# Flood Resilience for Riverine and Coastal Communities

BUILDING BLOCKS FOR SUSTAINABLE COMMUNITIES

Village of New Paltz, New York
Next Steps Memorandum

January 29, 2016

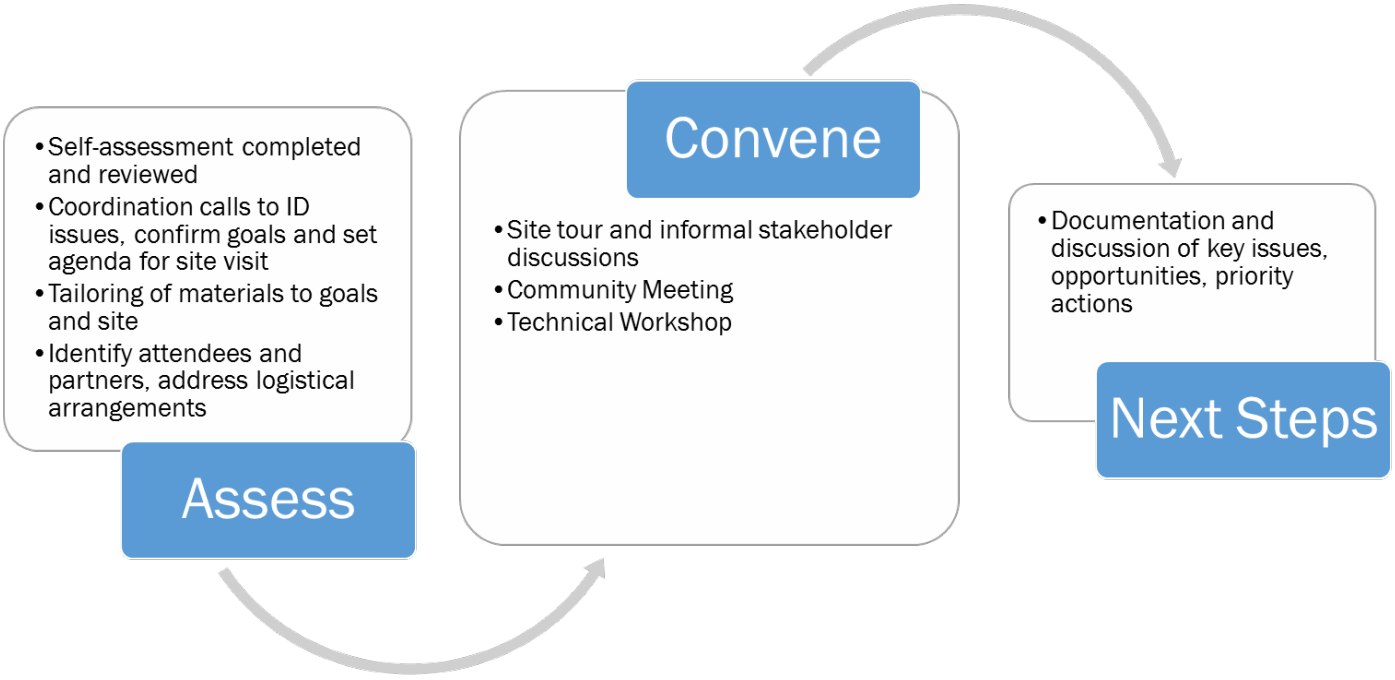
EPA United States Environmental Protection Agency

*Photo credit: Tetra Tech*

# INTRODUCTION

The core mission of U.S. Environmental Protection Agency (EPA) is to protect human health and the environment. EPA's Office of Sustainable Communities (OSC)—or the Smart Growth Office— helps support this mission by working with communities to reach development goals that create positive impacts on air, water, public health, economic vitality, and quality of life for residents. OSC created the Building Blocks for Sustainable Communities program to provide quick, targeted technical assistance on specific smart growth development topics by bringing subject matter experts to communities. Communities request this technical assistance through a competitive application process.

The Building Blocks process is designed to move a community through a process of assessment, convening, and action planning—helping learn about a given topic and create a strategy to move forward on implementation. The program helps a community identify potential challenges, as well as realize opportunities that already exist to make progress. It includes a series of pre-and post-workshop conference calls, a self-assessment, and an on-site convening of stakeholders to discuss issues, next steps, and actions related to advancing the communities' specific goals. These efforts help a given community gain a deeper understanding of a particular smart growth issue and identify specific steps necessary to move them closer to implementation. The diagram below outlines the typical flow of the Building Blocks technical assistance program.




### THREE STAGES OF TECHNICAL ASSISTANCE (CREDIT: RENAISSANCE PLANNING)

This Next Steps Memo documents the key outputs of the technical assistance for the Village of New Paltz, Ulster County, New York with the Flood Resilience for Riverine and Coastal Communities Tool. Resilience is the capacity of individuals, communities and systems to survive, adapt, and grow in the

face of stress and shocks, and even transform when conditions require it. Building resilience is about making people, communities and systems better prepared to withstand catastrophic events—both natural and manmade—and able to bounce back more quickly and emerge stronger from these shocks and stresses. This memo identifies important community issues, prioritized goals, and specific actions to: (1) improve stormwater management, (2) implement flood resilience practices, and (3) identify and mitigate flood risk for structures in the floodplain.

# COMMUNITY CONTEXT

The Village of New Paltz, population 6,600, lies in Ulster County and it is situated within the core of the Town of New Paltz, New York, a separate government jurisdiction. New Paltz is situated along the Wallkill River, a tributary of the Hudson River, approximately 90 miles north of New York City and 70 miles south of Albany. The State University of New York (SUNY) at New Paltz is located in the village and has nearly 8,000 students. The university sits at a higher elevation within the village, and its stormwater runoff affects the rest of the village, especially in storm situations. New Paltz experienced major flooding during Hurricane Irene and Tropical Storm Lee.

DAYLIGHTED STREAM IN THE VILLAGE OF NEW PALTZ (CREDIT: TETRA TECH)

Community members are open to the use of green infrastructure, stormwater management, and flood prevention strategies as opportunities arise. In 2013, the village found an existing stream under Plattekill Avenue and an adjacent pocket park. The village administration opted to "daylight" the stream, exposing it as a natural waterway, rather than replace the manmade underground pipeline that carried the water. Recently, the village has adopted participation in the regional general permit for regulated Municipal Separate Storm Sewer System (MS4s), which dedicates it to reducing contamination of stormwater runoff and prohibiting illicit discharges.

During major flood events, the village experiences damage to homes and businesses in the floodplain, traffic detours, overflow of manholes, and overwhelming of the wastewater treatment plant due to the large inflow. The village is challenged in:

- Reducing losses from future flood events by identifying mitigation projects
- Reducing storm water runoff from the University and implementing green infrastructure practices when opportunities arise
- Using technology to support visualizing impacts and planning techniques to conserve at-risk land.

# SELF-ASSESSMENT

Prior to the on-site workshop, key New Paltz village staff filled out a community self-assessment: a set of yes/no questions designed to help the community determine how its current strategies foster flood resilience, and help them consider additional strategies to reduce long-term risk. The self-assessment was divided into five general categories, each of which focused on several strategies

A. Overall Approaches to Enhance Flood Resilience and Integrate it into Community Planning,
B. Conserve Land and Discourage Development in River Corridors and Critical Coastal Areas,
C. Reduce Risk to People, Buildings, and Facilities in Vulnerable Settlements,
D. Plan for and Encourage Development in Safer Areas, and
E. Implement Stormwater Management techniques throughout the Whole Watershed, including Coastal Areas.

Completing the self-assessment provided the local and project teams with initial insight on community strengths and opportunities for improvement.

# COMMUNITY CONVENING

EPA's contractor, Tetra Tech, with support from EPA staff, led an on-site workshop in New Paltz on September 17 and 18, 2015. The village helped to mobilize key local partners and coordinated the workshop events. As shown in the attendance list, there were many community participants representing diverse interests.

## Site Tour

On September 17, the project and local teams met with community members at the Rotary Club weekly meeting to be acquainted with locals, get community context, and promote the community workshop. In attendance were the mayor, village planner, the Director of Smart Growth Planning at the New York State Department of State, and the project team. Attendees toured several flood-prone areas of New Paltz, including:

- Single family homes, condominiums, and businesses that were built behind a rail trail/ protective berm (a wall or mound of earth), but experience frequent flooding
- A retirement community which had to be evacuated over the only bridge to the facility during a flood event
- Areas of isolated flooding outside of defined floodplain
- SUNY New Paltz – including stormwater retention areas and areas of new development
- A wastewater treatment plant and community garden
- Mill Brook environments, including the top of this watershed, component tributaries and streets
- Agricultural areas and the Springtown neighborhood in floodplain
- The North Chestnut Street environments, including a vocational school for special needs students (a property with characteristics of a critical facility)
- A major bridge planned for reconstruction that contains a critical water line, partially funded by New York Rising to harden the structure (but not elevate it, at this time)

HOME BEHIND BERM (CREDIT: TETRA TECH)

CONDO BEHIND BERM (CREDIT: TETRA TECH)

RETIREMENT COMMUNITY – VIEW OF ACCESS DRIVE WITH BRIDGE HARDENED AFTER IT BLEW-OUT TO A STORM EVENT (CREDIT: TETRA TECH)

SUNY NEW PALTZ – PART OF THE "HEAD WATERS" OF SAW MILL CREEK (CREDIT: TETRA TECH)

WASTEWATER TREATMENT PLANT (CREDIT: TETRA TECH)

AGRICULTURAL FIELDS (CREDIT: TETRA TECH)

## Community Meeting

On the evening of September 17, the project team facilitated a community meeting to provide an overview of flood resilience in coastal communities and hear from residents and stakeholders about community challenges, strengths, and opportunities. Over 30 participants attended from the community as well as federal, state, and local agencies, nonprofits, and community groups. Maps depicting the town, the 100-year floodplain, elevations, and critical facilities were provided for the public meeting. See the appendix of this document for a local flood hazard map.

The community meeting started with a PowerPoint presentation describing the technical assistance process and a review of the community's self-assessment of its current flood resilience. Attendees then divided themselves into three groups and were asked to provide feedback on the most important local issues based on their experiences, using the maps to help stimulate discussion. The following themes raised during the community dialog were incorporated for further facilitated discussion within the full-day technical workshop held on the next day:

- Improving stormwater management
- Using planning to implement flood resilience practices
- Identifying and mitigating flood risk for structures in the floodplain

## Technical Workshop

Day 2 included a morning technical session and presentation which focused on exploring options for addressing locally identified issues such as addressing run-off from the college, working with a dated comprehensive plan, and community assets impacted by flooding. This was followed by an afternoon group session, which focused on engaging key stakeholders, technical staff, elected officials, and the technical assistance team to develop specific actions for meeting community goals, which are detailed in the Next Steps section of this report. About 25 people participated in the technical workshop. The project participants are identified in the appendix of this memo.

GROUP DISCUSSING LOCAL FLOOD ISSUES (CREDIT: TETRA TECH)

# KEY COMMUNITY ISSUES

New Paltz has new leadership in place that is motivated to address the local flood and stormwater management risks that come from being located next to a major river. Several homes, businesses, a vocational facility, and a wastewater treatment plant lie in the coastal floodplain, and one retirement community was constructed with its sole access route passing through a riverine floodplain. As the village makes investments to update its aging infrastructure, it may be possible to concurrently implement stormwater management strategies and flood risk reduction measures. The village also has an older comprehensive plan, which could be updated and coordinated with other village plans, as well as the county hazard mitigation plan.

BRIDGE TO BE REPLACED (CREDIT: TETRA TECH)

## Strengths

The village has a number of strengths that can help it reach its flood resilience goals. Many of the strengths are due to local residents and new funding opportunities.

- **Leadership from Local Officials:** The village mayor attended and participated in this workshop, showing commitment to building flood resilience for New Paltz. Other elected officials attended the workshop, as well.
- **Engaged Public:** The village has several groups who meet to discuss and act on environmental, climate change, and sustainability issues. There are many existing networks, which can offer support. One noteworthy recent development that offers organized support

for local efforts is the formation of the Wallkill River Watershed Alliance (WRWA), a regional partnership that is providing community-based research and monitoring of the river and working across sectors to undertake other steps to improve the watershed environment that extends across multiple counties for the part of the Wallkill watershed that is within New York State.

- **New, Motivated Municipal Staff:** Recently, the village elected a new mayor and hired a village planner and building inspector/ code enforcement officer. These individuals bring new ideas, priorities, and capacity to the village. They have expressed an openness to the option of updating the comprehensive plan, re-evaluating building codes and zoning, reaching out to the public to get better engagement, and better educating themselves about stormwater management strategies. At the same time, there are tangible efforts to coordinate projects development and as opportunities arise to jointly promote efficiencies with the town. As floodplains know no boundaries, this is promising for structuring action at the local, sub-watershed scale.
- **New York Rising Funding[1]:** The village and the town jointly participated in formation of the Ulster County New York Rising Community Reconstruction Plan released in spring 2014. Following-on from this initiative, the village is receiving funding for major infrastructure improvements including reconstructing the Route 299/ Main Street bridge and hardening the village-owned wastewater treatment plant off Huguenot Street. The project establishes local analysis and capacity for investing in and rebuilding the community in a way that will mitigate against future flood risks and form increased resilience. The funding established early stage priority projects to catalyze sustainable infrastructure and patterns of development.

## Challenges

The challenges to building resilience are increasingly linked to flood risk associated with climate change, aging infrastructure, and working within dated plans and codes.

- **Aging Infrastructure:** The utility pipelines running under the roads in New Paltz are aging and in constant need of repair. A road is often dug-up several times to repair first one, and then another utility which has failed.
- **Outdated Comprehensive Plan and Development Codes:** Both the village's and town's comprehensive plan are very outdated. The two entities are embarking on process to update these documents as a joint effort comprehensive plan. The Village's current plan has little in it concerning public safety and building in less risk-prone areas in this changing environment, which presents itself as a large gap in flood resilience planning.

## Opportunities

Some opportunities for building flood resilience in the village include ongoing community planning activities and state and federal grants.

- **Ongoing Planning Efforts:** The local hazard mitigation plan is undergoing an update at the county level. For consistency, it could be helpful if the village comprehensive plan and development codes also could reflect that update. There is a health and safety basis for

[1] More information of New York Rising may be found here: www.stormrecovery.ny.gov

making hazard-planning part of land use planning – often hazard planning is not well integrated into comprehensive planning.

- **Replacing Infrastructure:** A coordinated effort to replace and repair the aging infrastructure while integrating stormwater best practices, could be helpful. The community could benefit from enhancing its system of asset management by upgrading its inventory of capital infrastructure components and adopting facilities management software to move from paper maps to more robust electronic tools that can benefit coordinated capital planning. This could help establish a more reliable system and could help head off unexpected or overly costly investment. The village could use a more decentralized or partly-decentralized stormwater management approach. Moreover, private property owners could also benefit from including flood risk reduction and stormwater management strategies while upgrading their properties and homes. This latter approach, known as Low Impact Design (LID), which as described in the Mid-Hudson Region Sustainability Plan, is an approach to land development (and redevelopment) that works to manage stormwater that works with nature to manage stormwater as close to its source as possible. LID employs principles such as using natural landscape features rain gardens, tree plantings or tree pits, rain barrels or cisterns, and porous pavement to minimize imperviousness and slow and infiltrate flows and create drainage as a resource rather than a waste product (See US EPA's 'Low Impact Development'). A benefit of LID is that it goes beyond basic flow management and control to promote healthier and more appealing property, neighborhood, and district character.
- **State and Federal Grants/Resources:** There are state and federal grants (e.g., FEMA, NY Rising, NY Dept. of Environmental Conservation, and National Endowment for the Art) that could help support resilience efforts in the village. Links to these grant programs may be found in the appendix of this document. The community appears ready to work with State and Federal, and regional organizations, in forming collaboration to address local needs and issues. Of particular interest is the feasibility to practically design and use innovative measures as part of upgrading aged or deteriorating public facilities. For instance, there is desire to harness grey water so it can be beneficially reused, such as for irrigation, or in other appropriate and permissible ways, to relive the stress on sanitary sewer facilities. Topics like neighborhood-scale rainwater capture and reuse could be leveraged through work with interagency partnerships that can also help the Village match its capital planning needs with sources of external resources that can help leverage desired development in order to overcome real or perceived barriers to adoption.
- **FEMA National Flood Insurance Program (NFIP) and the Community Rating System (CRS):** Ulster County is considering joining the Community Rating System, a program that helps residents lower their flood insurance premiums. Many of the activities described in this memo (including this EPA Building Blocks workshop) can be used for CRS credit for the program.

New planning efforts and state and federal funding present opportunities for incorporating best practice strategies for building flood resilience and for funding those strategies identified for the community.

# NEXT STEPS

The project team posed questions to workshop participants designed to foster discussions and draw-out community members' observations and opinions about the strengths, weaknesses, and opportunities summarized in the section above. The project team considered the feedback and helped participants develop a set of three key goals with proposed next steps for New Paltz. The workshop participants agreed that these goals were a good starting point for organizing actions and developing strategies to promote flood resilience.

## Improve Stormwater Management

Stormwater runoff was identified as a priority flooding source with the village that is causing structural damage, environmental degradation, and personal inconveniences. While this is a flooding source that the Village and community of New Paltz can directly help manage (contrary to upstream runoff in the greater Wallkill River watershed), a comprehensive approach is required to ensure that proposed solutions are both cost-effective and yield significant results. Fortunately, a range of strategies, practices, and community assets can be leveraged for reducing extreme flood impacts, as identified in the table below. Some of the more cost-effective strategies identified as important next steps include:

- **Protect priority natural areas**: Existing wetlands, riparian buffers, and high-functioning forested areas contribute a multitude of ecosystem services to the New Paltz community, including important flood retention and overall resilience. Both the consultants and some workshop participants acknowledged the need for policies that protect existing wetlands priority natural areas – long-term investments that are considerably more cost-effective compared to structural retrofits. One recent investment that can help provide protection downstream from flooding is the Village's purchase of new acreage that it is designating as parkland within Mill Brook Preserve.
- **Engage Citizenry in Non-Structural GI Controls**: Non-structural GI practices that increase ability of pervious land cover to intercept, detain, infiltrate, and/or evaporate rainwater include tree planting, native landscaping, soil reconditioning, impervious disconnection, and impervious conversion. Not only are these practices much more cost effective at mitigating urban runoff (gallon per gallon) compared to structural controls, but they are often implemented into productive landscapes to provide direct benefits to the citizenry. Given the high-infiltration capacity of New Paltz soils, these practices can also be incorporated with micro-topographic features (e.g., rain gardens, water harvesting swales, mulch basins, etc.) that increase runoff capture and water cycle effectiveness. Community organizations like the Shade Tree Commission, who are already active in planting and maintaining trees within New Paltz, can provide critical grass roots energy for expanding the implementation and maintainage of non-structural controls onto both private and publicly-owned lands.
- **Right-of-Way (ROW) Standard Details**: Existing roadways represent the largest extent of connected impervious area within most built environments, and thus the most influential land use on the timing of the peak flood hydrograph. Although ROW stormwater retrofits (including bioswales, permeable pavements, tree box filters, and other green street practices) are often the most costly BMPs per unit area due to the challenging construction environment, relative implementation costs can be greatly reduced when incorporated with other necessary ROW improvement projects like street resurfacing and utility repairs. Costs are further reduced when contractors and Public Works staff can utilize standard design details for the specific BMP retrofit components to improve construction efficiencies and reduce design costs.

- **Create incentives for Stormwater Retrofits**: The community could provide owners of residential and commercial lots with a set of incentives to incorporate stormwater management controls that can improve site aesthetics and property values. Developing these incentives according to the specific site needs and quality-of-life goals of both property owners and engaged residents will help facilitate stakeholder buy-in. Although a stormwater utility can always be developed to fund priority implementation and maintenance of structural controls within the community, alternative ways to leverage financing and support for stormwater management can often be met with less opposition.

Mitigating extreme flooding problems in existing urban areas requires a combination of distributed green infrastructure practices, optimization of pervious land cover, and strategic implementation of centralized detention facilities. Regardless, stormwater regulations need to be developed to mitigate runoff from new development within New Paltz to ensure that flooding problems are not worsened. Measures of success can track the volume and quality of flows at different types of facilities and required levels of investment. Taking steps to manage storm flows fits with the Village's new Municipal Separate Storm Sewer System (MS4) status and it will aid watershed quality and Village compliance with State standards regulating sanitary sewers and public treatment works operation.

| *Supporting Implementation Steps* | *Why is this important?* | *Timeframe* | *Lead Role* | *Support* | *Cost & Implementation Resources* |
|---|---|---|---|---|---|
| **Quantify future forecasted peak design storms** | Account for higher magnitude/ frequency events | One year | Planner | Building Department, outside expertise | EPA & DEC support, Environmental Finance Center (EFC) |
| **Protect existing sewer and storm sewer structures from design storm overflow** | Helps meet Sanitary Sewer Overflow (SSO) order requirements | Two years | Department of Public Works | Village Board, Building Dept., Planning (GIS), SUNY | State can provide resources – community has attempted to get resources for planning and to get out ahead of problem |
| **Identify higher-elevation, impervious hotspots and potential for retrofits** | Strategic allocation of resources for structural projects in higher elevations can provide for healthy headwaters in local streams delivering water quality benefits | Two to four years | Planning Department | Building Department, Village Board; Ulster County Dept. of Environment data | EPA 319 grants, EFC, FEMA |
| **Improve tree protection regulations and enforcement** | Improves quality of life; cost-effective. Prevents trees from being inadvertently destroyed and reducing | One year | Village Board | Shade Tree Commission (STC) | NYS Urban Forestry Grant |

| *Supporting Implementation Steps* | *Why is this important?* | *Timeframe* | *Lead Role* | *Support* | *Cost & Implementation Resources* |
|---|---|---|---|---|---|
| | supportive green infrastructure. | | | | |
| **Develop appropriate and low-cost right of way management practices – dry wells, bioswales, and tree filters** | Helps manage stormwater and provides aesthetic benefits | Two years | Village Board | Department of Public Works and Planning Department | Stormwater utility fees, EFC, WRWA, staff time. Education and promotional materials can help foster understanding and support. |
| **Develop strategies for private lots – rain gardens, cisterns, rain barrels, landscape features, and native vegetation landscaping** | Manages storm flows at the source and improves property values | One year | Village Board | Env. Commission, STC | Staff time, DEC provides wetland plants, DPW/ Highway Dept. bulk orders, WRWA |
| **Develop stormwater management requirements for new development** | Alleviates future flooding from development | One year | Planning Boards and Building Departments | Env. Commission, STC, and Town environmental Board | Staff and agent's time |
| **Consider stormwater retrofit regulations on existing structures** | Shares the burden of stormwater management | One year | Village Board | Planning and Building Departments | Staff time; fits with Climate Smart Community status |
| **Consider stormwater utility** | Helps fund stormwater management projects | One year | Village Board | Planning and Department of Public Works, Town | Staff time, funded study |

## Use Planning to Implement Flood Resilience Practices

The current comprehensive plans for the village and town are outdated. The Village's plan does not reflect present day flood risks and opportunities. The town and village have started collaborating to write and adopt a new plan. A key component of this plan could be to provide a strong link to the county hazard mitigation plan, which has recently been updated. Next, the village planner could lead or assist an effort to identify gaps in codes with respect to stormwater management and flood risk reduction, and the potential to adopt a unified development code. To support this effort, the village and town boards could form a zoning update committee and develop a community engagement plan. Other supports could come in the form of asset and opportunity mapping, and an information management system, which could support many of the activities identified in this memo. The village could request the mapping results from the county hazard mitigation plan to begin this process, and use the potential impact maps to inform planning process more effectively. Once strategies have been identified and funding acquired, the village could implement demonstration projects to show the community examples of flood risk reduction and stormwater management. This could help build community support and show the projects are feasible and successful.

| *Supporting Implementation Steps* | *Why is this important?* | *Timeframe* | *Lead Role* | *Support* | *Cost & Implementation Resources* |
|---|---|---|---|---|---|
| **Write and adopt a joint comprehensive plan (town and village)** | Current plan outdated and does not reflect current risks and opportunities | 3-5 years | Village Planner | Elected officials, Comp. Plan committee, consultant | Village budget, New York State Energy Research& Development Authority (NYSERDA) , NY Rising, DEC – Estuary Program, Other review committees |
| **Identify gaps in existing codes** | Will help inform future changes in current codes | 1-2 years | Village Planner | Regional Planning Assoc., Smart Growth, DOS, EPA, County Planning; WRWA | Village budget, NYSERDA, NY Rising, DEC – Estuary Program, Other review committees |
| **Adopt a unified development code** | Creates integrated growth and consistency between the village and town | 3-5 years | Village Planner | Zoning update committee (formed by Village and Town Boards), SUNY | Municipal budgets, NYSERDA, NY Rising, DEC – Estuary Program, Other review committees |
| **Develop a public participation / community engagement plan** | Helps interested persons engage with planning projects, sustains focus, and provides ways for obtaining public input | Ongoing | Town and Village Clerks and Planner | Outreach Committee (sub-committee of the Comp. Plan Committee); consultant | Enviro Ed grants (EPA), DEC estuary grants, Arts projects, schools, NEA Our Town grants |

| *Supporting Implementation Steps* | *Why is this important?* | *Timeframe* | *Lead Role* | *Support* | *Cost & Implementation Resources* |
|---|---|---|---|---|---|
| **Map assets and opportunities** | Feeds into comprehensive plan and supports community goals | 1 year | Environmental Commissions/ Board and Planning Boards | Engineers/ Public Works, DOT, SUNY, County Planning | Americorps, Village GB resources, EFC, Benjamin Center |
| **Create an Information Management System** | Supports visualization, impact assessment, information for planning | Ongoing | Village Planner | Non-profits, State (Clearinghouse), NY Rising | County TA, Estuary Program, Comp Plan Budget, SUNY |
| **Identify and implement demonstration projects** | Builds support for future resilience projects | 1-2 years | Village Planner and Community Groups | Region Planning Association, Smart Growth, EPA, | Grant funding – EPA, FEMA, NY Rising, PACE |

## Identify and Mitigate Flood Risk for Structures in Floodplain

To begin mitigating the flood risk for structures that lie in the floodplain, they first need to be identified. The FEMA floodplain map is one starting point, while the list of repetitive loss properties is another (although confidential), and local knowledge is a third. Village agents have provided some inventorying of structures at risk, but there is also a benefit to collaborating on this topic with the Town.

Once risky properties are identified, the community may begin creating a plan to mitigate them using a buyout strategy (a plan to use grant funding to buy out several properties in the floodplain at once) and flood proofing of structures. The properties identified could be added to the hazard mitigation plan as potential mitigation projects, thereby allowing these projects to be funded by FEMA grants. Some repetitive loss properties could be identified for buyouts. Two areas to focus and types of focus are for residences and aspects of multifamily uses around Water and Huguenot Streets. There appear to be property owners interested in collaborating with local government and there might be consideration of incentives for desired private investments. In some cases, space could be used for something else.

Educating property owners and home/business owners on specific flood mitigation strategies could be a follow-up action to identifying the at-risk structures such as at-risk land uses and critical facilities. The village can support developing evacuation plans and ensuring that local authorities alert landowners and managers before forecasted major flood events. Village staff may wish to discuss membership requirements and feasibility for becoming a member of the CRS[2] with Ulster County, the state, and FEMA.

| *Supporting Implementation Steps* | *Why is this important?* | *Timeframe* | *Lead Role* | *Support* | *Cost & Implementation Resources* |
|---|---|---|---|---|---|
| **Inform flood prone properties (e.g. golf course and Rod & Gun Club) of flood risk** | These recreation-oriented facilities may be appropriate uses in floodplain, but there can be proactive efforts to manage potential Impacts from severe flooding which may affect the environment | 1-2 year | Town Environmental Board | Audubon International, Uls. County Dept. of Envt. | Green Golf Course Program, Green Rifle Range, staff time |
| **Explore Community Rating System (CRS) viability** | Helps to reduce flood insurance premiums and activities help reduce flood risk | 1 year | Floodplain Manager(s) | County Planning, County Dept. of Environment | FEMA Regional CRS Lead and State CRS Lead, staff time |

[2] Community Rating System (CRS) is a voluntary incentive program that recognizes and encourages community floodplain management activities that exceed the minimum NFIP requirements. The incentive includes a reduction in flood insurance premiums for community members.

| *Supporting Implementation Steps* | *Why is this important?* | *Timeframe* | *Lead Role* | *Support* | *Cost & Implementation Resources* |
|---|---|---|---|---|---|
| **Develop outreach to at risk properties including areas subject to isolated/ limited depth flooding which can still impact properties – provide options and recommendations** | Supports the community with options to reduce their risk. In conjunction with this there can be monitoring for areas of emerging risk, such as where flooding may be increasing. This links to efforts, under 'Improve Stormwater Management' for forecasting for peak storms, which is part of identifying potentially undersized infrastructure. | 1-2 years | Floodplain Manager(s) | Environmental Conservation Board (ECB), Environmental Policy Commission (EPC) | Staff time, including technical assistance from State Floodplain Manager; Ulster County Emergency Management – outreach materials and technical analysis. When culverts are right-sized there is often potential to provide enhanced habitat connectivity, which is incentive by the Estuary Program. |
| **Identify properties for buyout program and add these to the Hazard Mitigation Plan** | Removing properties from the floodplain is the best way to reduce risk. Structures are only eligible for FEMA grant funding if they have been identified in the HMP | 1-3 years | Floodplain Manager(s) | Planning, County Planning | FEMA grants, NY Rising funds, staff time |
| **Provide recommendations for repetitive loss properties** | Promote risk reduction activities and reduce repetitive loss facilities, explore potential for appropriate adaptive reuse | 1-2 years | Floodplain Manager(s) | NY Dept. of Environmental Conservation – Floodplain Manager, County Planning, EPC, ECB | Staff time |
| **Provide flood preparedness solutions for vocational facility in floodplain including plan for evacuation and integrate into community outreach** | Have a plan for and protect a vulnerable population | 1-2 years | Emergency Planning Committee | Fire, Police, Schools, County Emergency Management, Citizen Corps | Staff time, evacuation plan preparation |

# APPENDIX

The self-assessment completed by the community and the workshop presentations are attached within a separate appendix document.

## Additional Resources

U.S. EPA Building Blocks for Sustainable Communities: www.epa.gov/dced/buildingblocks.htm

U.S. EPA's Flood Resilience for Riverine and Coastal Communities tool helps communities adapt to climate change and plan for disaster resilience by auditing local plans, policies, and development regulations. For more information on flood resilience, visit: www2.epa.gov/smartgrowth/flood-resilience-checklist

U.S. EPA's Water Quality Scorecard: Incorporating Green Infrastructure Practices at the Municipal, Neighborhood, and Site Scale: http://www.epa.gov/smartgrowth/water-quality-scorecard-incorporating-green-infrastructure-practices-municipal

National Flood Insurance Program, Community Rating System: www.fema.gov/national-flood-insurance-program-community-rating-system

Community Rating System Frequently Asked Questions: www.floodsmart.gov/floodsmart/pages/crs/community_rating_system.jsp

Pre-Disaster Mitigation Grant Program: www.fema.gov/pre-disaster-mitigation-grant-program

Hazard Mitigation Grant Program: www.fema.gov/hazard-mitigation-grant-program

Flood Mitigation Assistance Grant Program: fema.gov/flood-mitigation-assistance-grant-program

NOAA Resilience Grant Program: coast.noaa.gov/resilience-grant/

Community Supported Financing for Resiliency (Stormwater Utility for Maryland's Eastern Shore): www.nationaladaptationforum.org/sites/default/files/presentation_documents/Co-submitter%20%234%20presentation%2B%2B%2B%2BHTNH5RS2XSK.pdf

NOAA Digital Coast: coast.noaa.gov/digitalcoast/?redirect=301ocm

EPA Green Infrastructure: water.epa.gov/infrastructure/greeninfrastructure/index.cfm

Hazard Mitigation Plan Technical Assistance: www.fema.gov/media-library/assets/documents/4241

Mitigation Planning and Plan Integration: www.fema.gov/media-library/assets/documents/31598

Integrating Hazard Mitigation into Comprehensive Plan: www.planning.org/pas/quicknotes/pdf/QN32.pdf

New York State Department of Environmental Control (DEC) grant opportunities: www.dec.ny.gov/pubs/grants.html

New York State Green Innovation Grant Program: www.efc.ny.gov/Default.aspx?tabid=461

New York State Dept. of State DOS Geographic Information Gateway -- opdgig.dos.ny.gov/#/home

National Endowment for the Arts (NEA) grants: arts.gov/grants-organizations/our-town/introduction

## Community Meeting & Workshop Attendees

*(Workshop Attendees Noted with *)*

| Name | Affiliation |
|---|---|
| David Gilmour, AICP* | Municipal Planner for the Village of New Paltz |
| Bryant Arms* | Building Inspector/ Code Enforcement Officer for Village |
| Rabi Kieber* | USEPA, Region 2 |
| Bill Bohn* | Project Consultant to USEPA - Tetra Tech |
| Bobby Taylor* | Project Consultant to USEPA - Tetra Tech |
| Tim Rogers* | Mayor for the Village of New Paltz |
| Kathryn Doyle-Bunker* | Clerk for the Village of New Paltz |
| Fran Wishnick* | Resident, New Paltz |
| Marty Irwin* | Councilman for Town of New Paltz |
| Stacey Deliderde* | Building Inspector, Town of New Paltz |
| Guy Kempe* | Village of New Paltz Affordable Housing Chair/ Vice-President of Community Development for RUPCO |
| Neil Bettez | Village of New Paltz Shade Tree Commissioner & WRWA Science Working Group |
| Richard Miller, AIA* | |
| Laura Heady* | Conservation & Land Use Coordinator - Hudson River Estuary Prog./ Cornell Univ. |
| Lisa Mitten* | Campus Sustainability Coordinator, SUNY-NP |
| Aaron Bennett* | Environmental Planner, Ulster County Dept. of Environment |
| Bleu Terwilliger* | Superintendent of Village of New Paltz DPW |
| Nick Coddington* | Foreman for Village of New Paltz DPW |
| Liz Harschow* | Village of New Paltz Planning Board Member |
| Paul Beyer* | NYS Director of Smart Growth Planning, NYS Dept of State |
| Ray Miller | Resident, Village of New Paltz |
| Tom Rocco* | Trustee for the Village of New Paltz |
| Dan Gunther | New Paltz Climate Action |
| Amanda LaValle | Coordinator, Ulster County Department of Environment |
| Rebecca Rotzler* | Deputy Mayor for the Village of New Paltz |
| Jason Rosenburg* | Village of New Paltz Shade Tree Commission |
| Kathleen Bailey* | Regional Coordinator (& Proj Manager) USEPA Office of Sustainable Communities |
| Andrea Frank-Adler | Asst. Professor SUNY New Paltz & Feed back Lab |
| Joe Bergstein* | Town of New Paltz Environmental Conservation Board Member and EPA Region 2 |
| Dan Torres | Councilman for Town of New Paltz |
| Joe Miller | New Paltz Fire Co. President & Member of Village Ulster Co. NYRCR Planning Comm |
| Charlotte Moss | Town & Country Condos |
| Tom Nyquist | Nyquist Foundation/ former Village Mayor |
| Rob Ferri* | USEPA R2 |
| Bear Miller | |
| Paul Rilard | |
| Arzu Yontar | |
| Robert Gabrielli | |
| Caroline Paulson | |
| Jillian Duffield* | Town & Country Condos |
| Olivia Rivera | |

## Materials from New Paltz Technical Workshop


**FLOOD HAZARD MAP FOR NEW PALTZ (CREDIT: TETRA TECH)**