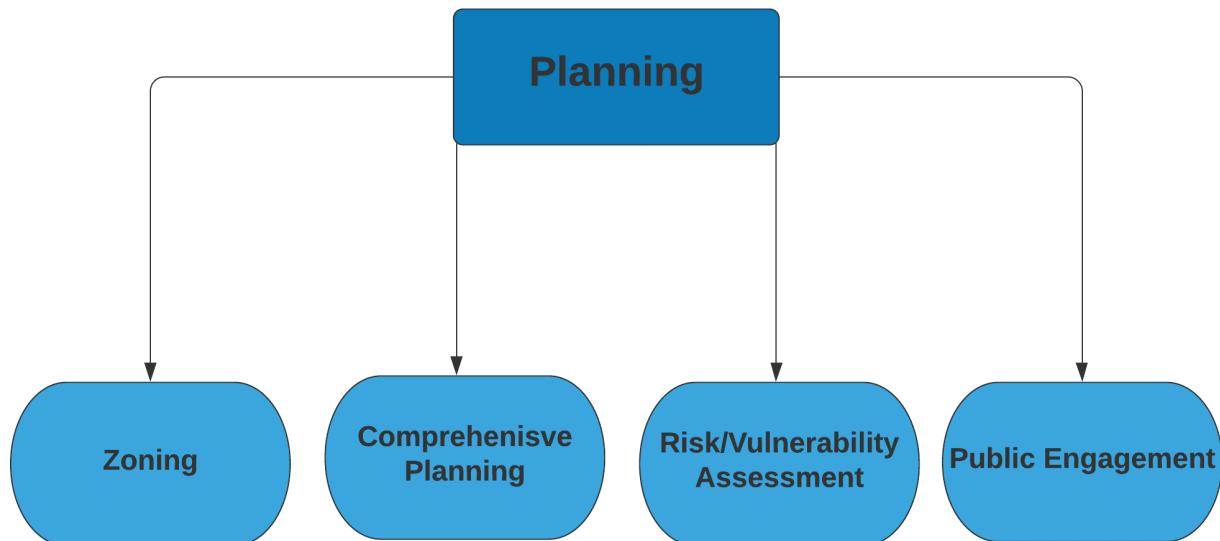


Planning for Climate Change Where You Live

A Guide for Local Governments and Community Members on the Hudson River

Emma Alvarez Campbell

New York Sea Grant Law and Policy Fellow, Summer 2020



Climate Change and the Hudson River

The goal of this document is to provide local governments and members of the community with a basic overview of legal and policy information needed to plan for climate change.

Many communities across the country are considering climate change in every planning decision they make moving forward, especially if those communities are waterfront. The waterfront poses additional threats, like sea level rise, increased precipitation, and hurricanes. Zoning, comprehensive planning, risk/vulnerability assessments, and

public engagement are all within the local government's planning authority and are important pieces of the climate change planning process. Each of these steps serve an important role that every community can utilize.

[Climate change is affecting New York at a rate faster than national and global averages](#). Some additional projected threats include heat waves, flooding, biodiversity loss, etc. Sea level rise is a particular concern of the Hudson River Valley because it is an extension of the Atlantic Ocean.



New York Sea Grant
Cornell University
112 Rice Hall
Ithaca, NY 14853-5601
(607) 255-2832

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View of the Hudson River from Bear Mountain State Park, June 2016. Image credit: Emma Alvarez Campbell

Introduction to Planning

Planning is a function of the legislature. The legislature is the governing body who repeals, makes, and changes laws. Planning is a land use management tool used by the government to control development. It includes zoning, subdivision approval, special use permit, site plan regulation, or any other regulation that focuses on use or scale of property. Local communities have planning boards who implement community planning. The planning board brings their recommendations before the local board for final approval. The planning board serves a very important role in local communities, but their role becomes even more important in the wake of climate change.

[The United States Constitution](#) authorizes state legislatures to adopt laws to protect the public health, safety, morals, and general welfare of the public. These are considered police powers. New York extends these police powers to local governments to regulate land uses. The power to plan, using a variety of techniques, is given to local governments. This includes passing environmental regulations.

New York's [Town, Village](#), and [General City Law](#), gives municipalities specific authority to adopt comprehensive plans, zoning, and a variety of other planning tools. However, the extension of the State's police powers is not confined to planning. This is because New York is a home rule state. Home rule is a constitutional or statutory provision that gives local governments the broad authority

to make legislative decisions. [New York's Municipal Home Rule Law](#), gives municipalities the ability to pass their own laws as long as they do not conflict with the laws passed by the State legislature. Another grant of power from New York is the [General Municipal Law](#), which provides local governments with additional forms of specific authority, like the protection of trees.

Supreme Court Justice Brandeis said that states are [laboratories of democracy](#) and people should see municipal governments in the same way. Localities should be encouraged to try innovative policies. The successful ones can then be mirrored by other municipalities or be expanded at the state and national level. Local action is very important when it comes to planning for climate change, because it is not as easy for politics to align at the federal level or even the state level when it comes to climate change legislation that make immediate changes. Local governments have the opportunity to make impactful widespread change and protect their community interests at the same time.

Zoning

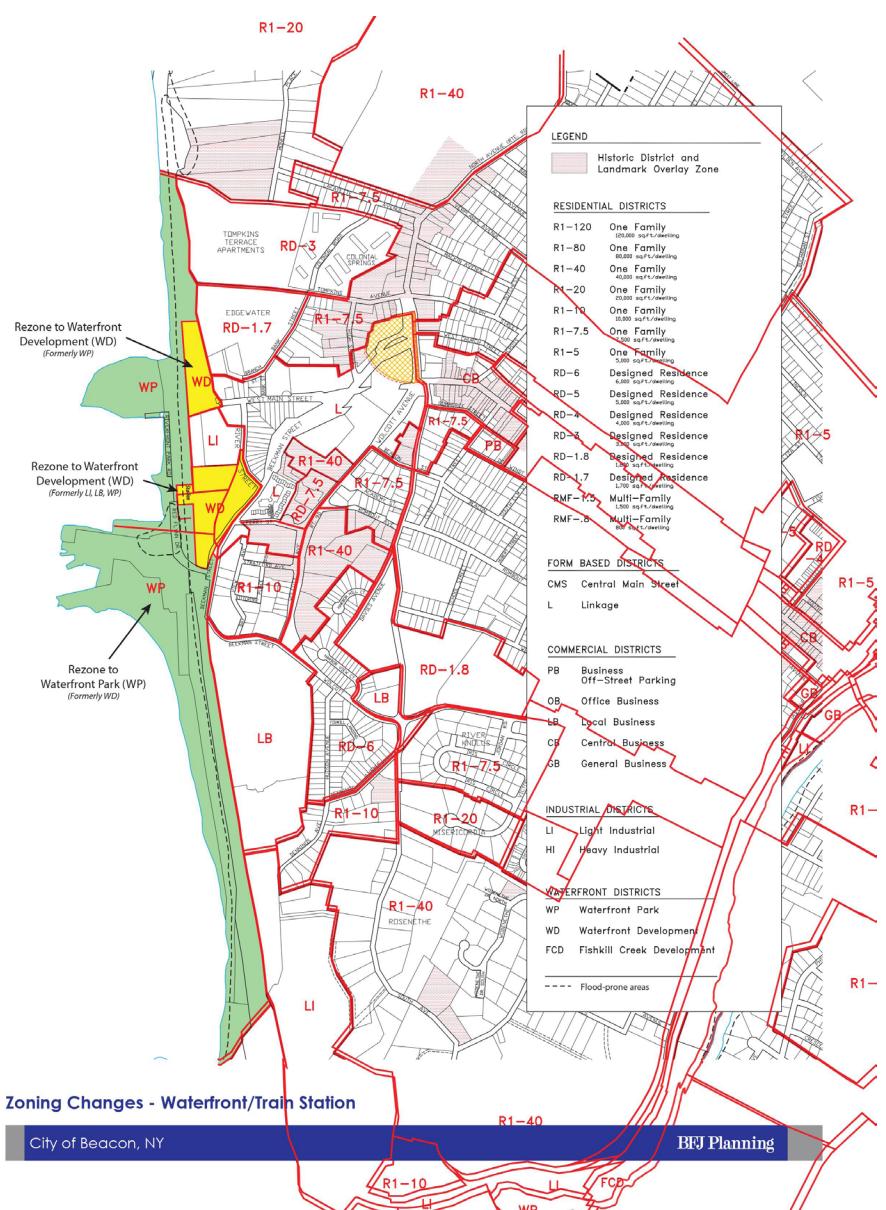
In 1916, New York City introduced the first comprehensive zoning ordinance to protect the city's economy, private property values, and public health and safety. Zoning made it possible for local governments to enact stricter land use controls that benefit society. Zoning proactively separates land uses. It also restricts elements of buildings, like size, setback, and lot coverage.

Since zoning is legislative, local governments are limited to the powers delegated to them from the state. That made it necessary for the states to grant power to the municipalities. In 1922, the United States Department of Commerce published the [Standard State Zoning Enabling Act](#), a model statute, to promote the adoption of zoning. The Supreme Court upheld the constitutionality of zoning in their 1926 decision, [Euclid v. Ambler Realty](#). By the end of the 1920s, most of the country had developed zoning regulations. However, a local government's ability to interfere with private property rights through zoning is not unlimited. Zoning regulations must relate to the public health, safety, morals, or general welfare of the community, but these requirements are broadly interpreted by the courts.

Zoning regulations are a way that local governments can plan for climate change. In 2014, New York enacted the [Community Risk and Resiliency Act \(CRRA\)](#), which led to the creation of [model local laws](#) for climate change resiliency. These model local laws include examples for local governments that are interested in adding resiliency measures into their municipal code. CRRA also required the State to make statewide sea level rise projections, to help local governments with their planning strategies. Using these tools local governments can adopt waterfront zoning districts, transfer of development rights laws, stricter subdivision regulations, etc.

Hudson River Example

- [Beacon's Waterfront Park Rezoning](#) – Beacon altered their zoning in 2017 to conform with their updated comprehensive plan. Previously zoned "Waterfront Development," all land west of the Metro North Railroad tracks is now zoned "Waterfront Park." The goal of this rezoning is to limit the land along the Hudson River to park and recreational uses and minimize development within the 100-year floodplain.



[The City of Beacon Waterfront Park/Waterfront Development Zoning Change Map. Image credit: BFJ Planning and the City of Beacon.](https://www.cityofbeacon.org/wp-content/uploads/2019/10/Beacon-Zoning-Revisions-Final.pdf) <https://www.cityofbeacon.org/wp-content/uploads/2019/10/Beacon-Zoning-Revisions-Final.pdf>.

Comprehensive Planning

Comprehensive planning is a very important piece of the planning process. Comprehensive planning looks at all aspects of a community and describes a destination and a course to get there. Comprehensive plans serve many purposes. Most importantly comprehensive plans give local communities the ability to plan without outside influence. When a planning decision is challenged, courts will determine whether land use regulations are in conformance with the communities expressed objectives. Without a comprehensive plan, or with an out of date comprehensive plan, local governments leave themselves open to judicial influence that could negatively influence the town as a whole. That is why an updated comprehensive plan is especially important when it comes to environmental protection laws.

The United States Department of Commerce created the [Standard City Planning Enabling Act](#) in 1928. This helped spread the notion that comprehensive land use planning should precede the creation of zoning ordinances. Most state laws require that zoning conform to local comprehensive plans, if one exists. Local governments in most states are not required to adopt a comprehensive plan. In New York, a comprehensive plan is not required. However, New York does require that when a comprehensive plan exists, zoning must be in conformance. The subjects and details included in comprehensive plans vary across the board. Some state statutes authorize local governments to adopt comprehensive plans, without providing further guidance, but New York suggests elements. New York law provides fifteen potential topics to be included and adjusted to meet the special requirements of each individual town.

Many waterfront communities across New York opt to use the [Local Waterfront Revitalization Program \(LWRP\)](#) as their main planning document. Even though, this program has significant benefits, including funding from the State, the focus of the LWRP is much more narrow. It is true that climate change will greatly affect waterfronts along the Hudson River and it is important to address those concerns, but there are expansive issues climate change poses. It is within the best interest of communities to consider a climate change plan for all aspects of the community.

When communities include language about climate change and sea level rise in their comprehensive plan, it lays the groundwork for more sustainable planning. Therefore, when the local government passes regulations that inhibit property rights, in order to protect against climate change, there will be a clear record of the objective. Additionally, including language about how the municipality specifically plans to deal with climate change puts community members on notice. Also, since comprehensive planning requires public engagement, concerned community members will have an opportunity to express their concerns.

Hudson River Example

- [Kingston's Comprehensive Plan](#) - In 2016, Kingston adopted a new comprehensive plan, called "Kingston 2025." This was Kingston's first comprehensive plan since their original one, written in 1961. This comprehensive plan includes an introductory section on sea level rise and climate change. This section discusses relevant legislation that the City has passed and a list of recommendations. Additionally, there are multiple objectives that promote sustainable development and address sea level rise.



A view of Kingston's waterfront. July 2020. Image credit: Jessica Kuonen

Risk/Vulnerability Assessment

In order to prepare for climate change, one of the first steps is for a community to assess their vulnerabilities. They can do this in a variety of ways. Typically, these assessments include an inventory of critical infrastructure. Infrastructure refers to the system of public works at all levels of government. Infrastructure can refer to a variety of things; government employees, roads, publicly owned treatment works facilities, the trucks the Department of Public Works use, etc. All of these things are integral to a community. The United States Department of Homeland Security has identified [sixteen critical infrastructure sectors](#) that if destroyed or incapacitated would debilitate our public systems. These sectors include:

1. Chemical
2. Commercial Facilities
3. Communications
4. Critical Manufacturing
5. Dams
6. Defense Industrial Base
7. Emergency Services
8. Energy
9. Financial Services
10. Food and Agriculture
11. Government Facilities
12. Healthcare and Public Health
13. Information Technology
14. Nuclear Reactors, Materials, and Waste
15. Transportation Systems
16. Water and Wastewater Systems

There are tools that have been created that guide communities through their self-assessments. New York's [Climate Smart Communities](#) has an action item for a Climate Vulnerability Assessment in order to enhance community resiliency to climate change. They note that climate change will affect no community equally. By creating an inventory of risks and vulnerabilities towns can address concerns in an organized manner that is cost effective. The [Community Resilience Implementation and Strategic Enhancements \(C-RISE\)](#), assessment put together by EPA and FEMA, walks communities through various resiliency focus areas. This assessment not only identifies the vulnerable areas of the community, but it also assesses what the community is or is not doing to address resiliency. This tool is especially applicable for communities who are on the Hudson River and are expecting the impacts of sea level rise to affect their community.

The location of this infrastructure in relation to the coast is very important to consider. New York City's Panel on Climate Change dedicated an entire chapter of their [report](#) to infrastructure in 2019. They highlight their varying vulnerabilities, but there was particular focus dedicated to imminence of sea level rise and storms. Sea level rise poses specific challenges especially because critical infrastructure is often located close to bodies of water. A significant issue for the Hudson River is the Metro-North rail line that runs directly on the water. All along the Hudson River there are public treatment works facilities. There are also landfills, department of public works facilities, hospitals, commercial districts, and so much more located within flood zones. Communities can make an inventory of these pieces of infrastructure and figure out the best ways to secure them from climate change. If communities wait for a climate-related disaster, it will be debilitating to the public.

There are also different types of infrastructure that can be implemented in a community that can help with flooding, stormwater management, and extreme heat. Section 502 of the [Clean Water Act](#) defines green infrastructure as "...the range of measures that use plant or soil systems, permeable pavement or other permeable surfaces or substrates, stormwater harvest and reuse, or landscaping to store, infiltrate, or evapotranspire stormwater and reduce flows to sewer systems or to surface waters." It is a sustainable and resilient approach to managing wet weather. Instead of moving stormwater away from developed areas, which is what traditional water treatment systems do, green infrastructure mimics the natural environment by soaking and storing water, preventing flooding and erosion. Green infrastructure also acts as a filtration system for water and air pollutants, and provides natural cooling through shade and transpiration.

Wetlands are also an important piece of natural infrastructure for coastal communities. Wetlands have significant biological importance. The flora and fauna diversity of wetlands is compared to that of coral reefs and rainforests. Wetlands also happen to be an excellent tool to mitigate climate change. They act like sponges preventing flooding. They also filter and store water before returning it to the water table, ground water, and aquifers. They also store and sequester carbon. Surges from storms that cause extensive inland damage are absorbed when coastal wetlands are present.

In addition, wetland vegetation stabilizes shorelines, preventing erosion. Coastal wetlands make communities more resilient. Protecting and restoring these examples of green infrastructure can help increase resilience to climate change.

Hudson River Examples of Green Infrastructure

- [Kingston Library Rain Garden](#) – Kingston installed a rain garden that treats and filters 288,000 gallons of stormwater per year before discharging it into their storm system.



Kingston Library Rain Garden. Credit New York State Department of Environmental Correction. <https://www.dec.ny.gov/lands/86684.html>

- Piermont Marsh – The Piermont Marsh is an example of naturally-occurring green infrastructure. The [Piermont Marsh Storm Protection Study](#) was completed in 2020 by Dr. Peter Sheng, of the University of Florida. The studies goal was to understand the role coastal marshes play in protecting communities from storm surge and flooding.



Piermont Marsh. July 2020. Image credit: Emma Alvarez Campbell

Hudson River Example

- [Engage Kingston](#) – Kingston launched a public engagement website, where community members can register in order to find information about community issues and weigh in to help the community make informed decisions.
- The [Piermont Waterfront Resiliency Commission](#) has two annual community meetings to update the community on their work and the science of sea level rise. One meeting is held in the fall at their village hall and second meeting is held in the spring outside. The outdoor meeting serves as a community event.

Public Engagement

Public engagement is required in most planning initiatives. For example, New York requires public participation in comprehensive planning. Getting the public involved benefits everyone in the community. When the local government puts the public on notice, they can expect feedback. By diversifying the people in the room, ideas that the government had not considered may prove to be the more fruitful for the community. In addition, putting the public on notice of planning efforts in the community and having discussions with the public, the community is less likely to be sued. Giving a voice to people who would otherwise not be involved in the planning process can create a sense of place for people in the community, which serves to benefit the community in many different ways.



Local practitioners from the Hudson region participating in a workshop about the monitoring of natural and nature-based features. July 2018. Image credit: Helen Cheng

Key Terms

Climate Change - a change in global or regional climate patterns; in particular, a change that became apparent in the mid twentieth century that is largely attributed to increased levels of carbon dioxide in the atmosphere from anthropogenic actions like the use of fossil fuels.

Climate Smart Communities - a New York State program that helps local governments take action to reduce greenhouse gas emissions and adapt to a changing climate. The program offers free technical assistance, grants, and rebates for electric vehicles.

Community Resilience Implementation and Strategic Enhancements – a local assessment tool that helps communities approach hazards and risks comprehensively. It also assesses and refines your laws and policies in a way that improves resiliency and helps achieve desired community outcomes.

Community Risk and Resiliency Act – a 2014, New York law with a goal to strengthen the State's preparedness for climate change and help protect communities against severe weather and sea level rise.

Comprehensive Planning – a planning tool that looks at all aspects of a community and describes a destination and a course to get there. It is used to guide development in a community and prioritize actions.

Critical Infrastructure – assets in the public domain that are necessary for the function of society.

Green Infrastructure – a sustainable and resilient approach to managing wet weather. Instead of moving stormwater away from developed areas, green infrastructure mimics the natural environment by soaking and storing water, preventing flooding and erosion.

Local Waterfront Revitalization Program – a planning document prepared by a community, as well as the program established to implement the plan.

New York Municipal Home Rule Law - gives municipalities the ability "to adopt and amend local laws not inconsistent with the provisions of the constitution or not inconsistent

with any general law relating to its property, affairs or government."

New York Sea Grant – one of thirty-four university based programs under NOAA's National Sea Grant College Program that provides science based research to coastal stakeholders.

Nuisance Law – a body of common law that prevents an unlawful interference with the use and enjoyment of land.

Police Powers – a constitutional provision that gives the states the capacity to regulate in order to protect the health, safety, morals, and general welfare of the public.

Public Engagement – in this context, it is involving the community in the planning process.

Risk/Vulnerability Assessment – an inventory of critical infrastructure and areas of the community that climate change is going to adversely affect.

Sea Level Rise – an increase in the level of the world's oceans due to the effects of climate change.

Standard City Planning Enabling Act – a 1928, model law that provided further planning guidance, specifically it recognized that comprehensive land use planning should precede the creation of zoning ordinances.

Standard State Zoning Enabling Act – a 1922, model law for the states to enable zoning regulations in their jurisdictions.

Stormwater Management - the effort to reduce runoff of rainwater or melted snow into streets, lawns, and other sites and the improvement of water quality.

Town, Village, and General City Law – the New York law that gives municipalities specific authority to adopt comprehensive plans, zoning, and a variety of other planning tools.

Wetlands - lands consisting of marshes or swamps; saturated lands.

Zoning – the division of a town or piece of land into areas subject to particular restrictions on development and use.



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New York Sea Grant is part of a nationwide network of 34 university-based programs working with coastal communities through the National Oceanic Atmospheric Administration (NOAA). Sea Grant research and outreach programs promote better understanding, conservation, and use of America's coastal resources. Sea Grant is funded in New York through SUNY and Cornell University and federally through NOAA.