation requirement to take sea level rise into account (coordinate with building height requirements).
- Require applications for land use approvals to include a supplement to the SEQRA Environmental Assessment Form – a Climate Change and Resiliency Impact Assessment.
- Consider updating the Village Code to support amphibious/floating homes.
- Update Green Building Code.

Update and Expand Capital Improvements Plan

- Expand and update the Village’s Roadway Assessment Report (2016).
- Consider developing a more robust multi-year Capital Improvement Plan that includes sections for roads, buildings, parks, and other infrastructure, including trees.
- Consider including investment to address flooding and climate change vulnerabilities.
- Consider including investment in green infrastructure.
- Consider including investment to address bike paths, bike parking and trails.

Integrate Vulnerable Populations in All Plans

- Improve the Village’s “Are You OK” system for alerting vulnerable populations before emergencies by ensuring it is current and by encouraging vulnerable individuals to sign up.
- Follow up with vulnerable individuals during and after the emergency events.
- Encourage efforts to build neighborhood emergency response teams.
- Identify public spaces or buildings (social infrastructure) where people can take refuge, in addition to the community center, e.g. firehouses, churches, schools and library.
- Ensure the County database of vulnerable populations (such as elderly, special needs, nursing home residents, low income, residents without transportation, homeless) is up-to-date and identify the primary emergency needs for this population including evacuation routes.

Improve Outreach and Education

- Improve public outreach on storm preparedness and flood-mitigation options for families, businesses, institutions, structures and facilities.
- Continue to post relevant information on the official Village website and social media pages and send targeted email blasts to residents who have signed up for them.
- Continue to alert residents to the Village’s emergency preparedness, where they can sign up for NYS Alerts and access checklists with useful information on how to prepare for and recover from severe weather events and other emergencies.
- Distribute relevant public outreach materials from the Westchester County’s Office of Emergency Management and other sources.

Conclusion

This Climate Smart Resiliency Planning (CSRP) exercise has enabled our Village to better assess its resilience to climate change, to identify vulnerabilities, and to take action to protect community assets. The exercise has identified existing strategies in our local plans and policies that build resilience to climate change, as well as gaps and vulnerabilities. In future planning exercises we intend to modify our planning tools, to better prepare for climate change, and to preserve our beautiful village for future generations.

This CSRP exercise will serve as the foundation for an overarching Climate Action Plan and a Climate Resilience Vision that will guide the long-term sustainability of our Village in the coming years. The report will provide input for independent Village planning exercises, such as the creation of a Local Waterfront Revitalization Plan (LWRP), and an update of the Comprehensive Plan. The Village is firmly committed to an ongoing process of review and improvement.