

# GUIDANCE FOR IMPLEMENTING RESILIENCE PRINCIPLES

## BACKGROUND

### What is Resilience?

New York Department of State (DOS) defines Resilience as:

- The capacity for a community and its ecosystem to withstand extreme events and other forces or risks;
- Quickly recover the interconnected social, economic and ecological systems' structure and function in the aftermath of a disaster;
- And develop ongoing adaptability to rapidly changing environmental conditions and forces.<sup>1</sup>

Within DOS, The Office of Planning, Development & Community Infrastructure (OPDCI) helps communities increase resilience and grow sustainably by advancing progressive land use solutions, community-based development, and building standards and codes. This is accomplished through partnerships within DOS and with other State and Federal agencies, local governments, community-based organizations, academia, nonprofits, and other stakeholders.

### What are Resilience Principles and Why Do We Need Them?

The DOS Resilience Principles are guidance used to inform planning efforts and projects as well as foster actions that are adaptable, equitable, and compatible with the natural environment, while considering long-term effects. The Resilience Principles provide a comprehensive and understandable approach for communities to integrate resilience into planning initiatives and project development, resulting in more consistent and proactive decision-making. These Principles should be used as a guide to help communities understand what measures will make their decisions and actions more resilient.

The principles are designed for resilience in response to the impacts of severe weather events and natural hazards; they are not explicitly designed for actions related to climate mitigation (e.g., greenhouse gas reductions). However, many of the principles can be applied to climate mitigation decisions as well.

OPDCI works mainly with waterfront communities; therefore, the climate threats that were considered in the development of the resilience principles relate to flooding and erosion risk. Many examples within this guidance are relevant to climate risks experienced by the coastal and inland waterfront communities. However, the principles can also be applied to other climate-related risks, including heat, drought, and extreme weather.

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<sup>1</sup> NYS Coastal Management Program, 2016.

[https://dos.ny.gov/system/files/documents/2021/04/ny\\_cmp\\_dec2020\\_w-bookmarks\\_working\\_topost.pdf](https://dos.ny.gov/system/files/documents/2021/04/ny_cmp_dec2020_w-bookmarks_working_topost.pdf)



The resilience principles are one tool in the toolbox for communities that want to improve their resilience to natural hazards, and they provide high level goals that can help guide current and future efforts. There are many state programs and resources available to provide support for communities interested in climate adaptation and mitigation, some of which are included in the Resources (page #) section of this document. Beyond the technical and planning support that OPDCI provides, please see the Resources section for a list of tools/guidance documents to support evaluation of projects/plans to the DOS resilience principles. Grants are also available for communities that want to implement more resilient projects or undertake resilience planning (see Resources section).

## How to Use this Guidance

The following guidance is meant to be used as a companion to the Resilience Principles Fact sheet and provide more details and examples of how the resilience principles can be applied effectively. Planners, communities, and consultants should refer to this guidance when developing DOS projects or plans (Bond Act, LWRP, Watershed, etc.) however this document can be used as a resource for any planning or project development effort.

This guidance document includes example questions to ask before, during, and even after the development of a proposed plan or project to see if it aligns with some or all of the resilience principles. While brainstorming project or plan ideas, see if the principles can be used to steer it in a direction that is more resilient.

Once a project approach is selected, use the principles to make any minor adjustments to the design of the project to account for greater resiliency.

After a project is implemented, use the principles and apply an adaptive management approach in the long-term operations and maintenance of the project. It's important to note that not all of the principles may be applicable to each project or plan, but we can strive to consider each one.

For each resilience principle, at least two examples will be provided for a DOS program or for a plan/project that was influenced or supported by DOS. It is important to note that these principles are guidance only, and communities are encouraged to interpret and apply the principles according to their own unique context and circumstances. Some communities may place a higher value on one or more of the principles, or their project/plan purpose may be very focused and reflect only one principle.

## THE PRINCIPLES

### Know Your Risks, Avoid Risk and Reduce Risk Where Unavoidable

**Know Your Risks-** This refers to using the best available information, such as from the State or Local Hazard Mitigation Plans, floodplain maps, data viewers and more, to identify areas of current and future risk to hazards.





Do I know the climate and hazard risks that may impact this project now and over time? Does my plan acknowledge and address climate and hazard risks?

**Avoid Risk-** Sound land use planning can be used to avoid risk by restricting where development can occur and plays a pivotal role in shaping the physical and social landscapes of communities. Avoiding risk by locating assets and infrastructure outside of known and projected hazard risk areas is the surest way to avoid damages.



Are there locations in my community that are less at risk, where development or redevelopment can occur? Does my plan include consideration of land use outside hazardous areas to reduce risks in my community?

**Reduce Risk-** While a community cannot always avoid exposure to risk there are many strategies that manage vulnerabilities and exposure to risk<sup>2</sup> to proactively protect people, and the built and natural environments. These risk reduction measures may be structural (e.g., new construction, retrofits, etc.), nonstructural (e.g., planning and regulatory, education and awareness, etc.), or natural or nature based.



In instances of climate impacts related to heat or drought, are there measures to reduce the effects of those impacts (e.g., consider dedicated cooling centers in development plans)?



Does my project include elements that reduce vulnerabilities and exposure to hazards (e.g., structure elevated above flood levels, conservation of natural protective features between my project and flood source)?

**DOS EXAMPLE:** DOS has developed risk area maps<sup>3</sup> for certain geographies across the state that represent cumulative flood risk, and for the downstate coastal risk area, erosion as well (current available mapped regions include coastal Long Island and NYC, Hudson River up to the Troy Dam, and Lake Ontario). During an LWRP planning process, communities that fall within these mapped areas can consult the risk area maps to better understand whether their assets are located in extreme, high, or

<sup>2</sup> Refer to the DOS risk equation, where Risk = Hazard x Exposure x Vulnerability. Communities cannot control hazards, but they can work to reduce the exposure (moderating effect of landscape features, such as presence or absence of natural protective features) and vulnerability (level of impairment from a hazardous event) of assets to hazardous impacts to reduce overall risk.

<sup>3</sup> Access risk area maps at <http://opdgig.dos.ny.gov/#!/map/resilience> or reach out to the GIS unit for assistance

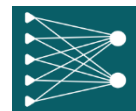
moderate risk areas. Using the maps in combination with the DOS Risk Assessment Tool,<sup>4</sup> communities can begin to understand the relative level of risk to their assets and begin to prioritize risk reduction strategies, such as floodproofing, elevating, restoring natural features, or relocating. This can help inform the LWRP proposed land and water uses and proposed projects. For communities that do not fall in the mapped areas, but still experience flood risks, DOS provides support to develop representative/surrogate risk area maps so that the community can still conduct a risk assessment using the DOS Risk Assessment Tool.

**DOS EXAMPLE:** The Town of Dover, NY, adopted a Floodplain Overlay District<sup>5</sup>, which corresponds to their mapped 100-year floodplain. The Overlay District does not allow for any new construction of structures intended for human habitation and no new septic tank, leach field, or other sanitary sewage system. An additional Stream Corridor Overlay District was established to preserve the scenic quality and water quality of their town's stream corridors. Included is a 100-foot setback for principle structures. DOS spearheaded the development of the Model Local Laws for Resilience Guidance<sup>6</sup>, which includes a wide range of land use local laws to help improve resilience.

**DOS EXAMPLE:** The City of Kingston, a Hudson River community, has faced repeat flooding due to sea-level rise. The flooding has negatively impacted parking lots, beaches, nature trails, along with swimming and boating access points. As a result of these impacts, the city completed two separate risk assessments. This first was a future sea-level rise estimate, as part of a Climate Adaptive Design project. The second was the use of the Resilience Implementation and Strategic Enhancements (RISE) Local Assessment Tool in 2023. Through the understanding of risks, the City of Kingston was able to develop a multi benefit shoreline stabilization project.

## Maintain the Capacity to Adapt

Future climate impacts will not necessarily look the same as what is seen today. A project or plan that considers future conditions will likely be more resilient. Scenario planning during planning and project development is one of the best techniques to address and acknowledge uncertainty associated with climate hazards. By considering or modeling different scenarios of future conditions and how that might impact a project or plan, communities can be better prepared to change course if and when necessary. Over time, scenarios can be reexamined as new information becomes available. Consider different hazards, even if it's not an expected hazard (e.g., planning for flood hazards, but then drought becomes an issue).



- Example scenario variables include:
  - Climate stressors (more extreme temperatures, more flooding)

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<sup>4</sup> Access the DOS Risk assessment tools at <http://opdgig.dos.ny.gov/#/focus/resilience> or at G:\CoastalHazards\Resilience\_Risk\_Post-Storm Planning\Risk-Assessment\Updated Risk Assessment Tool

<sup>5</sup> <https://ecode360.com/11750946>

<sup>6</sup> <https://dos.ny.gov/model-local-laws-increase-resilience>

- Development patterns (status quo, more resilient development, increasing population trend)
- Planning timeframes (10 years, 20 years, 50 years)
  - Plans that are developed that include a timeline for future updates (e.g., every 5 years) ensure that the most relevant and up-to-date information and conditions are captured and reflected in the Plan.



Is my project/plan designed to be adaptable over time? Have I explored potential future scenarios and the impacts on my proposed project/plan? Do I know how I might adapt my project/plan if necessary?

During historic low water levels along **Lake Ontario**, projects were constructed to improve access, such as fixed docks built further out to reach deeper water. However, historic high-water levels were realized years later and the docks were no longer accessible. A **floating dock** would be an example of an adaptable project.

**DOS EXAMPLE:** The DOS Coastal Lakeshore Economy and Resiliency (CLEAR) Initiative<sup>7</sup> was developed to support communities along the south shore of Lake Ontario in becoming more resilient to changing water levels using a forward-looking and community-based planning approach. Scenario planning was integrated into the CLEAR process to help communities better understand the tradeoffs between selected resiliency measures through a variety of potential future conditions and timeframes. While scenario planning may look different depending on the project or plan, or resources available, select CLEAR regions utilized a water level visualization tool and participatory exercises. These exercises were aimed at gathering feedback from the community on proposed resilience strategies given potential changes in water levels over 10-year planning increments (planning horizon of 2050). Strategies that are more adaptable to changing conditions (such as cycles of more extreme high and low water levels) should be prioritized over strategies that are not adaptable.

**DOS EXAMPLE:** DOS provided technical support and funding through the EPF LWRP to develop the Owasco Lake Watershed Management and Waterfront Revitalization Plan. The Plan examines the present state of Owasco Lake and its watershed, how water quality and habitat conditions are changing, and the challenges of meeting community goals for continued use and enjoyment of this valued resource. It also recommends specific actions needed to restore and protect Owasco Lake and its watershed for future generations. The recommendations include not only a continuation of an EPA Nine Element planning initiative as an addendum but also monitoring and assessment to ensure that the Lake is managed in a way that is adaptable. This Plan recognizes that a coordinated monitoring effort and quality data are the key to informed decision-making regarding the health and management of the Lake. In addition, the Plan recommends development of socioeconomic measures to evaluate progress as it

<sup>7</sup> <https://dos.ny.gov/coastal-lakeshore-economy-and-resiliency-clear-initiative>



relates to, for example, deeper community understanding and appreciation of water resources, more robust local laws for pollution prevention, success in attracting outside funding, enhanced recreational usage, and a resilient local economy.

### Seek Solutions that Provide Multiple Benefits and Address Multiple Goals

While some projects and plans might not explicitly address resilience, projects and plans that provide more than one benefit tend to be more resilient. Win-win solutions that provide multiple benefits tend to be more resilient than solutions that involve major tradeoffs or that are only focused on one goal. Solutions involving tradeoffs that benefit one system at the expense of another are rarely resilient and can cause more harm than good.



Does my project/plan have more than one benefit/intended benefactor?

Green roofs are an example of a win-win solution, providing both climate adaptation and mitigation benefits, including:

- Absorbing rainwater, decreasing the amount of water that reaches impervious surfaces
- Reducing building energy usage
- Reducing urban heat island effect

**Bulkheads** are typically designed to protect an area or property from erosion and/or flood damage. The benefactor of this bulkhead is the property directly behind the bulkhead. There are no other benefits, and often times bulkheads actually make erosion worse for neighbors that do not have bulkheads.

**DOS EXAMPLE:** In 2023 the Village of Patchogue completed a project identified as part of their LWRP (Local Waterfront Revitalization Plan), to remove a failing bulkhead and replace it with multi-element living shoreline. Patchogue Shorefront Park had significant flooding issues due to a disconnected tidal creek, clogged outfall pipes, lack of vegetation and the failing bulkhead. This project addressed the issues by restoring creek connectivity, creating bio retention basins, improving upland areas and creating the living shoreline. Living shorelines boast multiple benefits including erosion control, habitat creation, stormwater quality, and improved public waterfront enjoyment.

**DOS EXAMPLE:** The Village of Cazenovia was recently awarded funding to remove an aging dam that exists at the confluence of Cazenovia Lake and Chittenango Creek that is causing water quality harm due to sediment and nutrient excess at high water. The projected benefits of this project will include natural creek flow and improved water quality. This project includes the planting of native species, enhancement of fish populations, and reduces shoreline erosion. By removing the aging infrastructure and

restoring the ecosystem in the area, the goals of this project will enhance natural resources and improve recreational opportunities for the community.

**DOS EXAMPLE:** In response to Superstorm Sandy, Hurricane Irene, and Tropical Storm Lee, NYS launched the NY Rising Community Reconstruction Program (NYRCR) in 2013 to support affected communities<sup>8</sup>. DOS led the planning for NYRCR and developed program guidance as well as technical tools. NYRCR guidance promoted a plan and advocated for projects that not only increase the resilience of key community assets but also provide additional protection for vulnerable populations and advance economic growth. Final NYRCR plans included project profiles that identified a project's risk reduction benefit, economic benefit, health and social benefit, and environmental benefit, where applicable.

## Let Nature Work and Work with Nature

Left alone or supported through restoration actions, many natural features maintain or improve in their risk reduction benefits over time. Natural features can reduce risk by:



- Absorbing water
- Acting as a buffer
- Slowing waves or water energy
- Stabilizing or supplying sediments
- Conveying or draining water
- Lowering surface and air temperatures

Actions that conserve, enhance and restore the resilience of nature tend to yield multiple benefits. In addition, allowing natural processes to continue may entail not taking an action or taking an action that ceases current activities and makes space for natural processes to occur, when/where appropriate or where adequate space and limited infrastructure is exposed.

Although nonstructural approaches, including natural feature protection, should be used whenever possible, there may be some situations where these approaches are not feasible or appropriate, and other risk reduction measures should be explored. Where natural features do not occur, or where restoration or non-structural methods are not feasible, nature-based features can provide some of the same benefits of natural features if constructed and maintained properly. For example, stormwater green infrastructure allows for more natural drainage of water, while also providing benefits such as improved water quality and replenishment of groundwater reserves.



Does my project/plan consider conserving or restoring natural features whenever possible? Are there actions that can be included in my project/plan to support the functioning of natural features?

<sup>8</sup> <https://stormrecovery.ny.gov/community-reconstruction-program>

For example, allowing wash overs to occur (water and sediment that moves uninterrupted across a barrier island, for example) enables deposition of sediment that can lead to wetland creation over time. These wetlands can then provide risk reduction and other benefits. If natural processes are interrupted, such as a structure that blocks wash over or impedes bluff sediment from being deposited naturally on a fronting beach, actions can be taken to renourish the fronting beach so that the lost sediment gets introduced back into the system.

**DOS EXAMPLE:** DOS provided funding through EPF LWRP for a wetland restoration project located at Hook Creek Park in Queens, NY. The project site is a tidal wetland degraded by the cumulative impacts of water quality degradation, erosion, regional subsidence, diminished sediment supply, and sea level rise. The project will utilize a pilot thin layer sediment placement restoration technique that elevates marsh levels to support adaptation to sea level rise. This restoration has multiple goals and benefits, including raising the elevation of the marsh to make it more resilient to inundation and erosion, enhancing habitat through new marsh plantings, and helping protect other valuable benefits that marshes provide such as wave attenuation and absorption of floodwaters. The project site is located immediately adjacent to an identified potential environmental justice area, thus providing benefits to frontline and vulnerable communities in NYS. Construction is anticipated to be complete by late summer, 2023.

**DOS EXAMPLE:** The Town of Herkimer, positioned within a 100-year floodplain, has dealt with continuous flooding and erosion. Within the town, West Canada Creek, has seen an increased number of storm events in recent years. This increase has only added to the level of destruction in the area. Three homes, town streets, and utilities were affected, and public safety was a growing concern. Previously grey infrastructure, in the form of a retaining wall, was used as a measure to protect the community's assets. The retaining wall proved to be a large expense to the community and was ultimately ineffective. The community plans to purchase the three homes in the flood zone, remove town streets, relocate utilities, and demolish the retaining wall. The retaining wall will be replaced with non-structural and nature-based methods to adapt to future flood events. Utilizing nature will be more cost-effective to the town, while providing a long-term solution to the flood and erosion and public safety concerns in the area.

**DOS EXAMPLE:** Suffolk County has received funding to undertake a marsh restoration project. Repeat flooding, specifically from storm surge, has been a growing concern for Suffolk County's coastal community who were affected by hurricanes Sandy, Irene, and Lee. The restoration will take place at Cupsogue Beach Marsh and will span 143 acres of marsh land. By filling ditches, planting additional native species, and elevating existing areas of the marsh, Suffolk County will improve their coastal resilience, by providing native habitat, combatting storm surge, and protecting public land.

**DOS EXAMPLE:** Sheepen Peninsula, part of Mastic Beach, within the Town of Brookhaven, is situated within a FEMA designated 100-year floodplain. The area has faced continuous coastal flood damage and is seeking to address this problem through the implementation of a saltmarsh restoration project. The nature-based restoration will

span 22 acres and act as a buffer against future storm surge. The salt marsh will also provide multiple benefits which include habitat for native species, water quality improvement, and mitigate shoreline erosion. Another measure the community has taken into consideration when promoting long-term coastal resilience is inclusive and transparent communication with community members. The saltmarsh restoration project has been supported by the community and works to protect residents' homes, livelihood, and infrastructure.

## Stack Different Kinds of Resilience Measures for More Reliability Should One Measure Fail

Create a layered approach of multiple measures to provide greater reliability should one measure fail. For example, installing backup generators and elevating utilities at a property that also has a living shoreline is an example of a smart, “stacked” approach to resilience.



Actions taken to reduce risk are never guaranteed. Things fail, unexpected circumstances arise, and it's important to have backups in place and vary the types of approaches used.



Does my project/plan rely on one risk reduction measure for an area or are there contingencies in place should something fail?

**DOS EXAMPLE:** Red Hook, a waterfront community in Brooklyn, was greatly impacted by Superstorm Sandy in 2012. Through the NY Rising Community Reconstruction Program (NYRCR), Red Hook identified stacked approaches to help improve resilience within the community. For example, the final plan included a feasibility study for community microgrids, which would provide backup power to NYC Housing Authority houses during an emergency (providing benefits to socially vulnerable populations), as well as a drainage study to identify existing conditions that contribute to frequent flooding and creation of an integrated flood protection system to provide protection to community assets. The flood protection system envisions using multiple approaches, such as flood walls, street elevations, and drainage pumps. In the years following completion of their NYRCR plan, Red Hook received a grant from NYSERDA to complete the microgrid feasibility study. In addition, the integrated flood protection system feasibility study was completed, and the Red Hook Coastal Resiliency Project is currently underway.

**DOS EXAMPLE:** The Town of East Hampton, a Long Island coastal community, has become increasingly affected by coastal flooding and shoreline erosion. Through the establishment of a Coastal Assessment and Resilience Plan, East Hampton selected three broad strategies to obtain a resilient coastline. Future climate impacts, such as flood events, were at the forefront of the plan's considerations. The strategies of protect, accommodate and managed retreat are great examples of a stacked approach to resilience. The first strategy in the plan is to protect coastal infrastructure from flood waters and erosion through the implementation of structural measures. A structural measure included in the plan is an elevated roadway. The second strategy is to

accommodate, meaning to expect flooding while still protecting existing infrastructure. Suggestions in the plan include nonstructural (nonphysical and physical) measures along with natural and nature-based features. A nonstructural (nonphysical) measure to implement is land use policies, a nonstructural (physical) measure is building elevation, and a natural and nature-based measure is a living shoreline-third strategy managed retreat involves moving a community away from the chronically flood impacted area. This strategy also includes a nonstructural (nonphysical and physical) measure as well as natural and nature-based features. An example of a nonstructural (nonphysical) measure within this strategy is zoning, a nonstructural (physical) measure includes buyout and land acquisition programs, and a natural and nature-based feature is implementing green infrastructure.

### **Share Costs and Benefits Equitably and Do Not Defer Risks to Future Generations**

Solutions that exacerbate existing inequities or shift costs to future generations are not resilient.



Costs are not solely confined to monetary costs. Costs can also encompass social or environmental impacts that are not easily monetized, such as health impacts due to contaminated land or water, displacement due to green gentrification, or degradation of natural systems and processes due to pollution or development. Marginalized, lower-income, minority and other under-represented groups bear disproportionate impacts from climate change. A range of internal as well as external factors, such as race, socio-economic class, and level of political power, contribute to these disproportionate impacts.

Solutions to curb emissions and reduce impacts from climate change, as well as neighborhood revitalization, may be implemented in ways that increase the risk of displacement of lower-income populations as well as those that are under-represented members of society. Adding green investments to a community that improves environmental quality, for example, can actually increase local property values and displace lower-income families (known as Green Gentrification). Example solutions to combat green gentrification include community land trusts and reinvestment in public housing/increasing housing supply.

During planning and project development for addressing risk and improving resilience of vulnerable or marginalized populations, an understanding of why this uneven vulnerability exists in the first place is required, along with meaningful public engagement.

Consider long-term costs/impacts when making decisions now, even if plans/projects are implemented in the short-term. Sometimes the quickest, cheapest solution that is implemented now to provide immediate benefits may have negative impacts in the long term. For example, an expedited planning process that does not include thoughtful and equitable engagement with affected populations may result in greater impacts and inequities within the community in the future.



Is my plan/project benefiting one group/population within the community without considering impacts to another? Does my plan/project only consider near-term impacts?

**DOS EXAMPLE:** NYS Coastal Management Program Policy 16 is specific to the use of public funds for erosion protection. It stipulates that these public funds can only be used where the public benefit outweighs the long term monetary and other costs, such as shifting erosion risks to other locations or negatively impacting nearby natural features. This policy exemplifies the concept that projects should consider costs and benefits not just to the intended recipient or benefactor, but to others as well.

**DOS EXAMPLE:** Warren County was awarded funding to increase site resilience at two formerly underutilized Schroon River access points. The sites visitors faced difficulty accessing the site through limited parking spaces. The access points were also prone to erosion and flooding, due to their location in a 100-year floodplain. To address these challenges, the “Outdoor Recreation Economy Strategic Plan” along with the “Upper Hudson River Watershed Revitalization Plan” highlight site improvements. Improvement projects include green infrastructure in the form of rain gardens, stabilized trails, native tree plantings to minimize erosion. These improvements benefit future generations by not only addressing public access but also including green infrastructure and shoreline restoration enhancements to promoting longstanding revitalization.

## Make Decisions Inclusive and Transparent

Transparency, accountability and inclusivity tend to lead to better decisions and make conflicts less likely. Develop an inclusive and equitable public outreach plan at the outset that also provides education where necessary. Clearly outline the public’s role in the planning process and decision-making process, from informing up to being community-driven.<sup>9</sup>



Building trust includes soliciting input in multiple and accessible ways throughout the process and following through and communicating outcomes. Particularly for underserved communities or populations, it is critical to meet people where they are. This acknowledges challenges in traditional communication/outreach mechanisms and provides an opportunity to better understand specific challenges and opportunities relevant to certain locations within a community and adjusting public outreach plans as needed.

It’s important to approach conversations with sensitivity and openness to hearing about people’s personal experiences, especially when discussing changes within one’s community, such as gentrification or relocation, which can be emotionally charged.

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<sup>9</sup> From USDN Guide to Equitable Community-Driven Climate Preparedness Planning (2017). The continuum of community engagement ranges from “informing”, meaning a one-way channel of communication that is typically driven by a local government need, up to “community-driven”, meaning a two-way channel of communication that involves multiple interactions, collaboration, and shared decision-making.



Does my plan/project include a robust and equitable public engagement plan? Does the public understand their role in the planning process? Does the project/plan identify those populations most impacted and is there adequate outreach to involve them in the planning process?

**DOS EXAMPLE:** During Round 5 of the DRI, consultants working with the City of Little Falls employed a robust community engagement process during the development of the City's Strategic Investment Plan. The consultants made a substantial effort to engage different groups within the community, including the local Rotary Club and Elks Club, nonprofits, local developers, and students (7<sup>th</sup> and 12<sup>th</sup> graders). The public engagement plan specifically noted that the process was adaptable to changes as the planning process unfolded. They also employed a hybrid approach (virtual and in-person) for this community engagement to make the process as inclusive as possible in the face of the ongoing COVID-19 pandemic.

**DOS EXAMPLE:** The Town of Queensbury received a grant to develop a Watershed Action Plan for Lake George to help guide future protection and improvement actions. A public participation plan was developed to gather community input to identify and characterize issues, discuss water quality protection and identify resource priorities and concerns. The outreach plan consisted of multiple meeting types; Watershed Advisory, Steering Committee, Community Workshops and Public Outreach Working groups, and were performed using multiple outlets including websites, social media, in person and web conferencing platforms. In-person outreach events included farmers markets, community festivals and community workshops. By creating multiple input session types and opportunities, and sharing information through a variety of methods, the Town of Queensbury worked to reach as many people as possible in the planning process.

**DOS EXAMPLE:** In Warren County, improvements to two Schroon River access points were identified through a collaborative and transparent public engagement process. The improvements are outlined in Warren County's 2040 Comprehensive Plan and Outdoor Recreation Economy Strategic Plan, which received feedback from the public.

The improvements identified include green infrastructure, addressing aging infrastructure, and shoreline restoration. Not only are the projects in line with the community's priorities, but they also improve accessibility to the river access points. Improvements, such as increased parking spaces, and stabilized trails allow more community members access to the river, establishing a welcoming environment for all. These improvements reflect the communities, towns, and stakeholders' mutual objective to promote community resilience.

## RESOURCES

### NYS Climate Information and Legislation

- NYS Dept. Of Environmental Conservation (2021), Observed and Projected Climate Change in New York State: An Overview.  
[https://www.dec.ny.gov/docs/administration\\_pdf/ccnys2021.pdf](https://www.dec.ny.gov/docs/administration_pdf/ccnys2021.pdf)



- NYSERDA (2011, 2014), Responding to Climate Change in New York State (ClimAID).
- [Responding Climate Change in New York State \(ClimAID\) | NYSERDA](#)
- NYS Climate Leadership and Community Protection Act: [climate.ny.gov](http://climate.ny.gov)
- NYS Community Risk and Resiliency Act:  
<https://www.dec.ny.gov/energy/102559.html>

### **Hazards Information, Data viewers, Mappers**

- NYS Hazard Mitigation Plan: [Hazard Mitigation Planning | Division of Homeland Security and Emergency Services](#) (County and Local Plans can also be accessed through the relevant municipal website)
- FEMA Flood Insurance Rate Maps/Flood Map Services Center (regulatory):  
<https://msc.fema.gov/portal/home>
- New York Climate Change Science Clearinghouse (Data, maps and documents):  
<https://msc.fema.gov/portal/home>
- DOS Coastal Risk Areas (for flood/erosion risk; for planning purposes only):  
Accessible at [DOS Coastal Risk Areas Story Map](#)

### **Land Use and Local Laws**

- Model Local Laws to Increase Resilience: <https://dos.ny.gov/model-local-laws-increase-resilience>
- James A. Coon Local Government Technical Series:  
<https://dos.ny.gov/publications>
- Municipal Options for Land Use Control: [creating-the-community-you-want.pdf](#)
- Adopting Local Laws in NYS: [adopting-local-laws-in-nys.pdf](#)

### **Natural Resilience Measures and Stormwater Green Infrastructure**

- Using Natural Resilience Measures to Reduce the Risk of Flooding and Erosion:  
[https://www.dec.ny.gov/docs/administration\\_pdf/crranaturalmeasuresgndc.pdf](https://www.dec.ny.gov/docs/administration_pdf/crranaturalmeasuresgndc.pdf)
- NYSDEC and Green Infrastructure: <https://www.dec.ny.gov/public/915.html>
- US EPA and Green Infrastructure: Green Infrastructure | US EPA

### **Green Gentrification**

- Stein, S. (2019). Capital city: Gentrification and the real estate state. Verso Books.
- Gould, K. A., & TL, L. (2016). Green gentrification. Taylor & Francis.
- World Resources Institute, How to Prevent City Climate Action from Becoming "Green Gentrification" (2019): <https://www.wri.org/insights/how-prevent-city-climate-action-becoming-green-gentrification>

### **Planning and Equity:**

- Urban Sustainability Director's Network Resources:  
<https://www.usdn.org/products-equity.html>



- Urban Sustainability Director's Network. A Guide to Equitable, Community-Driven Climate Preparedness Planning (2017). Developed by Raimi + Associates with funding from Urban Sustainability Directors Network Innovation Fund.  
[https://www.usdn.org/uploads/cms/documents/usdn\\_guide\\_to\\_equitable\\_community-driven\\_climate\\_preparedness-high\\_res.pdf](https://www.usdn.org/uploads/cms/documents/usdn_guide_to_equitable_community-driven_climate_preparedness-high_res.pdf)
- APA, Planning for Equity Guide (2019):  
<https://planning.org/publications/document/9178541/>
- Simon Fraser University, Morris J. Wosk Centre for Dialogue. Beyond Inclusion, Equity in Public Engagement: <https://www.sfu.ca/dialogue/resources/public-participation-and-government-decision-making/beyond-inclusion.html>

### **NYS Programs/Funding:**

- DOS Local Waterfront Revitalization Program: <https://dos.ny.gov/local-waterfront-revitalization-program>
- DOS Resilience Planning Resources: <https://dos.ny.gov/resilience-planning>
- Climate Smart Communities Program: <https://climatesmart.ny.gov/>
- NYSERDA Clean Energy Communities Program: <https://www.nyserda.ny.gov/all-programs/programs/clean-energy-communities>
- DOS Community Resilience and Flood Risk Reduction Funding:  
<https://dos.ny.gov/clean-water-clean-air-and-green-jobs-environmental-bond-act-2022-community-resilience-and-flood>
- Consolidated Funding Application (CFA) for NYS (example funding programs offered in 2022, representative of typical programs, but not exhaustive):
  - Brownfield Opportunity Area Program (DOS)
  - Climate Smart Communities (DEC)
  - Green Innovation Grant Program (EFC)
  - Local Waterfront Revitalization Program (DOS)
  - Non-Agricultural Nonpoint Source Planning and MS4 Mapping Grant Program (DEC)
  - NYS Community Development Block Grant program (HCR)
  - Parks, Preservation and Heritage Grant Program (OPRHP)
  - Smart Growth Comprehensive Planning Grant Program (DOS)
  - Water Quality Improvement Project Program (DEC)

### **Federal Programs/Funding**

- FEMA
  - Building Resilient Infrastructure and Communities (BRIC)  
<https://www.fema.gov/grants/mitigation/building-resilient-infrastructure-communities>
  - Hazards Mitigation Assistance <https://www.fema.gov/grants/mitigation>
- NFWF National Coastal Resilience Fund <https://www.nfwf.org/programs/national-coastal-resilience-fund>



## GLOSSARY<sup>10</sup>

- **Assets:** Places or things where economic, environmental, and social functions of communities take place, or are critical infrastructure required to support those functions. Assets may also be part of the built or the natural environment.
- **Equity:** Fairness and justice. In a social context, it is about ensuring that people have access to the same opportunities and have what they need to survive and thrive (USDN Guide to Equitable, Community-Driven Climate Preparedness Planning, 2017). Unlike **equality**, which connotes sameness, equity is responsive to difference (APA).
- **Green Gentrification:** Cleaning up pollution or providing green amenities increases local property values and attracts wealthier residents to a previously polluted or disenfranchised neighborhood... primarily displacing lower income communities, communities of color and renters.
- **(Climate) Hazard:** A physical process or event (hydro-meteorological or oceanographic variables or phenomena) that can harm human health, livelihoods, or natural resources (The World Bank). Climate-related hazards exacerbate other stressors, often with negative outcomes for livelihoods (IPCC 2014, Working Group II, AR5 Summary)
- **Risk:** The chance that an asset will be damaged or destroyed (by a hazardous event).
- **Natural Feature(s):** Landforms that are created by physical, geological, biological and chemical processes that evolve over time through the forces of nature. Examples of natural features include wetlands, forests, beaches, and floodplains.
- **Nature-based Feature(s):** Constructed features that mimic natural features and processes. Nature-based features typically incorporate or promote the growth of living materials (e.g., vegetation or shellfish) and limit disturbance to existing habitat. They are typically designed to provide some sort of risk reduction benefit and natural feature value.
- **Socially vulnerable populations:** Those with characteristics that can make it more challenging to cope with and respond to hazardous events. Social vulnerability comes about through the interaction of a number of personal, environmental, and social factors. For example, social and institutional context, such as levels of inequality and income, the strength of social networks, the cohesion of neighborhoods and the day-to-day practices of institutions, such as care regimes in nursing homes, can affect people's ability to adapt.

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<sup>10</sup> The terms and definitions included here are specific to this guidance document.