Flood Mitigation in the NYC West-of-Hudson Watershed

A guide to Programs, Agencies and Funding Sources
for Municipalities and Property Owners

In recent years, multiple flood events in the New York City Watershed West of the Hudson River have prompted emergency response programs to repair roads and other infrastructure, remove stream debris and assist homeowners and businesses in the weeks and months immediately following a natural disaster.

These programs have been funded by the Federal Emergency Management Agency (FEMA), the Natural Resources Conservation Service (NRCS), the NYS Emergency Management Office (SEMO), the NYC Department of Environmental Protection (DEP) and the Catskill Watershed Corporation (CWC). With this support, municipal public works departments, county planning offices, Soil & Water Conservation Districts, Cornell Cooperative Extension offices and other agencies and non-profit organizations have helped Catskill Region communities recover from disastrous flooding.

Communities have typically gone first to FEMA for help in dealing with such disasters. Its Public Assistance Program (PAP) funds immediate needs. Its Hazard Mitigation Program (HMP) funds infrastructure protection, structural elevation and buyouts for properties seriously and repeatedly affected by flooding as a way to reduce the likelihood of future damage and loss of life. Its Pre-Disaster Mitigation Program (PDM) funds targeted projects identified as more permanent fixes to flooding hazards (although this program has not been funded in recent years.)

Communities have also utilized the NRCS Emergency Watershed Protection Program (EWP) that provides funding for post flood projects that relieve imminent hazards to public safety and property. Projects include debris removal from stream channels, culverts, and bridges; stream bank stabilization; and repairing damaged drainage infrastructure.

In response to well documented needs in the NYC Watershed, and a general recognition that the next big flood is a matter of 'when, not if,' several new initiatives have been developed which, taken together, will address future flood hazards and improve community resilience, especially important in a changing climate.

These programs include:

1. **Local Flood Analysis Program** (LFA) run by the NYC DEP Stream Management Program (SMP) to objectively assess flood hazard threats and to identify priority projects that can be advanced by communities to reduce flood risks
2. **Stream Management Implementation Program (SMIP)** run by the NYC DEP to help pay for stream and floodplain projects identified in LFAs or by Stream Management Plans
3. **Local Flood Hazard Mitigation Implementation Program** (LFHMIP) run by the Catskill Watershed Corporation (CWC) to assist communities in implementing projects

identified in LFAs; help relocate structures purchased in City-funded buyouts, and to remove stream debris after a storm

4. **City-funded Flood Buyout Program** (FBO) which is designed to substantially supplement FEMA's flood buy-out program by addressing at-risk properties before the next flood, either individually or as recommended by an LFA;
5. **New York Rising Community Reconstruction Program**, a state-funded and coordinated program to assist certain flood-damaged population centers in studying flood causes and mitigation measures, and identifying actions to strengthen their economies.
6. **Sustainable Communities Planning Program,** a CWC grant program to help municipalities update local land use laws and comprehensive plans to locate areas suitable for relocating structures acquired through FEMA or NYC buyout programs

1. Local Flood Analysis (NYC funded: $1,090,000)

LFAs are engineering studies to identify options for effectively reducing flood risk. These studies are proposed or are in varying stages of completion in the following hamlets:

- Prattsville
- Lexington and Westkill in the Town of Lexington
- Windham, Hensonville and Maplecrest in the Town of Windham
- Village of Walton in Town of Walton
- Fleischmanns and Clovesville in the Town of Middletown
- Phoenicia and Mt. Tremper in the Town of Shandaken
- Boiceville and West Shokan in the Town of Olive, and
- Claryville in the Towns of Denning and Neversink
- Village of Delhi, and Frasers in Town of Delhi
- Arkville, Town of Middletown
- Andes, Town of Andes
- Hamden, Delancey, Town of Hamden
- Grahamsville, Town of Neversink (pending)
- Sundown, Town of Denning (pending)

LFAs are prepared by consultants selected by the municipalities and paid through the NYC DEP Stream Management Program. Utilizing topographic data, precipitation and runoff statistics, and other measures, hydraulic models are developed showing relative impacts of various mitigation scenarios. Projects are recommended based on cost-benefit calculations, anticipated water quality benefits, feasibility and other considerations. Municipalities review and adopt the Flood Hazard Mitigation Plans put forward by their local commissions, and choose which, if any, recommendations to pursue.

2. Stream Management Implementation Program (NYC funded: $10.1 Million)

SMIP is a funding program to which LFA communities (#1 above), and those participating in the New York Rising Community Reconstruction Program (#5 below) may apply to implement one or more recommendations contained in their Flood Hazard Mitigation Plan and approved by the municipal board. All projects must have modeled off-site flood reduction benefits. Eligible projects include:

- Design/construction of flood plain restoration and reconnection
- Design/construction of naturally stable stream channel dimensions and sediment transport processes
- Design/construction of public infrastructure to reduce water velocity, flowpath and/or elevation
- Correction of hydraulic constrictions

Ineligible projects include construction of flood walls, berms or levees; stream dredging; routine annual maintenance; or replacement of privately owned bridges, culverts or roads.

Municipalities must apply to the Stream Management Program in their respective county:

Schoharie Basin (Greene County) – Abbe Martin Abbe@gcswcd.com
Ashokan Basin (Ulster County) – Leslie A. Zucker laz5@cornell.edu
Delaware Basin (Delaware County) – Graydon Dutcher graydon-dutcher@dcswcd.org
Neversink/Rondout Basins – Karen Rauter krauter@rondoutneversink.org

3. Local Flood Hazard Mitigation Implementation Program (NYC funded: $17 million)

This is a grant program run by the Catskill Watershed Corporation (CWC) to fund projects to prevent and mitigate flood damage in the WOH Watershed, specifically to remedy situations where an imminent and substantial danger to persons or properties exists; or to improve community-scale flood resilience while providing a water quality benefit.

Municipalities and individual property owners may apply directly to the CWC.

Municipalities may apply for grants for projects identified in an LFA developed either through the City's Stream Management Program (#1 above), or through the New York Rising program (#5 below). Eligible LFA-derived projects could include:

- Alterations to public infrastructure that is expected to reduce/minimize flood damage
- Private property protection measures that have an offsite flood elevation benefit (e.g. venting of a building)
- Elimination of sources of manmade pollution (e.g. relocation or securing of fuel oil tank)
- Stream related construction work that provides off-site flood elevation benefit. Ineligible projects include construction of flood walls, berms or levees, stream dredging or annual maintenance
- relocation assistance for residence or business recommended by an LFA to a location within the same town

Property owners may apply for the following assistance:

- funds for relocation assistance for an anchor business or critical community facility. Anchor businesses must be located in a Floodplain in a Watershed hamlet where an LFA has been conducted, though their relocation does NOT have to be recommended in the LFA. They include gas stations, grocery stores, lumber yard/hardware stores, medical offices or pharmacies which, if damaged or destroyed would immediately impair the health and/or safety of a community.

- relocation of critical community facilities, such as a firehouse, school, town hall, public drinking water treatment or distribution facility, or wastewater treatment plant or collection system, which if destroyed or damaged would impair the health and/or safety of a community. Facilities must have been damaged by flooding at least three times in the past 20 years. <u>They do NOT have to be recommended by an LFA but MUST be located in an LFA community:</u>

- funds for assistance to relocate homes and/or businesses within the same town where the NYC DEP Flood Buyout Program covers purchase of former property. (Does NOT have to be in an LFA community).
- stream debris removal after a serious flood event (does NOT have to be recommended in an LFA)

4. <u>NYCDEP Flood Buyout Program (NYC funded; $15 million)</u>

This voluntary program is intended to assist property owners who were not eligible for or chose not to participate in the FEMA flood buyout program. It is intended to operate between flood events, not as an immediate response to one. Perameters of this program are still being finalized but are expected to include:

- properties identified in community LFAs
- anchor businesses, key community facilities and LFA-identified properties applying to the CWC for relocation assistance
- private properties, anywhere in the Watershed, where homes or businesses are under imminent threat of damage by inundation, erosion or slope failure, or are needed for stream or floodplain restoration work. Risk assessments and cost-benefit analysis are required for these purchases.

Municipalities may choose to own and manage the properties after they are purchased and cleared of structures. Conservation easements must be given to NYS Department of Environmental Conservation, and there are limits to what may be placed on these parcels. Allowed structures are public restrooms served by public sewers or by septic systems whose leach field is located outside the 100-year floodplain; or open sided structures.

5. <u>New York Rising Reconstruction Program (NYS Dept. of State)</u>

This is a planning and implementation process established to provide rebuilding and resiliency assistance to specified communities severely damaged by Hurricane Irene, Tropical Storm Lee, and Superstorm Sandy. Funds for this program were allocated from the federal Housing & Urban Development Disaster Recovery Program.

The following Watershed communities are participating in this program, which assigned planning and engineering consultants to work with local committees in developing recovery plans:

- Town of Prattsville
- Town of Shandaken
- Town of Hardenburgh
- Village of Margaretville

- Ulster County communities including the Watershed Towns of Wawarsing, Rochester, Woodstock, and Olive
- Town of Windham

These municipalities are eligible to seek funds from the Stream Management Implementation Program (#2) or the Local Flood Hazard Mitigation Implementation Program (#3), if implementation funding provided by the state is insufficient to complete a mitigation project identified in a community's recovery plan, provided the plan meets the definition of an LFA. These municipalities may also apply to the Stream Management Program for funds for any additional analysis required to meet the definition of an LFA.

6. Sustainable Community Planning Program (CWC; $150,000)

This program is for municipalities that have prepared LFAs (#1). It is intended to fund revisions to local zoning codes or zoning maps or to upgrade comprehensive plans in order to identify areas within those municipalities that can serve as new locations for residences and/or businesses to be moved after purchase under the voluntary NYC Flood Buyout Program (#4).

Grants of up to $20,000 are available through this program, part of the CWC's Local Technical Assistance Program.