



SECTION 6. MITIGATION STRATEGIES

This section presents mitigation strategies for Putnam County to reduce potential exposure and losses identified as concerns in the Risk Assessment portion of this plan. The Steering Committee reviewed the Risk Assessment to identify and develop these mitigation actions, which are presented herein.

This section includes:

1. Background and Past Mitigation Accomplishments
2. General Mitigation Planning Approach
3. Review and Update of Mitigation Goals and Objectives
4. Capability Assessment
5. Mitigation Strategy Development and Update

Hazard mitigation reduces the potential impacts of, and costs associated with, emergency and disaster-related events. Mitigation actions address a range of impacts, including impacts on the population, property, the economy, and the environment.

Mitigation actions can include activities such as: revisions to land-use planning, training and education, and structural and nonstructural safety measures.

6.1 BACKGROUND AND PAST MITIGATION ACCOMPLISHMENTS

In accordance with the requirements of the Disaster Mitigation Act of 2000, detailed on Page 1-1 in Section 1 (Introduction), a discussion regarding past mitigation activities and an overview of past efforts is provided as a foundation for understanding the mitigation goals, objectives, and activities outlined in this plan update. Putnam County, through previous and ongoing hazard mitigation activities, has demonstrated that it is proactive in protecting its physical assets and citizens against losses from natural hazards. Examples of previous and ongoing actions and projects include the following:

- All municipalities participating in this Plan participate in the NFIP, which requires the adoption of FEMA floodplain mapping and certain minimum construction standards for building within the floodplain.
- The County has been incorporating stormwater management into its infrastructure and building improvement projects, where applicable, including practices to detain and absorb stormwater runoff. It also has partnered with other governmental entities to leverage its efforts, largely through grants, to install stormwater practices at other county and municipal facilities. Examples include:
 - Rehabilitation of the Putnam County Golf Course, including a stormwater detention basin and a newly paved parking lot designed to include a subsurface infiltration system and drainage infrastructure which ensured the removal of a significant amount of phosphorus and other pollutants.
 - Renovation project at Tilly Foster Farm which included dredging of its pond and dam repair to ensure long-term, proper and adequate stormwater management on the site.
- Various studies have been conducted by Federal, State, County and local agencies/entities to examine natural hazards affecting Putnam County, and have been reviewed and incorporated into this plan as appropriate.
- Many municipalities in Putnam County have adopted regulatory standards regarding land-use and zoning that exceed minimum requirements and provide the communities with greater capability to manage development without increasing hazard risk and vulnerability. Examples of these standards are presented in the Capability Assessment subsection later in this section.
- The County and municipalities have actively participated in available mitigation grant funding opportunities to implement mitigation projects, including the ongoing New York Rising Hazard Mitigation Grant Program.



- The County and municipalities have implemented mitigation actions to protect critical facilities and infrastructure throughout the planning area.
- The Town of Carmel has floodproofed electrical components for various Town-owned critical facilities in the Special Flood Hazard Area and installed emergency power gensets for sewer districts. The Town also upgraded a diesel fuel tank to service vehicles during hazard events and power outages.
- The Town of Patterson initiated 24-7 Town-owned and operated BLS ambulance service to address shortage of EMT's serving volunteer Fire Departments.
- The Town of Southeast pursued and completed an inter-municipal agreement to improve communications, shared services, and sheltering with the school district.
- In the Village of Brewster, a \$10.4 million project to replace the Carmel Avenue bridge was completed in 2020. The project was mired for years in legal complications and hindered access to and from the Village.

6.2 GENERAL MITIGATION PLANNING APPROACH

The overall approach used to update the county and local hazard mitigation strategies are based on FEMA and NYS regulations and guidance regarding local mitigation plan development, including the following:

- DMA 2000 regulations, specifically 44 CFR 201.6 (local mitigation planning).
- FEMA *Local Mitigation Planning Handbook*, March 2013.
- FEMA *Local Mitigation Plan Review Guide*, October 1, 2011.
- FEMA *Integrating Hazard Mitigation into Local Planning*, March 1, 2013.
- FEMA *Plan Integration: Linking Local Planning Efforts*, July 2015.
- FEMA *Mitigation Planning How-To Guide #3, Identifying Mitigation Actions and Implementing Strategies* (FEMA 386-3), DATE.
- FEMA *Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards*, January 2013.
- NYS DHSES *New York State Hazard Mitigation Planning Standards*, 2017.
- NYS DHSES *New York State Hazard Mitigation Planning Standards Guide*, 2017.

The mitigation strategy update approach includes the following steps that are further detailed in later subsections:

- Section 6.3 - review and update mitigation goals and objectives.
- Section 6.4 - identify mitigation capabilities and evaluate their capacity and effectiveness to mitigate and manage hazard risk.
- Section 6.5 - prepare an implementation strategy, including:
 - Identify progress on previous county and local mitigation strategies.
 - Develop updated county and local mitigation strategies.
 - Prioritize projects and initiatives in the updated mitigation strategy.



6.3 REVIEW AND UPDATE OF MITIGATION GOALS AND OBJECTIVES

This section documents the county’s efforts to develop hazard mitigation goals and objectives that are established to reduce or avoid long-term vulnerabilities to the identified hazards.

FEMA defines **Goals** as general guidelines that explain what should be achieved. Goals are usually broad, long-term, policy statements, and represent a global vision.

FEMA defines **Objectives** as strategies or implementation steps to attain mitigation goals. Unlike goals, objectives are specific and measurable, where feasible.

FEMA defines **Mitigation Actions** as specific actions that help to achieve the mitigation goals and objectives.

6.3.1 Mission Statement

Per FEMA guidance (386-1), a mission statement or guiding principle describes the overall duty and purpose of the planning process and serves to identify the principle message of the plan. It focuses or constrains the range of goals and objectives identified. This is not a goal because it does not describe outcomes, rather it is broad in scope, and provides a direction for the HMP update.

As part the of the 2021 HMP update process, the Putnam County Steering Committee developed the following mission statement:

The mission of the Putnam County Hazard Mitigation Plan is to protect life safety, property, the environment, and the economy by reducing impacts and interruptions caused by natural hazards to ensure a more resilient County.

6.3.2 Goals and Objectives

According to CFR 201.6(c)(3)(i): “The hazard mitigation strategy shall include a description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.” The mitigation goals were developed based on the risk assessment results, discussions, research, and input from the committee, existing authorities, polices, programs, resources, stakeholders, and the public.

For the purposes of this plan, goals and objectives are defined as follows:

Goals are general guidelines that explain what is to be achieved. They are broad, long-term, policy-type statements that represent global visions. Goals help define the benefits that the plan is trying to achieve. The success of the plan, once implemented, should be measured by the degree to which its goals have been met (that is, by the actual benefits in terms of hazard mitigation).

The Putnam County goals are compatible with the needs and goals expressed in other available community planning documents as well as the NYS HMP. Achievement of these goals helps to define the effectiveness of a mitigation strategy.

Objectives are short-term aims, which when combined form a strategy or course of action to meet a goal. Unlike goals, objectives are a stand-alone measurement of the effectiveness of a mitigation action, rather than as a subset for a goal. The objectives also are used to help establish priorities. During the 2021 plan update process, the Steering Committee reviewed the goals and objectives established in the 2015 HMP in consideration of the hazard events and losses since the 2015 plan, the updated hazard profiles and vulnerability assessment, the goals and objectives established in the New York State 2019 HMP update, and county and local risk management plans. The update incorporates direct input for how the county and municipalities need to move forward to best manage their hazard risk. Amendments include additions and edits to goals and objectives to express the planning partnership’s interests in integrating this plan with other planning mechanisms/programs and to support mitigation through the protection and preservation of natural systems, including particular reference to certain goals and objectives in the New York State 2019 HMP update, as identified in the table below.



As a result of this review process, the Goals and Objectives for the 2020 update were amended, as presented in Table 6-1. *Italicized* text indicates the updates for this plan.

Table 6-1. Putnam County Hazard Mitigation Plan Goals and Objectives

Goals and Objectives	
Goal 1: Protect Life and Property	
Objective 1-1:	Integrate Putnam County’s hazard mitigation framework with federal, state, and local mitigation and planning programs to enhance coordination, cooperation, and resilient outcomes.
Objective 1-2:	Diversify supply and breadth of financial resources and equipment to improve response and ensure resilience during and after disasters.
Objective 1-3:	Protect public and private property, critical facilities, and lifelines.
Objective 1-4:	Proactively identify and address potential hazards such as trees and watercourse obstructions.
Objective 1-5:	Encourage homeowners, renters, and businesses to purchase insurance coverage for damages caused by hazards.
Objective 1-6:	Mitigate impacts of natural hazards to businesses, communities and local economies.
Objective 1-7:	Improve or protect vital infrastructure and critical facilities to reduce the disruption of activities after a natural hazard event.
Goal 2: Increase public awareness, education, and outreach efforts among all stakeholders to foster resiliency, preparedness and mitigation opportunities in the public and private spheres.	
Objective 2-1:	Establish and support training for all stakeholders to enhance preparedness and response for hazards.
Objective 2-2:	Inform government officials, non-profits, and school districts about tools, partnership opportunities, funding resources, and government initiatives to assist in implementing mitigation activities.
Objective 2-3:	Provide comprehensive information online and through media to communicate information about shelters, evacuation routes, and preparedness to the public.
Objective 2-4:	Educate and encourage private property owners to take preventive mitigation actions in areas that are especially vulnerable to hazards.
Goal 3: Protect natural systems and encourage the use to mitigation natural hazards.	
Objective 3-1:	Encourage the development and implementation of long-term, cost effective, and resilient mitigation projects to protect life and property and to preserve or restore the functions of natural systems.
Objective 3-2:	Use natural infrastructure, ecosystems, and green infrastructure to reduce vulnerability and enhance the environment.
Objective 3-3:	Decrease the potential local economic loss and maintain local and government business continuity after a natural hazard event.
Objective 3-4:	Identify technological solutions that may help to improve the resiliency and redundancy of infrastructure and enhance the County’s ability to inform the public during a disaster.
Goal 4: Enhance or develop programs to build regional, county and local mitigation and related emergency management capabilities.	
Objective 4-1:	Fully integrate the recommendations of this plan into existing local and county laws, plans, ordinances, natural resource management activities and programs to encourage resilient and sustainable efforts throughout the county.
Objective 4-2:	Establish a Local Emergency Planning Committee to coordinate and plan emergency response.
Objective 4-3:	Examine and modify building codes, zoning regulations, and other practices that account for hazardous conditions and proactively reduce damage.
Objective 4-4:	Secure hazard mitigation financial assistance for facilities and structures in the County from state, federal, and non-profit sources.
Objective 4-5:	Support comprehensive county and local mitigation through the integration of hazard mitigation planning into related county and local plans and programs.
Objective 4-6:	Strengthen inter-jurisdiction and inter-agency communication, coordination, and partnerships to inform agencies of local project priorities and to foster hazard mitigation strategies and/or projects designed to benefit multiple jurisdictions.
Objective 4-7:	Secure sufficient equipment and supplies to improve response to natural disasters.
Objective 4-8:	Identify and implement ways to engage public agencies with individual citizens, non-profit organizations, business, and industry to implement mitigation activities more effectively.
Objective 4-9:	Encourage shared services in acquiring maintaining and providing emergency services and equipment and planning and executing mitigation projects.



Goals and Objectives	
Goal 5: Promote resilient and sustainable land development practices to improve the ability to recover and bounce back faster from impacts of natural hazard events.	
Objective 5-1:	Develop and maintain adequate services and utilities to serve the County’s population and economy.
Objective 5-2:	Develop business and government continuity plans to decrease potential local economic losses.
Objective 5-3:	Reduce or eliminate hazard risks throughout the county.
Objective 5-4:	Encourage building and rebuilding practices that address resiliency through higher standards and sustainable design to resist impacts of natural hazards and to reinvest in existing infrastructure rather than expanding the urbanized area.

6.4 CAPABILITY ASSESSMENT

During the original planning process, the county and participating jurisdictions identified and assessed their capabilities in the areas of existing programs, policies, and technical documents. By completing this assessment, each jurisdiction learned how or whether they would be able to implement certain mitigation actions by determining the following:

A capability assessment is an inventory of a community’s missions, programs, and policies and an analysis of its capacity to carry them out. This assessment is an integral part of the planning process. The assessment process enables identification, review, and analysis of current local and state programs, policies, regulations, funding, and practices that could either facilitate or hinder mitigation. FEMA’s *Mitigation Planning How-To Guide #3*

- Limitations that could exist on undertaking actions.
- The range of local and state administrative, programmatic, regulatory, financial, and technical resources available to assist in implementing their mitigation actions.
- Actions deemed infeasible, as they are currently outside the scope of capabilities.
- Types of mitigation actions that could be technically, legally (regulatory), administratively, politically, or fiscally challenging or infeasible.
- Opportunities to enhance local capabilities to support long term mitigation and risk reduction.

During the 2021 plan update process, all participating jurisdictions were tasked with developing or updating their capability assessment, paying particular attention to evaluating the effectiveness of these capabilities in supporting hazard mitigation, and identifying opportunities to enhance local capabilities.

County and municipal capabilities in the Planning and Regulatory, Administrative and Technical, and Fiscal arenas can be found in the Capability Assessment section of each jurisdictional annex in Section 9 (Jurisdictional Annexes). Within each annex, participating jurisdictions identified integration of hazard risk management into their existing planning, regulatory, and operational/administrative framework (“integration capabilities”) and intended integration promotion (*integration actions*). A list of planning documents reviewed for integration is included in Appendix G. A further summary of these continued efforts to develop and promote a comprehensive and holistic approach to hazard risk management and mitigation is presented in Section 7 (Plan Maintenance).

A summary of the various federal, state, county, and local planning and regulatory, administrative and technical, and fiscal programs available to promote and support mitigation and risk reduction in Putnam County are presented below.



6.4.1 Planning and Regulatory Capabilities - County and Local

Municipal Land Use Planning and Regulatory Authority

The county and municipalities have various land use planning mechanisms that can be leveraged to mitigate flooding and support natural hazard risk reduction. Specific county and local planning and regulatory capabilities are identified in their jurisdictional annexes in Section 9 (Jurisdictional Annexes). These include but are not limited to: comprehensive plans, flood damage prevention ordinances, local codes and regulations, stormwater regulations, and municipal level plans. A list of plans review is provided in Section 3 (Planning Process) and summarized in **Appendix J** (Plan Review Matrix).

Putnam County Department of Planning, Development and Public Transportation provides technical assistance to the municipalities on matters of planning and zoning, including training seminars, referral and database management for the New York State Data Center, and disseminating demographic information from the U.S. Census.

Section 239 of New York State General Municipal Law requires the referral of certain local planning actions to the county Planning Department for the examination of possible inter-municipal impacts. The Putnam County Planning Department operates under New York State General Municipal Law §239 l, m, and n to advise local boards on the potential intermunicipal or countywide impact of local land use decisions. The Department performs land use case reviews and approval authority and performs State Environmental Quality Review Act (SEQR) reviews.

The municipalities of Putnam County have recently undertaken planning efforts:

- The Village of Brewster completed an Urban Renewal Plan, Comprehensive Plan Update, and revised zoning code in 2015.
- The Town of Southeast adopted a Comprehensive Plan in 2014.
- In 2018, Carmel embarked on a master plan and zoning revision effort.
- Philipstown is undertaking the Philipstown: 2020 and Beyond initiative to update its comprehensive plan.

In addition, the County has completed the following emergency management and planning initiatives:

- The Indian Point Emergency Guide, 2011-2012 Edition.
- The Radiology Emergency Response Plan – Appendix O – Traffic Management Plan and Appendix P - General Population Evacuation, revised July, 2018.
- The County’s Comprehensive Emergency Management Plan was revised as recently as 2/27/2020.
- The County Emergency Preparedness Plan (CEPA) was updated in 2017.
- Stormwater and Land Use Regulation, 2017.
- Flood Preparedness and Response: A Guide for Municipalities, 2014.
- Harmful Algal Bloom Plan, Putnam Lake, 2017 prepared by the State of New York with assistance from the County.
- Regulatory Landscape for Protecting Source Water, Tools for Protection and Contamination Response, December, 2017.
- Hudson Valley Economic Development District Comprehensive Economic Development Strategy Reports 2018 – 2022 and 2019 - 2023.
- Hudson Valley Regional Distress Report, October, 2017.
- Mid-Hudson Regional Sustainability Plan, Final – May, 2013.



Putnam County Department of Planning, Development and Public Transportation

The Planning Department leads or supports the following programs and activities that directly support hazard mitigation within the County:

- Assists the County Executive in executive planning and capital budgeting
- Performs land use case reviews and approval authority
- Performs State Environmental Quality Review Act (SEQR) reviews
- Provides technical assistance to municipalities of the county on matters of planning and zoning, including training seminars, referral and database management for the New York State Data Center, disseminating demographic information on the County from the US Census
- Delivers environmental education and training seminars, research studies of natural resources, and technical assistance to local municipalities and the public
- Secures federal and state grants to help achieve departmental programs and fund new initiatives
- Implements the Watershed Agreement with New York City
- Works in liaison with the Soil and Water Conservation District, which is part of the Planning Department.

Putnam County Soil & Water Conservation District (PCSWCD)

The Soil and Water Conservation District was created in 1967 to develop and carry out a program of soil, water and related natural resource conservation by providing technical assistance and programs to residents, landowners and units of government. Mitigation related services provided include:

- Soil survey interpretation
- Site reviews
- Technical assistance related to erosion and sediment control
- Water management
- Conservation planning
- Agricultural assessments
- Pond site investigations
- Educational information and outreach
- Interpretation and sale of maps, and sale of publications
- Annual Tree Program
- Hudson Valley Regional Envirothon
- MS4 Stormwater Education and Outreach Materials.

Local Waterfront Revitalization Program

The Waterfront Revitalization of Coastal Areas and Inland Waterways Act offers local governments the opportunity to participate in the state's Coastal Management Program (CMP) on a voluntary basis by preparing and adopting a Local Waterfront Revitalization Program (LWRP) and providing more detailed implementation of the state's CMP through use of such existing broad powers as zoning and site plan review (New York State Division of Planning 2020).

When an LWRP is approved by the New York State Secretary of State, state agency actions are required to be consistent with the approved LWRP to the maximum extent practicable. When the federal government concurs with the incorporation of an LWRP into the CMP, federal agency actions must be consistent with the approved



addition to the CMP. Title 19 of NYCRR Part 600, 601, 602, and 603 provide the rules and regulations that implement each of the provisions of the Waterfront Revitalization of Coastal Areas and Inland Waterways Act including but not limited to the required content of an LWRP, the processes of review and approval of an LWRP, and LWRP amendments (New York State Division of Planning 2020).

An LWRP consists of a planning document prepared by a community and the program established to implement the plan. An LWRP could be comprehensive and address all issues that affect a community's entire waterfront, or it might address the most critical issues facing a significant portion of its waterfront. An approved LWRP reflects community consensus and provides a clear direction for appropriate future development. It establishes a long-term partnership among local government, community-based organizations, and the state. Also, funding to advance preparation, refinement, or implementation of LWRP is available under Title 11 of the New York State Environmental Protection Fund LWRP, among other sources (New York State Division of Planning 2020).

Any village, town, or city located along the state's coast or designated inland waterway can prepare a new or amend an existing LWRP. Municipalities are encouraged to address local revitalization issues in a broader context, aligned with regional economic development strategies and regional resource protection and management programs (New York State Division of Planning 2020).

As of the date of this plan update, Cold Spring and Philipstown are the only communities for which the LWRP is applicable. Neither community has an approved Local Waterfront Revitalization Plans. The NY Department of State website (https://www.dos.ny.gov/opd/programs/WFRevitalization/LWRP_status.html) provides a list of all approved LWRPs.

6.4.2 Planning and Regulatory Capabilities – State and Federal

National Flood Insurance Program (NFIP)

The U.S. Congress established the NFIP with the passage of the National Flood Insurance Act of 1968 (FEMA's 2002 National Flood Insurance Program (NFIP): Program Description). The NFIP is a federal program enabling property owners in participating communities to purchase insurance as a protection against flood losses in exchange for state and community floodplain management regulations that reduce future flood damages. Please refer to the Flood Hazard Profile in Section 5.4.5 (Flood) for information on recent legislation related to reforms to the NFIP.

There are three components to the NFIP: flood insurance, floodplain management, and flood hazard mapping. Communities participate in the NFIP by adopting and enforcing floodplain management ordinances to reduce future flood damage. In exchange, the NFIP makes federally backed flood insurance available to homeowners, renters, and business owners in these communities. Community participation in the NFIP is voluntary. Flood insurance is designed to provide an alternative to disaster assistance to reduce the escalating costs of repairing damage to buildings and their contents caused by floods. Flood damage in the United States is reduced by nearly \$1 billion each year through communities implementing sound floodplain management requirements and property owners purchasing flood insurance. Additionally, buildings constructed in compliance with NFIP building standards suffer approximately 80 percent less damage annually than those not built in compliance (FEMA 2008).

Municipal participation in and compliance with the NFIP is supported at the federal level by FEMA Region II and the Insurance Services Organization, at the state-level by the New York State Department of Environmental Conservation (NYSDEC) and New York State Office of Emergency Management (NYS DHSES). Additional information on the NFIP program and its implementation throughout the county can be found in the flood hazard profile in Section 5.4.5 (Flood).



All municipalities in Putnam County actively participate in the NFIP. As of July 2020, there were 302 NFIP policyholders in the County, a decrease from 380 policies held in 2014. Putnam Valley has seen 333 claims, totaling over \$4.7 million for damages to structures and contents. There are 59 NFIP Repetitive Loss (RL) properties in the County. Further details on the County's flood vulnerability may be found in the flood hazard profile in Section 5.4.5 (Flood).

The state and municipalities within the NFIP could adopt higher regulatory standards when implementing the provisions of the NFIP. Specifically identified are the following:

Freeboard: By law, NYS requires Base Flood Elevation plus 2 feet (BFE+2) for all construction. When there is a base flood elevation available, the lowest floor including any basement, must be at or above the base flood elevation (plus two feet beginning in 2007). Elevation could be by means of properly compacted fill, a solid slab foundation, or a *crawl space* foundation, which contains permanent openings to let flood waters in and out. Non-residential structures might be flood proofed in lieu of elevation. Where a local floodplain administrator has information to estimate a base flood elevation, such as historic flood records or a hydraulic study, that elevation must be used. If the development consists of more than 5 acres or more than 50 lots, the permit applicant must develop a base flood elevation and build accordingly (NYSDEC 2018). Communities could go beyond this requirement, providing for additional freeboard. In most New York communities, new structures must have the lowest floor three feet or more above the highest adjacent grade.

Cumulative Substantial Improvements/Damages: The NFIP allows improvements valued at up to 50 percent of the building's pre-improvement value to be permitted without meeting the flood protection requirements. Over the years, a community could issue a succession of permits for different repairs or improvement to the same structures. This can greatly increase the overall flood damage potential for structures within a community. The community might wish to deem *substantial improvement* cumulatively so that once a threshold of improvement within a certain length of time is reached, the structure is considered to be substantially improved and must meet flood protection requirements.

NFIP Community Rating System (CRS)

As an additional component of the NFIP, the Community Rating System (CRS) is a voluntary incentive program that recognizes and encourages community floodplain management activities that exceed the minimum NFIP requirements. As a result, flood insurance premium rates are discounted to reflect the reduced flood risk resulting from the community actions meeting the three goals of the CRS: (1) reduce flood losses, (2) facilitate accurate insurance rating, and (3) promote the awareness of flood insurance (FEMA 2017). Municipalities, and the county as a whole, could expect significant cost savings on premiums if enrolled in the CRS program. As of 2020, there are no communities in the Community Rating System.

U. S. Army Corps of Engineers

Under Section 404(e) of the Clean Water Act, the U.S. Army Corps of Engineers (USACE) can issue general permits to authorize activities that have only minimal individual and cumulative adverse environmental effects. A nationwide permit (NWP) is a general permit that authorizes activities across the country, unless a district or division commander revokes the nationwide permit in a state or other geographic region. There are 54 nationwide permits, and they authorize a wide variety of activities, including: linear transportation projects, bank stabilization activities, residential development, commercial and industrial developments, aids to navigation and certain maintenance activities (USACE 2020). Details on each NWP can be found here: <https://www.nan.usace.army.mil/Missions/Regulatory/Regional-General-Permits/>



There are three types of USACE permits: standard, nationwide (described above), and regional. Standard permits are individual permits that involve full public interest review of an individual permit application and includes the issuance of a public notice for any project that does not meet the terms and conditions of an NWP or a Letter of Permission (LOP). Regional general permits are for small, specialized projects. In New York State, there are six regional general permit categories (see <https://www.lrb.usace.army.mil/Missions/Regulatory/New-York-Permit-Information/>).

New York State Floodplain Management

The following two departments have statutory authorities and programs that affect floodplain management at the local jurisdiction level in New York State: the NYSDEC and the Department of State’s Division of Code Enforcement and Administration (DCEA). DCEA is detailed in Section 6.4.4 (Administrative and Technical Capabilities - State and Federal).

The NYSDEC is charged with conserving, improving, and protecting the state’s natural resources and environment, and preventing, abating, and controlling water, land, and air pollution. Programs that have bearing on floodplain management are managed by the Bureau of Flood Protection and Dam Safety, which cooperates with federal, state, regional, and local partners to protect lives and property from floods, coastal erosion, and dam failures. These objectives are accomplished through floodplain management and both structural and nonstructural means.

The Dam Safety Section is responsible for “reviewing repairs and modifications to dams and assuring [sic] that dam owners operate and maintain dams in a safe condition through inspections, technical reviews, enforcement, and emergency planning.” The Flood Control Projects Section is responsible for reducing flood risk to life and property through construction, operation, and maintenance of flood control facilities.

The Floodplain Management Section is responsible for reducing flood risk to life and property through management of activities, such as development in flood hazard areas, and for reviewing and developing revised flood maps. The section serves as the NFIP State Coordinating Agency and in this capacity, is the liaison between FEMA and New York communities that elect to participate in the NFIP. The section provides a wide range of technical assistance.

6.4.3 Administrative and Technical Capabilities - County and Local

This subsection provides a summary of capabilities to support hazard mitigation for local jurisdictions, some of which who sat on the Steering Committee and others who provide a resource for support and information to communities. Specific local capabilities (e.g. police, fire, EMS, highway and public works departments, etc.) are provided in Section 9 (Jurisdictional Annexes).

Putnam County Bureau of Emergency Services (PCBES)

In addition to providing emergency assistance to residents and visitors of the County, the Putnam County Bureau of Emergency Services (PCBES) maintains a county-wide communications organization and is responsible for the operations & maintenance of the Enhanced 911 system. The Bureau Emergency Management directorate plans for response, remediation / mitigation and recovery from natural and manmade disasters including those resulting from biological, nuclear, incendiary, chemical and explosive causes.

The Bureau manages and administrates a program of quality training for Fire and EMS agencies in accordance with State and Federal guidelines, manages an advanced life support system, maintains a stockpile of emergency Supplies and Equipment as may be required and oversees a variety of special response teams – who are prepared and equipped to respond to any situation of event.



The PCBES – Office of Emergency Management provides the following services:

- Emergency Planning - The OEM plans for all large-scale emergencies within the County, such as snowstorms, floods, hurricanes, tornadoes, hazardous material incidents, radiological and public health emergencies.
- Emergency Operations Center Activation – We are responsible for activation and operation of the County Emergency Operations Center for long-term, large-scale emergencies to manage the emergency through coordination, communication and sharing of resources, all through the National Incident Management System.
- Small Business Administration Disaster Assistance – They document and coordinate this program which assists small businesses after severe damage from flooding, high winds or fire. Small businesses and homeowners may be eligible for low interest, long-term loans from the SBA.
- Presidential Disaster Declaration – The OEM gathers documentation for submission to federal and state governments for monetary disaster relief.
- Emergency Equipment Stockpile - The OEM can access the state’s emergency equipment stockpile during emergency situations, if needed.
- Weather Alerts for Schools and Public Officials – The OEM relays severe weather alerts to Putnam school districts and notifies police, county agencies and local governments during other watches and warnings.
- County Energy Coordinator - They act as County Energy Coordinator during fuel emergencies and applies to the New York Energy Office for emergency fuel allocations.
- Radiological Emergency Response Planning and Exercises - The OEM annually trains over 500 people involved in the Radiological Emergency Response Plan relating to the Indian Point nuclear power plants, and conducts a full-scale exercise of the Plan.
- Putnam Emergency and Amateur Repeater League (PEARL) - The OEM cooperates with PEARL by providing space in its communications building on Mount Nimham for PEARL’s radio equipment and office space for its monthly meetings and training sessions. In return, PEARL participates in the Radio Amateur Civil Emergency Service (RACES) and cooperates during the annual exercises and actual emergencies which occur in Putnam.
- Enhanced 911 Telephone System – The OEM is responsible for the coordination of address changes initiated by towns and villages and which are required for the operation of E-911.

Putnam County Highways and Facilities (PCHF)

The PCHF Department is responsible for the administrative duties to ensure that all highway, facilities and park division’s daily operations are conducted in a responsive and efficient manner. The Department consists of several divisions; those with specific relevance to hazard mitigation are detailed as follows.

Planning & Design (Engineering)

The Division of Planning & Design provides engineering, planning and technical support services for the Department of Highways and Facilities. These services include engineering and architectural design, land surveying, generation of contract and bid documents (including drafting of plans), construction support and inspection, and contract administration. Additional duties of the Division include administering the County’s highway work permit program, pavement and bridge management systems, and traffic count program; maintenance of the Division’s maps, drawings, records and aerial photography; research for Freedom of Information requests and litigation cases; and coordination with the Department’s design consultants.



Fiscal

The Fiscal Division is directly involved with all aspects of Highways & Facilities that relate to funding issues. Annual operating and on-going capital project budgets are prepared. The Highway Department administers all major capital construction projects and most Federal Highway Administration/New York State construction projects on County roads and bridges. The Highway Department also administers many facility construction projects that involve grant reimbursement from various other agencies. These road, bridge and facility construction projects require working along with Law, Audit, Finance, Purchasing and Personnel at the County level and the Department of Transportation & Emergency Management, at the State level. For specific type grants, the Division works with the Governor's Office for Small Cities and the Office of Parks, Recreation & Historic Preservation in Albany and the Office of Housing & Urban Development in Washington, DC.

Road Maintenance & Construction

The Construction and Maintenance Division is comprised of workers ranging from laborers to heavy equipment operators. This Division is responsible for over 200 miles of roads from the Hudson River to the Connecticut border. In conjunction with snow and ice removal, these workers maintain the roadways by installing drainage pipes and basins, repairing guide rail, cutting and trimming roadside vegetation and many other projects.

Putnam County Parks Division

It is the mission of the Putnam County Parks Division to provide safe, passive recreational opportunities to the residents of Putnam County while preserving open space, protecting environmentally sensitive areas, and promoting smart stewardship of County owned lands.

Putnam County Department of Information Technology and GIS

The Putnam County Department of Information Technology is the primary agency for all of county government's technological needs. The GIS (Geographic Information Systems) Unit is responsible for state-of-the-art electronic maps and databases, enhanced 911 data, and many other IT and GIS related support services.

The County maintains Putnam County eParcel which is a web-based GIS program that hosts parcel and property-related information in Putnam County. eParcel allows users to view various map layers including parcels, addresses, soils, and municipal boundaries.

6.4.4 Administrative and Technical Capabilities - State and Federal

New York State Division of Homeland Security and Emergency Services (NYS DHSES)

For more than 50 years, NYS DHSES (formerly New York State Office of Emergency Management) and its predecessor agencies have been responsible for coordinating the activities of all state agencies to protect New York's communities, the state's economic well-being, and the environment from natural and man-made disasters and emergencies. NYS DHSES routinely assists local governments, voluntary organizations, and private industry through a variety of emergency management programs, including hazard identification, loss prevention, planning, training, operational response to emergencies, technical support, and disaster recovery assistance.

NYS DHSES administers the FEMA mitigation grant programs in the state and supports local mitigation planning in addition to developing and routinely updating the State Hazard Mitigation Plan. NYS DHSES prepared the current 2019 State Hazard Mitigation Plan, working with input from other state agencies, authorities and organizations. The plan was approved by FEMA in 2018 and enables New York to remain eligible for recovery assistance in all Public Assistance Categories A through G and Hazard Mitigation assistance in each of



the Unified Hazard Mitigation Assistance Program's five grant programs. For example, the 2008-2011 State Mitigation Plan allowed the state and its communities to access nearly \$57 million in mitigation grants to prepare plans and carry out projects. The 2019 New York State HMP was used as guidance in completing the Putnam County HMP Update. The state HMP can be found here: <https://mitigateny.avilabs.org/>

New York State Department of Environmental Conservation (NYSDEC) – Region 3

Within the NYSDEC – Region 3 southeastern, New York State and includes Dutchess, Orange, Putnam, Rockland, Sullivan, Ulster and Westchester Counties. Each of NYSDEC's nine regions has an office that serves the communities within that region. A total of approximately 3,000 NYSDEC staff work in either the Central Office or the regional offices. NYSDEC's Central Office is in Albany. The Region 3 office is located in New Paltz, NY. NYSDEC staff have two main areas of responsibility: natural resource management and environmental quality protection. As part of natural resource management staff oversee state fish and wildlife resources, as well as state forests.

New York State Department of Environmental Conservation (NYSDEC) – Division of Water - Bureau of Flood Protection and Dam Safety

Within the NYSDEC, the Division of Water's Bureau of Flood Protection and Dam Safety (<http://www.dec.ny.gov/about/61432.html>) cooperates with federal, state, regional, and local partners to protect lives and property from floods, coastal erosion, and dam failures through both structural and non-structural means of floodplain management and provides support for information technology needs in the division. The bureau consists of the following sections:

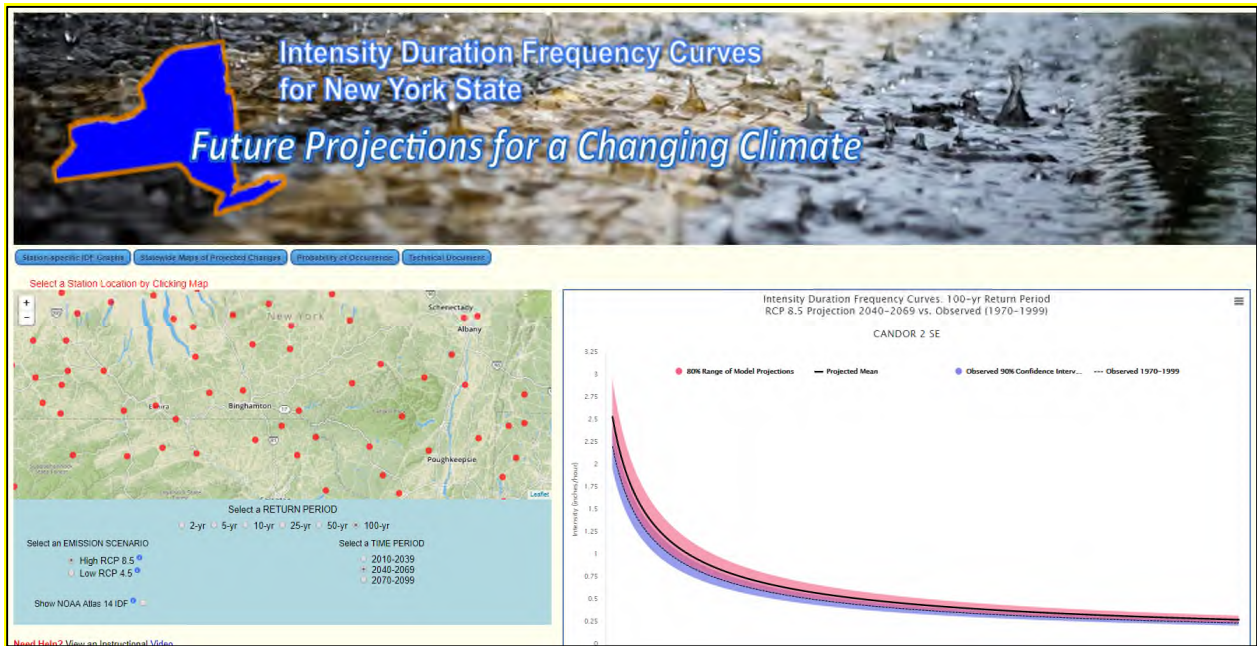
- Coastal Erosion and Floodplain Management Section: The Coastal Erosion branch of this section works to reduce coastal erosion and storm damage to protect lives, natural resources, and properties through structural and non-structural means. The Floodplain Management branch is responsible for reducing flood risk to life and property through proper management of activities including development in flood hazard areas, and review and development of revised flood maps.
- Dam Safety Section: Is responsible for reviewing repairs and modifications to dams and assuring that dam owners operate and maintain dams in a safe condition through inspections, technical reviews, enforcement, and emergency planning.
- Flood Control Projects Section: Is responsible for reducing flood risk to life and property through construction, operation and maintenance of flood control facilities.

Northeast Regional Climate Center

The Northeast Regional Climate Center (NRCC) partnered with the New York State Energy Research and Development Authority (NYSERDA) to compare various methods of downscaling global climate model (GCM) output and create extreme precipitation projections for New York State. These projections will ultimately be incorporated into climate change adaptation planning. Projections for Putnam County are discussed in Section 5 (Risk Assessment). To help New York State communities plan for effects of climate change, new graphics are now available showing the increased likelihood of heavy precipitation events (NRCC 2020). The projections are provided at: <http://www.nrcc.cornell.edu/> Figure 6-1 displays the screenshot of the website.

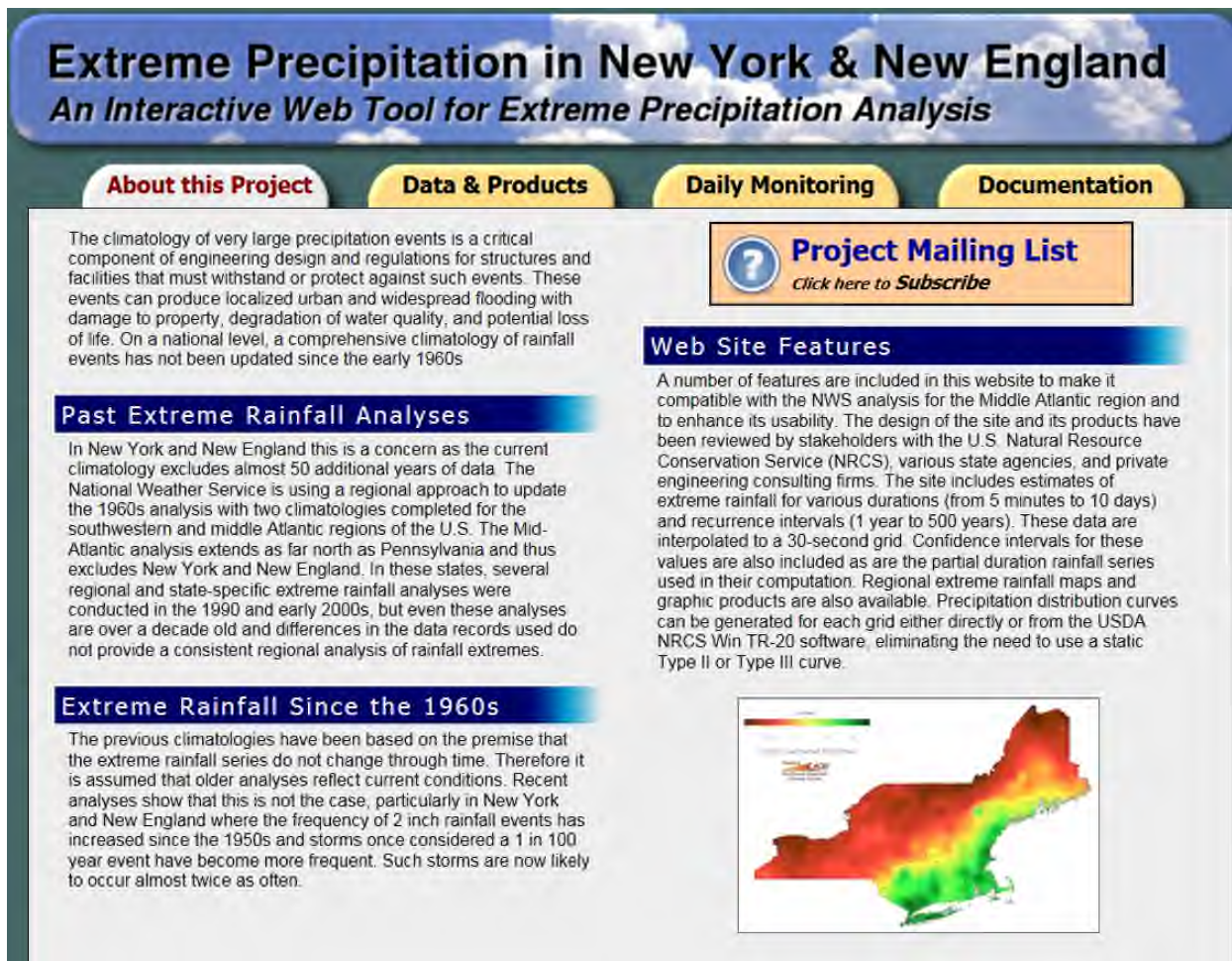


Figure 6-1. Screenshot of the IDF Curves for New York State



NRCC also maintains the Extreme Precipitation in New York & New England website, an interactive tool for extreme precipitation analysis. The site includes estimates of extreme rainfall for various durations (5 minutes to 10 days) and recurrence intervals (1 year to 500 years). These data are interpolated to a 30-second grid. Confidence intervals for these values are included as are the partial duration rainfall series used in their computation. Regional extreme rainfall maps and graphic products are available. Precipitation distribution curves can be generated for each grid either directly or from the USDA NRCS Win TR-20 software, eliminating the need to use a static Type II or Type III curve (NRCC 2018). This tool can be used by municipalities to assist them in the design and feasibility assessment of future projects and allow them to see the future intensity and frequency of rain events. Figure 6-2 shows a screenshot of the website.

Figure 6-2. Screenshot of the Extreme Precipitation in New York & New England website



Department of State's Division of Code Enforcement and Administration (DCEA)

Technical Bulletins for the Codes of New York State

The DCEA publishes technical bulletins for its building codes. TB-1004 came into effect in October 2017 and addressed Flood Venting in Foundations and Enclosures in Flood Areas. The bulletin clarifies definitions and requirements with regard to Residential and Building Construction (19NYCRR 1220 and 1221). Bulletins also address requirements for critical facilities such as fire stations, requirements for fire extinguishers, and other hazards.

Forms and Publications

The DCEA posts several model reporting forms and related publications on its webpage. The Building Permit Application requests the applicant to indicate whether the site is or is not in a floodplain and advises checking with the jurisdiction's clerk or NYSDEC. The General Residential Code Plan Review form includes a reminder to "add 2' freeboard." Sample Flood Hazard Area Review Forms, including plan review checklists and inspection checklists for Zone A and Zone V, are based on the forms in Reducing Flood Losses through the International Code Series published by International Code Council and FEMA (2008).



Hudson Valley Regional Council

The Hudson Valley Regional Council (HVRC) was established in 1977 as an organization of county governments comprising Dutchess, Orange, Putnam, Rockland, Sullivan, Ulster and Westchester counties. It's one of 650 such councils in the United States that in addition to providing a regional perspective, offer planning, education & outreach, and advocacy for the communities they serve.

Currently, HVRC is preparing the new Comprehensive Economic Development Strategy (CEDS) for the region. The annual CEDS report provides a snapshot of the region's economic status and identifies key economic development initiatives. HVRC is partially funded by the US Department of Commerce, Economic Development Administration and through that alliance and the CEDS, HVRC can assist local projects with federal funding opportunities.

The Hudson Valley Regional Council also partners with the NYS Department of Environmental Conservation to provide education and outreach to local municipalities with respect to Water Quality and storm water management. Recent initiatives have included extensive work on Green Infrastructure projects throughout the Hudson River region. Examples of these projects are available on this site.

The Region's most significant asset is water – the seven counties that comprise the Mid-Hudson region supply drinking water to more than 20 million people in the New York metropolitan area, Philadelphia, and Trenton, as well as providing for our own communities.

The watersheds east and west of the Hudson River and the Delaware River Watershed along the Region's western boundary with Pennsylvania are priceless assets for the region.

6.4.5 Fiscal Capabilities – County and Local

Municipal Fiscal Capabilities

Putnam County municipalities fund mitigation projects through existing local budgets, local appropriations (including referendums and bonding), and a variety of federal and state loan and grant programs. Many municipalities noted throughout the planning process that fiscal concerns are a major issue and roadblock to mitigation implementation. In an effort to overcome these fiscal challenges, municipalities and the County continue to leverage the sharing of resources and combining available funding with grants and other sources and note that plans and inter-municipal cooperation are beneficial in obtaining grants. As of the 2018, there are 75 inter-municipal agreements (IMA) between various municipalities and the County. These agreements include:

- Putnam County Joint Emergency Response Tactical Team (Carmel, Kent)
- Putnam County Fire Training Facility (Brewster, Southeast, Carmel, Kent, Mahopac Falls, Patterson, Philipstown, Philipstown North, Highlands, Putnam Lake, Putnam Valley, Somers, Croton Falls, Lake Carmel, Continental Village fire departments)
- Putnam County First Responder Training, Civil Service Provisions, Unified 9-1-1 system, ALS/BLS (all municipalities)
- Putnam County Sheriff Department – Police shared services (Nelsonville, Patterson, Putnam Valley)
- Putnam County Industrial Development Agency – Economic development incentives (all municipalities)
- Putnam County sign making services, specialized equipment sharing, records storage/retrieval (Various municipalities)



6.4.6 Fiscal Capabilities – State and Federal

The 2019 New York State Hazard Mitigation Plan provides information pertaining to the various funding sources available for mitigation projects which can be found at:

<https://mitigateny.availabs.org/strategies/funding>.

As noted on the FEMA hazard mitigation assistance (HMA) website (<https://www.fema.gov/hazard-mitigation-assistance>), FEMA HMA has four grant programs: Hazard Mitigation Grant Program (HMGP), Flood Mitigation Assistance (FMA) Program, HMGP Post Fire Grant, and Building Resilient Infrastructure & Communities (BRIC) (formally PDM).

HMA Grant Programs:

- HMGP assists implementing long-term hazard mitigation planning and projects following a Presidential major disaster declaration.
- FMA provides funds for planning and projects to reduce or eliminate risk of flood damage to buildings that are insured annually under the National Flood Insurance Program.
- HMGP Post Fire Grant provides assistance to help communities implement hazard mitigation

Table 6-2 provides an overview of program funding eligibility and cost share.

Table 6-2. FEMA HMA Grant Cost Share Requirements

Programs	Cost Share (Percent of Federal / Non-Federal Share)
HMGP	75 / 25
FMA – insured properties and planning grants	75 / 25
FMA – repetitive loss property ⁽²⁾	90 / 10
FMA – severe repetitive loss property ⁽²⁾	100 / 0
BRIC	75 / 25
BRIC – subrecipient is small and impoverished community	90 / 10

Source: **FEMA HMA Guidance 2015**; Regulations.gov 2020; FEMA 2020

- (1) Subapplicants should consult their State Hazard Mitigation Officer (SHMO) for the amount of percentage of HMGP subrecipient management cost funding their State has determined to be passed through subrecipients.
- (2) To be eligible for an increased federal cost share, a FEMA-approved state or tribal (standard or enhanced) mitigation plan that addressed repetitive loss properties must be in effect at the time of award, and the property is being submitted for consideration must be a repetitive loss property. The RL or SRL designation is based on the FMA definition for RL or SRL properties.

Federal Hazard Mitigation Funding Opportunities

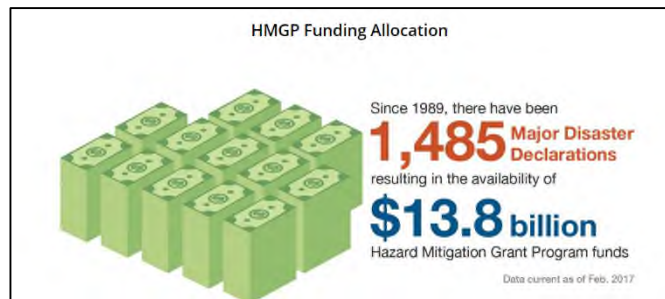
Federal mitigation grant funding is available to all communities with a current HMP (this plan); however most of these grants require a “local share” in the range of 10-25 percent of the total grant amount. Details about grant programs and further descriptions of these opportunities can be found at: <https://www.fema.gov/hazard-mitigation-assistance>. The FEMA mitigation grant programs are described below.



Hazard Mitigation Grant Program (HMGP)

The HMGP is a post-disaster mitigation program. FEMA makes these grants available to states by after each federal disaster declaration. The HMGP can provide up to 75 percent funding for hazard mitigation measures and can be used to fund cost-effective projects that will protect public or private property or that will reduce the likely damage from future disasters in an area covered by a federal disaster declaration. Examples of projects include acquisition and demolition of structures in hazard prone areas, flood-proofing or elevation to reduce future damage, minor structural improvements, and development of state or local standards. Projects must fit into an overall mitigation strategy for the area identified as part of a local planning effort. All applicants must have a FEMA-approved HMP (this plan).

Figure 6-3. FEMA HMGP Funding Allocation



Source: FEMA 2018

Applicants who are eligible for the HMGP are state and local governments, certain nonprofit organizations or institutions that perform essential government services, and Indian tribes and authorized tribal organizations. Individuals or homeowners cannot apply directly for the HMGP; a local government must apply on their behalf. Applications are submitted to NYS DHSES, placed in rank order for available funding, and submitted to FEMA for final approval. Eligible projects not selected for funding are placed in an inactive status and could be considered as additional HMGP funding becomes available. Additional information regarding the HMGP is available on the FEMA website: <https://www.fema.gov/hazard-mitigation-grant-program>.

Figure 6-4. FEMA HMGP Applicant/Subapplicant Process



Source: FEMA 2018

Flood Mitigation Assistance (FMA) Program

The FMA program combines the previous Repetitive Flood Claims and Severe Repetitive Loss Grants into one grant program. The FMA provides funding to assist states and communities in implementing measures to reduce or eliminate the long-term risk of flood damage to buildings, manufactured homes, and other structures insurable under the NFIP. The FMA is funded annually; no federal disaster declaration is required. Only NFIP insured homes and businesses are eligible for mitigation in this program. Funding for FMA is very limited and, as with the HMGP, individuals cannot apply directly for the program. Applications must come from local governments or other eligible organizations. The federal cost share for an FMA project is at least 75 percent. For the non-federal share, at most 25 percent of the total eligible costs must be provided by a non-federal source; of this 25 percent, no more than half can be provided as in-kind contributions from third parties. At minimum, a FEMA-



approved local flood mitigation plan is required before a project can be approved. The FMA funds are distributed from FEMA to the state. The NYS DHSES serves as the grantee and program administrator for the FMA program.

The FMA program is detailed on the FEMA website: <https://www.fema.gov/flood-mitigation-assistance-grant-program>

Building Resilient Infrastructure and Communities

BRIC provides funding to states, local communities, tribes and territories (SLTTs) for pre-disaster mitigation activities. BRIC is replacing the existing Pre-Disaster Mitigation (PDM) program (FEMA 2020). The BRIC priorities include:

- Incentivize public infrastructure projects;
- Incentivize projects that mitigate risk to one or more lifelines;
- Incentivize projects that incorporate nature-based solutions; and,
- Incentivize adoption and enforcement of modern building codes (FEMA 2020).

Like the other HMA grants, a cost share is required for all subapplicants of the BRIC program. The non-federal cost share can include one or a combination of cash, donated or third-party in-kind services, and/or materials. FEMA will provide 100 percent federal funding for management costs (FEMA 2020). The cost share for this program is as follows:

- Generally, the cost share for this program is 75 percent federal/25 percent non-federal.
- Small impoverished communities are eligible for cost share up to 90 percent federal/10 percent non-federal.
- For insular areas, including American Samoa, Guam, the Northern Mariana Islands, and the U.S. Virgin Islands, FEMA waives the non-federal cost share for the recipient when the non-federal cost share for the entire award is under \$200,000. The recipient can request the waiver in its application (FEMA 2020).

Extraordinary Circumstances

For FMA project subawards, the FEMA Region might apply extraordinary circumstances when justification is provided and with concurrence from FEMA Headquarters (Risk Reduction and Risk Analysis Divisions) prior to granting an exception. If this exception is granted, a local mitigation plan must be approved by FEMA within 12 months of the award of the project subaward to that community. Further clarification from FEMA concerning the applicability of extraordinary circumstances with respect to BRIC funding.

For HMGP and FMA, extraordinary circumstances exist when a determination is made by the applicant and FEMA that the proposed project is consistent with the priorities and strategies identified in the State (Standard or Enhanced) Mitigation Plan and that the jurisdiction meets at least one of the criteria below. If the jurisdiction does not meet at least one of these criteria, the region must coordinate with FEMA Headquarters (Risk Reduction and Risk Analysis Divisions) for HMGP; however, for FMA the region must coordinate and seek concurrence prior to granting an exception. The criteria are as follows:

- The jurisdiction meets the small impoverished community criteria (see Part VIII, B.2 of HMA Unified Guidance).
- The jurisdiction has been determined to have had insufficient capacity due to lack of available funding, staffing, or other necessary expertise to satisfy the mitigation planning requirement prior to the current disaster or application deadline.



- The jurisdiction has been determined to have been at low risk from hazards because of low frequency of occurrence or minimal damage from previous occurrences as a result of sparse development.
- The jurisdiction experienced significant disruption from a declared disaster or another event that impacts its ability to complete the mitigation planning process prior to award or final approval of a project award.
- The jurisdiction does not have a mitigation plan for reasons beyond the control of the state, federally-recognized tribe, or local community, such as Disaster Relief Fund restrictions that delay FEMA from granting a subaward prior to the expiration of the local or tribal mitigation plan.

For HMGP and FMA, the applicant must provide written justification that identifies the specific criteria or circumstance listed above, explains why there is no longer an impediment to satisfying the mitigation planning requirement, and identifies the specific actions or circumstances that eliminated the deficiency.

When an HMGP project funding is awarded under extraordinary circumstances, the recipient shall acknowledge in writing to the Regional Administrator that a plan will be completed within 12 months of the subaward. The recipient must provide a work plan for completing the local or tribal mitigation plan, including milestones and a timetable, to ensure that the jurisdiction will complete the plan in the required time. This requirement shall be incorporated into the award (both the planning and project subaward agreements, if a planning subaward is also awarded).

Federal and State Disaster and Recovery Assistance Programs

Following a disaster, various types of assistance could be made available by local, state, and federal governments. The types and levels of disaster assistance depend on the severity of the damage and the declarations that result from the disaster event. The following sections detail the general types of assistance that might be provided should the President of the United States declare the event a major disaster.

Individual Assistance (IA)

Individual Assistance (IA) provides help for homeowners, renters, businesses, and some non-profit entities after disasters occur. This program is largely funded by the U.S. Small Business Administration. For homeowners and renters, those who suffered uninsured or underinsured losses could be eligible for a Home Disaster Loan to repair or replace damaged real estate or personal property. Renters are eligible for loans to cover personal property losses. Individuals are allowed to borrow up to \$200,000 to repair or replace real estate, \$40,000 to cover losses to personal property, and an additional 20 percent for mitigation. For businesses, loans could be made to repair or replace disaster damages to property owned by the business, including real estate, machinery and equipment, inventory, and supplies. Businesses of any size are eligible. Non-profit organizations, such as charities, churches, and private universities are eligible. An Economic Injury Disaster Loan provides necessary working capital until normal operations resume after a physical disaster but are restricted by law to small businesses only. IA is detailed on the FEMA website: <https://www.fema.gov/individual-disaster-assistance>.

Public Assistance (PA)

Public Assistance (PA) provides cost reimbursement aid to local governments (state, county, local, municipal authorities, and school districts) and certain non-profit agencies that were involved in disaster response and recovery programs or that suffered loss or damage to facilities or property used to deliver government-like services. This program is largely funded by FEMA with both local and state matching contributions required. PA is detailed on the FEMA website: <https://www.fema.gov/public-assistance-local-state-tribal-and-non-profit>.



Small-Business Administration (SBA) Loans

SBA provides low-interest disaster loans to homeowners, renters, business of all sizes, and most private nonprofit organizations. SBA disaster loans can be used to repair or replace the following items damaged or destroyed in a declared disaster: real estate, personal property, machinery and equipment, and inventory and business assets.

Homeowners could apply for up to \$200,000 to replace or repair their primary residence. Renters and homeowners could borrow up to \$40,000 to replace or repair personal property-such as clothing, furniture, cars, and appliances that were damaged or destroyed in a disaster. Physical disaster loans of up to \$2 million are available to qualified businesses or most private nonprofit organizations. Additional information regarding SBA loans is available on the SBA website: <https://www.sba.gov/managing-business/running-business/emergency-preparedness/disaster-assistance>.

Social Services Block Grant Program (SSBG)

To address the needs of critical health and human service providers and the populations they serve, the State of New York will receive a total of \$235.4 million in federal Superstorm Sandy SSBG funding. The state will distribute \$200,034,600 through a public and transparent solicitation for proposals and allocate \$35.4 million in State Priority Projects, using the SSBG funding. Sandy SSBG resources are dedicated to covering necessary expenses resulting from Superstorm Sandy, including social, health, and mental health services for individuals, and for repair, renovation, and rebuilding of health care facilities, mental hygiene facilities, child care facilities, and other social services facilities. Additional information regarding the SSBG program is available on the website: <https://www.acf.hhs.gov/ocs/programs/ssbg>.

Department of Homeland Security Grant Program (HSGP)

The HSGP plays an important role in the implementation of the National Preparedness System by supporting the building, sustainment, and delivery of core capabilities essential to achieving the National Preparedness Goal of a secure and resilient nation. The FY 2020 HSGP supports efforts to build and sustain core capabilities across the Prevention, Protection, Mitigation, Response, and Recovery mission areas. This includes two priorities: building and sustaining law enforcement terrorism prevention capabilities and maturation and enhancement of state and major urban area fusion centers (HSGP 2020). HSGP is comprised of three interconnected grant programs including the State Homeland Security Program (SHSP), Urban Areas Security Initiative (UASI), and the Operation Stonegarden (OPSG). Together, these grant programs fund a range of preparedness activities, including planning, organization, equipment purchase, training, exercises, and management and administration. Additional information regarding HSGP is available on the website: <https://www.fema.gov/homeland-security-grant-program>.

Community Development Block Grants (CDBG)

CDBG are federal funds intended to provide low and moderate-income households with viable communities, including decent housing, a suitable living environment, and expanded economic opportunities. Eligible activities include community facilities and improvements, roads and infrastructure, housing rehabilitation and preservation, development activities, public services, economic development, and planning and administration. Public improvements could include flood and drainage improvements. In limited instances and during the times of “urgent need” (e.g., post disaster) as defined by the CDBG National Objectives, CDBG funding could be used to acquire a property located in a floodplain that was severely damaged by a recent flood, demolish a structure severely damaged by an earthquake, or repair a public facility severely damaged by a hazard event. Additional information regarding CDBG is available on the website: <https://www.hudexchange.info/programs/cdbg-entitlement/>.



U.S. Economic Development Administration

The U.S. Economic Development Administration (USEDA) is an agency of the U.S. Department of Commerce that supports regional economic development in communities around the country. It provides funding to support comprehensive planning and makes strategic investments that foster employment creation and attract private investment in economically distressed areas of the United States. Through its Public Works Program, USEDADA invests in key public infrastructure, such as traditional public works projects, including water and sewer systems improvements, expansion of port and harbor facilities, brownfields, multitenant manufacturing and other facilities, business and industrial parks, business incubator facilities, redevelopment technology-based facilities, telecommunications facilities, and development facilities. Through its Economic Adjustment Program, USEDADA administers its Revolving Loan Fund Program, which supplies small businesses and entrepreneurs with the gap financing needed to start or expand their business in areas that have experienced or are under threat of serious structural damage to the underlying economic base. Additional information is available on the USEDADA website: <https://www.eda.gov/>.

Federal Highway Administration - Emergency Relief

The Federal Highway Administration Emergency Relief is a grant program that can be used for repair or reconstruction of Federal-aid highways and roads on Federal lands which have suffered serious damage as a result of a disaster. NYS is serving as the liaison between local municipalities and FHWA. \$30 Million in funding was released in October-November of 2012 for emergency repair work conducted in first 180 days following Hurricane Sandy. Another \$220 Million in additional funding became available February 2013. For information regarding the FHWA Emergency Relief Program, please refer to: <https://www.fhwa.dot.gov/programadmin/erelief.cfm>

Federal Transit Administration - Emergency Relief

The Federal Transit Authority Emergency Relief is a grant program that funds capital projects to protect, repair, reconstruct, or replace equipment and facilities of public transportation systems. Administered by the Federal Transit Authority at the U.S. Department of Transportation and directly allocated to MTA and Port Authority, this transportation-specific fund was created as an alternative to FEMA PA. Currently, a total of \$5.2 Billion has been allocated to NYS-related entities. Additional information regarding the FTA Emergency Relief Program is available on the website: <https://www.transit.dot.gov/funding/grant-programs/emergency-relief-program/emergency-relief-program>.

Empire State Development

Empire State Development offers a wide range of financing, grants, and incentives to promote business and employment growth and real estate development throughout the state. Several programs address infrastructure construction associated with project development, acquisition, and demolition associated with project development and brownfield remediation and redevelopment. Additional information regarding Empire State Development is available on the website: <https://esd.ny.gov/>.

New York State Department of Transportation (NYSDOT)

Scour Critical/Floodprone Bridge Program

The Scour Critical/Flood Prone Bridge Program is an initiative developed to harden New York State's at-risk bridges to withstand extreme weather events. In the past three years, the state has suffered 9 presidentially declared disasters due to extreme weather, many involving severe flooding (NYSDOT 2014).



For this initiative, 105 scour critical/flood prone bridges throughout New York State were identified as most at-risk from repeated flooding and are located in the Capital District, Long Island, Mid-Hudson, Mohawk Valley, North Country, Finger Lakes, Central/Western and Southern Tier regions. The locations encompass 78 communities within 30 counties across the State (NYSDOT 2014). Additional information of the list of bridges is available on the website: https://www.dot.ny.gov/main/business-center/cbow/repository/CBOW_list_2014.pdf.

All the bridges included in this program were built to the codes and standards of their time and remain safe and open for everyday traffic; however, due to a variety of natural severe weather events and the increasing frequency of major storms and floods, they are vulnerable to scour and flooding caused by the intensity and velocity of water from extreme natural events. Bridge scour erodes and carries away foundation materials, such as sand and rocks from around and beneath bridge abutments, piers, foundations, and embankments (NYSDOT 2014).

This program encompasses a variety of bridge improvement work, including upgrading concrete bridge abutments and/or piers by adding steel or concrete pile foundations, increasing the size of waterway openings to meet 100-year flood projections, and reducing or eliminating the number of bridge piers in the water to prevent debris and ice jams that can flood surrounding areas. Completion of the program will ensure continual access to critical facilities and essential personnel during emergency events. Adverse impacts to travel throughout the state will be greatly reduced during severe weather events, as well (NYSDOT 2014).

This program aims to increase the state's resiliency and mitigate the risks of loss and damage associated with future disasters. The total cost of the program, including all 105 bridges across the state, is \$518 million. It will be paid for with a mix of funding from FEMA and the U.S. Department of Housing and Urban Development. No state funding will be required (NYSDOT 2014).

Emergency Watershed Protection Program

The purpose of the Emergency Watershed Protection Program (EWP) was established by Congress to respond to emergencies created by natural disasters. The EWP Program is designed to help people and conserve natural resources by relieving imminent hazards to life and property caused by floods, fires, drought, windstorms, and other natural occurrences. The U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS) administers the EWP Program, EWP-Recovery, and EWP-Floodplain Easement. Additional information regarding the EWP is detailed below and available on the website: <https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/landscape/ewpp/>.

EWP - Recovery

The EWP Program is a recovery effort program aimed at relieving imminent hazards to life and property caused by floods, fires, windstorms, and other natural occurrences. Public and private landowners are eligible for assistance but must be represented by a project sponsor that must be a legal subdivision of the state, such as a city, county, township, or conservation district, and Native American Tribes or Tribal governments. NRCS will pay up to 75 percent of the construction cost of emergency measures. The remaining 25 percent must come from local sources and can be in the form of cash or in-kind services.

EWP work is not limited to any one set of measures. It is designed for installation of recovery measures to safeguard lives and property as a result of a natural disaster. NRCS completes a Damage Survey Report, which provides a case-by-case investigation of the work necessary to repair or protect a site.

Watershed impairments that the EWP Program addresses are debris-clogged stream channels, undermined and unstable streambanks, jeopardized water control structures and public infrastructures, wind-borne debris removal, and damaged upland sites stripped of protective vegetation by fire or drought.



EWP - Floodplain Easement (FPE)

Privately-owned lands or lands owned by local and state governments might be eligible for participation in EWP-FPE. To be eligible, lands must meet one of the following criteria:

- Lands that have been damaged by flooding at least once within the previous calendar year or have been subject to flood damage at least twice within the previous 10 years.
- Other lands within the floodplain are eligible, provided the lands would contribute to the restoration of the flood storage and flow, provide for control of erosion, or that would improve the practical management of the floodplain easement.
- Lands that would be inundated or adversely impacted as a result of a dam breach.

EWP-FPE easements are restored to the extent practicable to the natural environment and can include both structural and nonstructural practices to restore the flood storage and flow, erosion control, and improve the practical management of the easement.

Structures, including buildings, within the floodplain easement must be demolished and removed or relocated outside the 100-year floodplain or dam breach inundation area.

New York State Department of Environmental Conservation Climate Smart Communities (CSC) Program

The CSC program is jointly sponsored by the following six New York State agencies: DEC; Energy Research and Development Authority; Public Service Commission; Department of State; NYSDOT; and the Department of Health. The program encourages municipalities to minimize the risks of climate change and reduce long-term costs through actions which reduce greenhouse gas emissions and adapt to a changing climate. The program offers free technical support on energy and climate and guidance tailored to New York State communities. As of April 2020, more than 303 communities, representing 8.7 million New Yorkers in every region of the state, have committed to acting on climate through New York State's Climate Smart Communities program.

Benefits of participating in the program include saving taxpayer dollars, improving operations and infrastructure, increasing energy independence and security, demonstrating leadership, and positioning for economic growth. Registered Climate Smart Communities receive notification of state and federal assistance that they can leverage to help adopt low-carbon technologies and of programs and support for efficiency improvements and energy conservation. Further, those communities receive an advantage in accessing some state assistance programs, can call on the help of other local governments that already have adopted climate smart practices and policies, and receive statewide recognition for their climate-smart accomplishments. Key elements of the Climate Smart Communities program are described below.

Additional information regarding the CSC program is available on the website: <http://www.dec.ny.gov/energy/50845.html>.

Climate Smart Communities Pledge

Any city, town, village or county in New York can join the program by adopting the Climate Smart Communities Pledge. To become a registered Climate Smart Community, the municipality's governing body must adopt a resolution that includes all ten elements of the pledge and inform DEC of the passage of the resolution. The required ten elements of the pledge are as follows:

- Pledge to be a Climate Smart Community.
- Set goals, inventory emissions, plan for climate action.



- Decrease community energy use.
- Increase community use of renewable energy.
- Realize benefits of recycling and other climate-smart solid waste management practices.
- Reduce greenhouse gas emissions through use of climate-smart land-use tools.
- Enhance community resilience and prepare for the effects of climate change.
- Support development of a green innovation economy.
- Inform and inspire the public.
- Commit to an evolving process of climate action.

At the time of this plan update, the County itself and three communities in Putnam County adopted the Climate Smart Communities Pledge: the Town of Philipstown, the Town of Putnam Valley, and the Town of Kent.

Climate Smart Communities Certification (CSC) Program

The CSC program enables high-performing registered communities to achieve recognition for their leadership. Designed around the existing ten pledge elements, the certification program recognizes communities achieving any on over 102 total possible actions through a rating system leading to four levels of award: Certified, Bronze, Silver, and Gold. Recertification of completed actions is required every five years. Details of the program and the specific documentation required for each action are described in the CSC Certification Manual at <http://www.nyserda.ny.gov/-/media/Files/Programs/Clean-Energy-Communities/CSC-Certification-Manual.pdf>. At the time of this plan update, no communities in Putnam County have achieved certification.

Climate Smart Communities Grant Program

In April 2016, DEC announced an expansion of the Environmental Protection Fund to support communities ready to reduce greenhouse gas emissions and prepare for the effects of climate change. Climate Smart Community Implementation grants support mitigation and adaptation projects and range from \$100,000 to \$2 million. Competitive grants ranging from \$25,000 to \$100,000 will provide support for local governments to become certified Climate Smart Communities. All counties, cities, towns, and villages of the State of New York are eligible to receive funding. The CSC grant program will provide 50/50 matching grants for eligible projects in the following categories.

Funding is available for **implementation projects** that advance a variety of climate adaptation and mitigation actions, including the following:

- Construction of natural resiliency measures.
- Relocation or retrofit of climate-vulnerable facilities.
- Conservation or restoration of riparian areas and tidal marsh migration area.
- Reduction of flood risk.
- Clean transportation.
- Reduction or recycling of food waste.

Funding is available for **certification projects** that advance several specific actions aligned with Climate Smart Communities Certification requirements, including the following:

- Right-sizing of government fleets.
- Developing natural resource inventories.
- Conducting vulnerability assessments.
- Developing climate adaptation strategies.
- Updating hazard mitigation plans to address changing conditions and reduce climate vulnerability.



In scoring grant applications, increasing points are awarded to communities who have already taken the CSC pledge and to those that have achieved certification status. All grant recipients must take the Climate Smart Communities Pledge within the term of their grant contract. For climate mitigation projects, grant recipients must provide a report of estimates of emissions reduction. Certification actions must adhere to the requirements and standards described in the Climate Smart Communities Certification Manual that is available on the website: <http://www.dec.ny.gov/energy/96511.html>. For implementation projects involving property (construction, improvements, restoration, rehabilitation), grant recipients that do not have ownership of the property must obtain a climate change mitigation easement. Applications for the fourth round of funding were due July 26, 2019.

The Climate Smart Communities Toolkit was developed to educate New York communities on recommended practices that will help to reduce greenhouse gas emissions and adapt to the effects of climate change, specifically in the areas of land-use, transportation policy, green buildings, infrastructure investment, green infrastructure, housing policy, adaptation, and resilience. The Climate Smart Communities Guide to Local Action contains overviews of possible community actions, how-to's and case studies to help communities implement the CSC pledge. The Climate Smart Communities Land Use Toolkit allows New York communities to find recommended practices that will help to reduce greenhouse gas emissions in the areas of land use, transportation policy, green building, infrastructure investment, green infrastructure, and housing policy.

New York State Department of Environmental Conservation (NYSDEC)

Water Quality Improvement Project (WQIP) Program

The WQIP program is a competitive, reimbursement grant program that funds projects that directly address documented water quality impairments. The competitive, statewide grant program is open to local governments and not-for-profit corporations. Grant recipients can receive up to 75 percent of the project costs for high priority wastewater treatment improvement, non-agricultural nonpoint source abatement and control, land acquisition for source water protection, aquatic habitat restoration, and municipal separate storm sewer system projects; up to 50 percent for salt storage projects; and up to 40 percent for general wastewater infrastructure improvement projects. Additional information regarding this program are available on the website: <https://www.dec.ny.gov/pubs/4774.html>. Eligible activities for the WQIP Program include the following:

- Wastewater treatment improvement.
- Non-agricultural nonpoint source abatement and control.
- Land acquisition for source water protection.
- Salt storage.
- Aquatic habitat restoration.
- MS4s.

New York State DEC/ Environmental Facilities Corporation (EFC) Wastewater Infrastructure Engineering Planning Grant (EPG)

The DEC, in conjunction with the New York State EFC, offers grants to municipalities to help pay for the initial planning of eligible Clean Water State Revolving Fund (CWSRF) water quality projects.

The Wastewater Infrastructure EPG assists municipalities with the engineering and planning costs of CWSRF-eligible water quality projects. Eligible municipalities have a median household income (MHI) of \$70,000 or less in the Regional Economic Development Council (REDC) regions of Capital District, Southern Tier, North Country, Mohawk Valley, Central NY, Finger Lakes, or Western NY OR an MHI of \$90,000 or less in REDC regions of Long Island, New York City, or Mid-Hudson. Grants with a 20 percent required local match could



finance activities, including engineering and consultant fees for engineering and planning services to produce an engineering report.

The goal of the EPG program is to advance water quality projects to construction, so successful applicants can use the engineering report funded by the grant to seek financing through the CWSRF program, WQIP program, or other funding entities to further pursue the identified solution. Details regarding this program can be found on the website: <https://www.dec.ny.gov/pubs/81196.html>. Funding priorities go to projects that have one of the following qualities:

- Required by an executed Order on Consent.
- Required by a draft or final State Pollutant Discharge Elimination System (SPDES) permit.
- Upgrading or replacing an existing wastewater system.
- Constructing a wastewater treatment and/or collection system for an area with failing onsite septic systems.
- Identified in a Total Maximum Daily Load (TMDL) Implementation Plan.

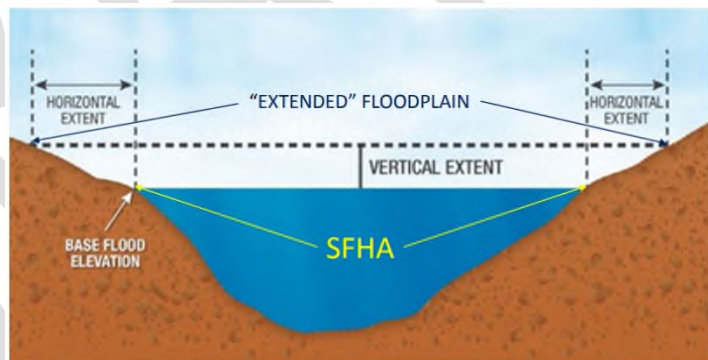
New York State Department of Transportation

BRIDGE NY

The BRIDGE NY program, administered by the NYSDOT, is open to all municipal owners of bridges and culverts. Projects are awarded through a competitive process and support all phases of project development. Projects selected for funding under the BRIDGE NY Initiative are evaluated based on the resiliency of the structure, including such factors as hydraulic vulnerability and structural resiliency; the significance and importance of the bridge, including traffic volumes, detour considerations, number and types of businesses served, and impacts on commerce; and the current bridge and culvert structural conditions. Information regarding the program can be found on the website: <https://www.dot.ny.gov/BRIDGENY>.

Community Risk and Resiliency Act (CRRA)

On September 22, 2014, Governor Andrew Cuomo signed bill A06558/S06617-B, the CRRA. The purpose of the bill is to ensure that certain state monies, facility-siting regulations, and permits include consideration of the effects of climate risk and extreme-weather events. According to NYSDEC (2018), CRRA's five major provisions include the following:



- Official Sea-level Rise Projections—CRRA requires the DEC to adopt science-based sea-level rise projections into regulation.
- Consideration of Sea-Level Rise, Storm Surge and Flooding—CRRA requires applicants for permits or funding in a number of specified programs to demonstrate that future physical climate risk due to sea-level rise, storm surge, and flooding have been considered and that DEC considered incorporating these factors into certain facility-siting regulations.
- Smart Growth Public Infrastructure Policy Act Criteria—CRRA adds mitigation of risk due to sea-level rise, storm surge, and flooding to the list of smart-growth criteria to be considered by state public-infrastructure agencies.



- Guidance on Natural Resiliency Measures—CRRA requires DEC, in consultation with the Department of State, to develop guidance on the use of natural resources and natural processes to enhance community resiliency.
- Model Local Laws Concerning Climate Risk—CRRA requires the Department of State, in cooperation with DEC, to develop model local laws that include consideration of future risk due to sea-level rise, storm surge, and flooding. These model local laws must be based on available data predicting the likelihood of extreme-weather events, including hazard-risk analysis.

CRRA requires NYSDEC, in consultation with the Department of State, to prepare guidance on implementation of the statute. To meet its obligation to develop guidance for the implementation of CRRA, DEC is proposing a new document, State Flood Risk Management Guidance (SFRMG). The SFRMG is intended to inform state agencies as they develop program-specific guidance to require that applicants demonstrate consideration of sea-level rise, storm surge, and flooding, as permitted by program-authorizing statutes and operating regulations. The SFRMG incorporates possible future conditions, including the greater risks of coastal flooding presented by sea-level rise and enhanced storm surge and of inland flooding expected to result from increasingly frequent extreme-precipitation events (NYSDEC 2018). Additional details on the CRRA are provided on the website: <https://www.dec.ny.gov/energy/102559.html>.

6.4.7 Potential Mitigation Funding Sources

While it is important to recognize the mitigation strategies for each jurisdiction to help achieve the mitigation goals and objectives of the (HMP, it is also important to provide sources for funding to implement these strategies. The table below provides a list of programs, descriptions, and links for those seeking funding sources. Please note that this table is not intended to be a comprehensive list, but rather a starting point to help identify potential sources of funding for the identified mitigation strategies. Table 6-3 provides a summary of available funding sources to leverage to implement mitigation projects.



Table 6-3. Mitigation Funding Sources

Program	Description	Lead Agency	Website
Federal			
Hazard Mitigation Assistance (HMA)	Grants to provide funding for eligible mitigation activities that reduce disaster losses and protect life and property from future disaster damages – includes FMA, HMGP, BRIC	FEMA	https://www.fema.gov/hazard-mitigation-assistance
Flood Mitigation Assistance (FMA)	Program Grants to States and communities for pre-disaster mitigation planning and projects to help reduce or eliminate the long-term risk of flood damage to structures insurable under the National Flood Insurance Program	FEMA	https://www.fema.gov/flood-mitigation-assistance-grant-program
Hazard Mitigation Grant Program (HMGP)	Grants to States and communities for planning and projects providing long-term hazard mitigation measures following a major disaster declaration	FEMA	https://www.fema.gov/hazard-mitigation-grant-program
Building Resilient Infrastructure and Communities (BRIC)	Grants to States local communities, tribes and territories as they undertake hazard mitigation projects, reducing the risks they face from disasters and natural hazards. BRIC is a new FEMA pre-disaster hazard mitigation program that replaces the existing Pre-Disaster Mitigation (PDM) program.	FEMA	https://www.fema.gov/grants/mitigation/building-resilient-infrastructure-communities
Public Assistance: Hazard Mitigation Funding Under Section 406	Hazard mitigation discretionary funding available under Section 406 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act following a Presidentially declared disaster	FEMA	https://www.fema.gov/news-release/2017/05/03/4309/fema-hazard-mitigation-grants-404-and-406
Assistance to Firefighters Grant Program	The primary goal of the Assistance to Firefighters Grants (AFG) is to enhance the safety of the public and firefighters with respect to fire-related hazards by providing direct financial assistance to eligible fire departments, nonaffiliated Emergency Medical Services organizations, and State Fire Training Academies. This funding is for critically needed resources to equip and train emergency personnel to recognized standards, enhance operations efficiencies, foster interoperability, and support community resilience.	FEMA	https://www.fema.gov/welcome-assistance-firefighters-grant-program
High Hazard Potential Dams (HHPD) Rehabilitation Grant	The Rehabilitation of High Hazard Potential Dams Grant Program (HHPD) provides technical, planning, design, and construction assistance in the form of grants to non-Federal governmental organizations or nonprofit organizations for rehabilitation of eligible high hazard potential dams.	FEMA	https://www.grants.gov/web/grants/view-opportunity.html?oppId=316238



Program	Description	Lead Agency	Website
Fire Management Assistance Grant Program	Assistance for the mitigation, management, and control of fires on publicly or privately-owned forests or grasslands that threaten such destruction as would constitute a major disaster. Provides a 75% Federal cost share and the State pay the remaining 25% for actual cost.	FEMA	https://www.fema.gov/fire-management-assistance-grant-program
Disaster Housing Program	Emergency assistance for housing, including minor repair of home to establish livable conditions, mortgage and rental assistance	HUD	https://www.hud.gov/program_offices/public_indian_housing/publications/dhap
HOME Investment Partnerships Program	Grants to local and state government and consortia for permanent and transitional housing, (including financial support for property acquisition and rehabilitation for low income persons)	HUD	https://www.hud.gov/program_offices/comm_planning/affordablehousing/programs/home/
HUD Disaster Recovery Assistance	Grants to fund gaps in available recovery assistance after disasters (including mitigation)	HUD	https://www.hud.gov/info/disasterresources
Section 108 Loan Guarantee	Enables states and local governments participating in the Community Development Block Grant (CDBG) program to obtain federally guaranteed loans for disaster-distressed areas	HUD	https://www.hudexchange.info/programs/section-108/
Smart Growth Implementation Assistance (SGIA) program	The SGIA program focuses on complex or cutting-edge issues, such as stormwater management, code revision, transit-oriented development, affordable housing, infill development, corridor planning, green building, and climate change. Applicants can submit proposals under 4 categories: community resilience to disasters, job creation, the role of manufactured homes in sustainable neighborhood design or medical and social service facilities siting.	EPA	https://www.epa.gov/smartgrowth
Partners for Fish and Wildlife	Financial and technical assistance to private landowners interested in pursuing restoration projects affecting wetlands and riparian habitats	U.S. Fish and Wildlife Service	https://www.fws.gov/partners/
FHWA Emergency Relief Program	Fund for the repair or reconstruction of Federal-aid highways that have suffered serious damage as a result of (1) natural disasters or (2) catastrophic failures from an external cause	U.S. Department of Transportation (DOT)	https://www.fhwa.dot.gov/programadmin/erelief.cfm
Transportation Investment Generating Economic Recovery (TIGER)	Investing in critical road, rail, transit and port projects across the nation	U.S. DOT	https://www.transportation.gov/tags/tiger-grants
Community Facilities	This program provides affordable funding to develop essential community facilities in rural areas. An essential community facility	USDA	https://www.rd.usda.gov/programs-services/community-facilities-direct-loan-grant-program



Program	Description	Lead Agency	Website
Direct Loan & Grant Program	is defined as a facility that provides an essential service to the local community for the orderly development of the community in a primarily rural area, and does not include private, commercial or business undertakings.		
Emergency Loan Program	USDA’s Farm Service Agency (FSA) provides emergency loans to help producers recover from production and physical losses due to drought, flooding, other natural disasters or quarantine	USDA	https://www.fsa.usda.gov/programs-and-services/farm-loan-programs/emergency-farm-loans/index
Emergency Watershed Protection (EWP) program	Provide assistance to relieve imminent hazards to life and property caused by floods, fires, drought, windstorms, and other natural occurrences	NRCS	https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/landscape/ewpp/
Financial Assistance	Financial assistance to help plan and implement conservation practices that address natural resource concerns or opportunities to help save energy, improve soil, water, plant, air, animal and related resources on agricultural lands and non-industrial private forest land	NRCS	https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/
Regional Conservation Partnership Program (RCPP)	The Regional Conservation Partnership Program (RCPP) promotes coordination of NRCS conservation activities with partners that offer value-added contributions to expand our collective ability to address on-farm, watershed, and regional natural resource concerns. Through RCPP, NRCS seeks to co-invest with partners to implement projects that demonstrate innovative solutions to conservation challenges and provide measurable improvements and outcomes tied to the resource concerns they seek to address.	NRCS	https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/rcpp/
Emergency Management Performance Grants (EMPG) Program	Assist local, tribal, territorial, and state governments in enhancing and sustaining all-hazards emergency management capabilities	U.S. DHS	https://www.fema.gov/emergency-management-performance-grant-program
Reimbursement for Firefighting on Federal Property	Provides reimbursement only for direct costs and losses over and above normal operating costs.	U.S. DHS	https://www.usfa.fema.gov/grants/firefighting_federal_property.html
Department of Homeland Security Grant Program (HSGP)	HSGP is composed of three interconnected grant programs including the State Homeland Security Program (SHSP), Urban Areas Security Initiative (UASI), and the Operation Stonegarden (OPSG). Together, these competitive grant programs fund a range of preparedness activities, including planning, organization, equipment purchase, training, exercises, and management and administration.	U.S. DHS	https://www.dhs.gov/homeland-security-grant-program-hsgp



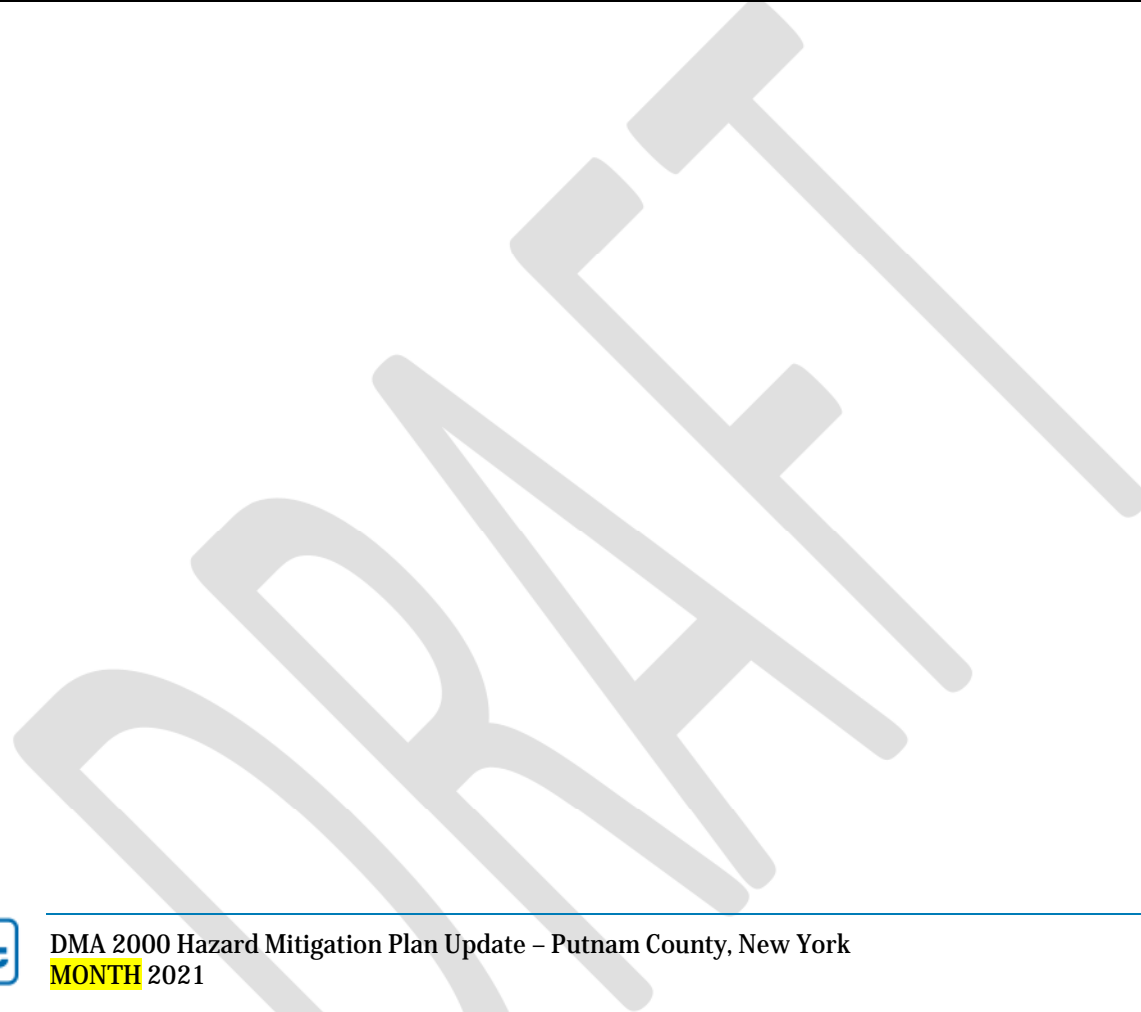
Program	Description	Lead Agency	Website
Land & Water Conservation Fund	Matching grants to states and local governments for the acquisition and development of public outdoor recreation areas and facilities (as well as funding for shared federal land acquisition and conservation strategies)	National Park Service	https://www.nps.gov/subjects/lwcf/index.htm
Coastal Watersheds Grant Program	<p>Restore America’s Estuaries, in close coordination with and financial support from EPA, administers the NEP Coastal Watersheds Grant Program. This grant program funds projects within the geographic areas shown here and supports the following Congressionally-set priorities:</p> <ul style="list-style-type: none"> •Loss of key habitats resulting in significant impacts on fisheries and water quality such as seagrass, mangroves, tidal and freshwater wetlands, forested wetlands, kelp beds, shellfish beds, and coral reefs; <ul style="list-style-type: none"> •Recurring harmful algae blooms; •Unusual or unexplained marine mammal mortalities; •Proliferation or invasion of species that limit recreational uses, threaten wastewater systems, or cause other ecosystem damage; •Flooding and coastal erosion that may be related to sea level rise, changing precipitation, or salt marsh, seagrass, or wetland degradation or loss; •Impacts of nutrients and warmer water temperatures on aquatic life and coastal ecosystems, including low dissolved oxygen conditions in estuarine waters; and •Contaminants of emerging concern found in coastal and estuarine waters such as pharmaceuticals, personal care products, and microplastics. 	National Estuary Program	https://estuaries.org/initiatives/watershedgrants/
USSBA	Small Business Administration (SBA) provides low-interest disaster loans to homeowners, renters, business of all sizes, and most private nonprofit organizations. SBA disaster loans can be used to repair or replace the following items damaged or destroyed in a declared disaster: real estate, personal property, machinery and equipment, and inventory and business assets.	Small Business Administration (SBA)	https://www.sba.gov/funding-programs/disaster-assistance
State			
Local Government Records Management Improvement Fund (LGRMIF) Disaster	Grants for disaster recovery projects related to damage caused by a sudden, unexpected event involving fire, water, man-made or natural phenomena where a timely response is necessary to prevent the irretrievable loss of vital or archival records, or to ensure reasonable, timely access to vital records	New York State Archives / New York State Education Department	http://www.archives.nysed.gov/grants/grants_lgrmif.shtml



Program	Description	Lead Agency	Website
Recovery Grants			
The New York State Emergency Services Revolving Loan	Repair of firefighting apparatus, ambulances, or rescue vehicles; Renovation, rehabilitation, or repair of facilities that house firefighting equipment, ambulances, rescue vehicles, and related equipment	NYS DHSES	http://www.dhSES.ny.gov/ofpc/services/loan/
Environmental Protection Fund (EPF)	Matching grants for the acquisition, planning, development, and improvement of parks, historic properties	New York State Parks, Recreation & Historic Preservation (NYSOPRHP)	https://www.dec.ny.gov/about/92815.html
Recreational Trails (RTP)	Program Matching grants for the acquisition, development, rehabilitation and maintenance of trails and trail-related projects	NYSOPRHP	https://parks.ny.gov/grants/recreational-trails/default.aspx
Environmental Protection & Improvement Grants	Competitive grants for environmental protection and improvement; available for municipalities, community organizations, not-for-profit organizations and others	New York State Department of Environmental Conservation	https://www.dec.ny.gov/about/92815.html
Volunteer Fire Assistance Grants	The grant is a 50/50 matching funds program. Its purpose is to make funds available to rural fire companies for the purchase of wildland firefighting equipment such as portable backpack pumps, Nomex protective clothing, hand tools, hard hats, hose, portable radios and dry hydrants.	NYSDEC	https://www.dec.ny.gov/regulations/2364.html
Clean Water Act Section 604(b) Water Quality Planning Grants	Provide funding to implement regional comprehensive water quality management planning activities as described in Section 604(b) of the federal Clean Water Act. 604(b) funds are to be used for water quality management planning activities, including tasks to determine the nature, extent and causes of point and nonpoint source water pollution problems, and to develop plans to resolve these problems.	NYSDEC	https://www.dec.ny.gov/lands/53122.html
Water Quality Improvement Project (WQIP) Program	The Water Quality Improvement Project (WQIP) program is a competitive, reimbursement grant program that funds projects that directly address documented water quality impairments. Applications are typically available each spring through the Consolidated Funding Application.	NYSDEC	https://www.dec.ny.gov/pubs/4774.html
New York State DEC/EFC Wastewater Infrastructure	The New York State Department of Environmental Conservation (DEC), in conjunction with the New York State Environmental Facilities Corporation (EFC), will offer grants to municipalities to help pay for the initial planning of eligible Clean Water State Revolving Fund (CWSRF) water quality projects. The ultimate goal	NYSDEC	https://www.dec.ny.gov/pubs/81196.html



Program	Description	Lead Agency	Website
Engineering Planning Grant (EPG)	of the EPG program is to advance water quality projects to construction, so successful applicants can use the engineering report funded by the grant to seek financing through the CWSRF program, Water Quality Improvement Project program, or other funding entities to further pursue the identified solution.		
Climate Smart Communities Grant Program	The CSC Grant program was established in 2016 to provide 50/50 matching grants to cities, towns, villages, and counties (or boroughs of New York City) of the State of New York for eligible climate adaptation and mitigation projects.	NYSDEC	https://www.dec.ny.gov/energy/109181.html
BRIDGE NY	The State is making funding available for local governments to rehabilitate and replace bridges and culverts statewide.	NYS DOT	https://www.dot.ny.gov/BRIDGENY





6.5 MITIGATION STRATEGY DEVELOPMENT AND UPDATE

6.5.1 Update of Municipal Mitigation Strategies

To evaluate progress on local mitigation actions, each jurisdiction was provided with a Mitigation Action Plan Review Worksheet, pre-populated with those actions identified for their jurisdiction in the prior (2015) plan. For each action, municipalities were asked to indicate the status of each action (*No Progress/Unknown, In Progress/Not Yet Complete, Ongoing, Completed, Discontinued*) and provide review comments on each. Municipalities were requested to quantify the extent of progress and provide reasons for the level of progress or why actions were discontinued. Each jurisdictional annex in Section 9 (Jurisdictional Annexes) provides a table identifying the jurisdiction’s prior mitigation strategy, the status of those actions and initiatives, and their disposition within their updated strategy.

Local mitigation actions identified as *Complete*, and those actions identified as *Discontinued*, were removed from the updated strategies. Those local actions that municipalities identified as *No Progress/Unknown, In Progress/Not Yet Complete, or* certain actions/initiatives identified as *Ongoing* were carried forward in their local updated capability assessment. Actions considered ongoing capabilities were marked as *Discontinued* and included in the plan as ongoing capabilities. Municipalities were asked to provide further details on these projects to help better define the projects, identify benefits and costs, and improve implementation.

At the Kick-Off and during subsequent local-level planning meetings, all participating municipalities were further surveyed to identify mitigation activities completed, ongoing, and potential/proposed. As new additional potential mitigation actions, projects, or initiatives became evident during the plan update process, including as part of the risk assessment update and as identified through the public and stakeholder outreach process detailed in Section 3 (Planning Process), communities were made aware of these either through direct communication (local meetings, email, phone) or via their draft municipal annexes.

To help support the selection of an appropriate, risk-based mitigation strategy, each annex provided a summary of hazard vulnerabilities identified during the plan update process, either directly by municipal representatives or through review of available county and local plans and reports, and through the hazard profiling and vulnerability assessment process.

Beginning in February 2020, members of the Steering Committee and contract consultants worked directly with each jurisdiction (phone, email, local support meetings) to assist with the development and update of their annex and include mitigation strategies, focusing on identifying well-defined, implementable projects with a careful consideration of benefits (risk reduction, losses avoided), costs, and possible funding sources (including mitigation grant programs).

Concerted efforts were made to assure that municipalities develop updated mitigation strategies that included activities and initiatives covering the range of mitigation action types described in recent FEMA planning guidance (FEMA *Local Mitigation Planning Handbook* March 2013). The primary types of mitigation actions to reduce long-term vulnerability are described in TABLE.

Table 6-4. Types of Mitigation Actions

Mitigation Type	Description	Examples
Local Plans and Regulations	These actions include government authorities, policies, or codes that influence the way land and buildings are developed and built.	<ul style="list-style-type: none"> • Comprehensive plans • Land use ordinances • Subdivision regulations • Development review • Building codes and enforcement



Mitigation Type	Description	Examples
		<ul style="list-style-type: none"> • NFIP Community Rating System • Capital improvement programs • Open space preservation • Stormwater management regulations and master plans
<p>Structure and Infrastructure Projects</p>	<p>These actions involve modifying existing structures and infrastructure to protect them from a hazard or remove them from a hazard area. This could apply to public or private structures as well as critical facilities and infrastructure.</p> <p>This type of action also involves projects to construct manmade structures to reduce the impact of hazards.</p> <p>Many of these types of actions are projects eligible for funding through the FEMA Hazard Mitigation Assistance program.</p>	<ul style="list-style-type: none"> • Acquisitions and elevations of structures in flood prone areas • Utility undergrounding • Structural retrofits • Floodwalls and retaining walls • Detention and retention structures • Culverts • Safe rooms
<p>Natural Systems Protection</p>	<p>These are actions that minimize damage and losses and also preserve or restore the functions of natural systems.</p>	<ul style="list-style-type: none"> • Sediment and erosion control • Stream corridor restoration • Forest management • Conservation easements • Wetland restoration and preservation
<p>Education and Awareness Programs</p>	<p>These are actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. These actions may also include participation in national programs, such as StormReady or Firewise Communities. Although this type of mitigation reduces risk less directly than structural projects or regulation, it is an important foundation. A greater understanding and awareness of hazards and risk among local officials, stakeholders, and the public is more likely to lead to direct actions.</p>	<ul style="list-style-type: none"> • Radio or television spots • Websites with maps and information • Real estate disclosure • Presentations to school groups or neighborhood organizations • Mailings to residents in hazard-prone areas • StormReady • Firewise Communities

A mitigation strategy workshop was conducted on August 26, 2020, for all participating jurisdictions to support the development of focused problem statements based on the impacts of natural hazards in the County and their communities. These problem statements are intended to provide a detailed description of the problem area, including impacts to the jurisdiction, past damages, and loss of service. An effort was made to include the street address of the property/project location, adjacent streets, water bodies, and well-known structures, as well as a brief description of existing conditions (topography, terrain, hydrology) of the site. These problem statements form a bridge between the hazard risk assessment, which quantifies impacts to each community, with the development of actionable mitigation strategies.

A strong effort has been made to better focus local mitigation strategies to clearly defined, readily implementable projects and initiatives that meet the definition or characteristics of mitigation. Broadly defined mitigation objectives were eliminated from the updated strategy unless accompanied by discrete actions, projects, or initiatives.

Certain continuous or ongoing strategies that represent programs that are fully integrated into the normal operational and administrative framework of the community have been identified within the Capabilities section of each annex and removed from the updated mitigation strategy.



At least two mitigation projects per jurisdiction have been documented with an Action Worksheet, as per the 2017 New York State Hazard Mitigation Planning Standards Guide.

As discussed within the hazard profiles in Section 5.4, the long-term effects of climate change are anticipated to exacerbate the impacts of weather-related hazards including flood, severe storm, severe winter storm, and wildfire. By way of addressing these climate change-sensitive hazards within their local mitigation strategies and integration actions, communities are working to evaluate and recognize these long-term implications and potential impacts, and to incorporate in planning and capital improvement updates.

Municipalities included mitigation actions to address vulnerable critical facilities. These actions were proposed in consideration of protection against 500-year events, or worst-case scenarios. It is recognized, however, that in the case of projects being funded through federal mitigation programs, the level of protection can be influenced by cost-effectiveness, as determined through a formal benefit-cost analysis. In the case of “self-funded” projects, municipal discretion must be recognized. Further, the county and municipalities have limited authority over privately-owned critical facility owners regarding mitigation at any level of protection.

6.5.2 Update of County Mitigation Strategy

The update of the county-level mitigation strategies included a review of progress on the actions/initiatives identified in the 2015 HMP using a process similar to that used to review municipal mitigation strategy progress. The county, through their various department representatives, was provided with a Mitigation Action Plan Review Worksheet identifying all county-level actions and initiatives from the 2015 plan. The County reviewed each action and provided progress. For each action, relevant county representatives were asked to indicate the status of each action (*No Progress/Unknown, In Progress/Not Yet Complete, Ongoing, Completed, or Discontinued*), and provide review comments on each.

Projects/initiatives identified as “*Complete*”, as well as those actions identified as *Discontinued*, have been removed from this plan update. Those actions the county has identified as *No Progress/Unknown, In Progress/Not Yet Complete, or Continuous* have been carried forward in the county’s updated mitigation strategy. Actions considered ongoing capabilities were marked as *Discontinued* and included in the plan as ongoing capabilities.

Throughout the course of the plan update process, additional regional and county-level mitigation actions were identified by the following processes:

- Review of the results and findings of the updated risk assessment.
- Review of available regional and county plans reports and studies.;
- Direct input from county departments and other county and regional agencies, including:
- Input received through the public and stakeholder outreach process.

As discussed within the hazard profiles in Section 5.4 (Risk Assessment), the long-term effects of climate change are anticipated to exacerbate the impacts of weather-related hazards including drought, flood, severe storm, and severe winter storm. The county has included mitigation actions and initiatives, including continuing and long-term planning and emergency management support, to address these long-term implications and potential impacts.

The Putnam County Bureau of Emergency Services, Department of Health, and Department of Highway and Facilities included mitigation actions to address vulnerable critical facilities. These actions were proposed in consideration of protection against 500-year events, or worst-case scenarios.



It is recognized, however, that in the case of projects being funded through federal mitigation programs, the level of protection can be influenced by cost-effectiveness, as determined through a formal benefit-cost analysis. In the case of “self-funded” projects, local government authority can affect the ability to implement. Further, the county has limited authority over privately-owned critical facility owners regarding mitigation at any level of protection.

6.5.3 Mitigation Strategy Evaluation and Prioritization

The county and participating municipalities utilized a modified STAPLEE (Social, Technical, Administrative, Political, Legal, Economic, and Environmental) mitigation action evaluation methodology based on a set of evaluation criteria suited to the purposes of hazard mitigation strategy evaluation. This method provides a systematic approach that considers the opportunities and constraints of implementing a specific mitigation action.

Section 201.c.3.iii of 44 CFR requires an action plan describing how the actions identified will be prioritized.

The Steering Committee applied an action evaluation and prioritization methodology, which includes an expanded set of 14 criteria to include the consideration of cost-effectiveness, availability of funding, anticipated timeline, and if the action addresses multiple hazards. The 14 evaluation/prioritization criteria used in the 2021 update process are the following:

1. Life Safety—How effective will the action be at protecting lives and preventing injuries?
2. Property Protection—How significant will the action be at eliminating or reducing damage to structures and infrastructure?
3. Cost-Effectiveness—Are the costs to implement the project or initiative commensurate with the benefits achieved?
4. Technical—Is the mitigation action technically feasible? Is it a long-term solution? Eliminate actions that, from a technical standpoint, will not meet the goals.
5. Political—Is there overall public support for the mitigation action? Is there the political will to support it?
6. Legal—Does the municipality have the authority to implement the action?
7. Fiscal—Can the project be funded under existing program budgets (i.e., is this initiative currently budgeted for)? Would it require a new budget authorization or funding from another source such as grants?
8. Environmental—What are the potential environmental impacts of the action? Will it comply with environmental regulations?
9. Social—Will the proposed action adversely affect one segment of the population? Will the action disrupt established neighborhoods, break up voting districts, or cause the relocation of lower income people?
10. Administrative—Does the jurisdiction have the personnel and administrative capabilities to implement the action and maintain it? Will outside help be necessary?
11. Multi-hazard—Does the action reduce the risk to multiple hazards?
12. Timeline—Can the action be completed in less than 5 years (within our planning horizon)?
13. Local Champion—Is there a strong advocate for the action or project among the jurisdiction’s staff, governing body, or committees that will support the action’s implementation?
14. Other Local Objectives—Does the action advance other local objectives, such as capital improvements, economic development, environmental quality, or open space preservation? Does it support the policies of other plans and programs?

Participating jurisdictions were asked to use these criteria to assist them in evaluating and prioritizing mitigation actions identified in the 2021 update. Specifically, for each mitigation action, the jurisdictions were asked to assign a numeric rank (-1, 0, or 1) for each of the 14 evaluation criteria, defined as follows:



- 1 = Highly effective or feasible
- 0 = Neutral
- -1 = Ineffective or not feasible

Further, jurisdictions were asked to provide a summary of the rationale behind the numeric rankings assigned, as applicable. The numerical results were totaled and then used by each jurisdiction to help prioritize the action or strategy as *Low*, *Medium*, or *High*. Actions that had a numerical value between 0 and 4 were categorized as *low*; actions with numerical values between 5 and 9 were categorized as *medium*; and actions with numerical values between 10 and 14 were categorized as *high*. While this provided a consistent, systematic methodology to support the evaluation and prioritization of mitigation actions, jurisdictions might have additional considerations that could influence their overall prioritization of mitigation actions.

It is noted that jurisdictions might be carrying forward mitigation actions and initiatives from prior mitigation strategies that were prioritized using a different, but not inherently contrary, approach. Mitigation actions in the prior (2015) Putnam County HMP were “qualitatively evaluated against the mitigation goals and objectives and other evaluation criteria. They were then prioritized into three categories: high, medium, and low.” At their discretion, jurisdictions carrying forward prior initiatives were encouraged to re-evaluate their priority, particularly if conditions that would affect the prioritization criteria had changed.

For the plan update there has been an effort to develop more clearly defined and action-oriented mitigation strategies. These local strategies include projects and initiatives that are seen by the community as the most effective approaches to advance their local mitigation goals and objectives within their capabilities. In addition, each municipality was asked to develop problem statements. With active support from NYS DHSES planning staff, municipalities were able to develop action-oriented and achievable mitigation strategies.

As such, many of the initiatives in the updated mitigation strategy were ranked as *High* or *Medium* priority, as reflective of the community’s clear intent to implement, available resources notwithstanding. In general, initiatives that would have had *low* priority rankings were appropriately screened out during the local action evaluation process.

6.5.4 Benefit/Cost Review

Section 201.6.c.3iii of 44 CFR requires the prioritization of the action plan to emphasize the extent to which benefits are maximized according to a cost/benefit review of the proposed projects and their associated costs. Stated otherwise, cost-effectiveness is one of the criteria that must be applied during the evaluation and prioritization of all actions comprising the overall mitigation strategy.

The benefit/cost review applied in for the evaluation and prioritization of projects and initiatives in this plan update process was qualitative; that is, it does not include the level of detail required by FEMA for project grant eligibility under the Hazard Mitigation Assistance (HMA) grant programs. For all actions identified in the local strategies, jurisdictions have identified both the costs and benefits associated with project, action or initiative.

Costs are the total cost for the action or project, and could include administrative costs, construction costs (including engineering, design and permitting), and maintenance costs.

Benefits are the savings from losses avoided attributed to the implementation of the project, and could include life-safety, structure and infrastructure damages, loss of service or function, and economic and environmental damage and losses.

When available, jurisdictions were asked to identify the actual or estimated dollar value for project costs and associated benefits. Having defined costs and benefits allows a direct comparison of benefits versus costs and a



quantitative evaluation of project cost-effectiveness. Often, however, numerical costs and/or benefits have not been identified or might be impossible to quantitatively assess.

For the purposes of this planning process, jurisdictions were asked to identify the benefits that implementing the project will provide. If dollar amounts were known, they were asked to include them. If dollar amounts were unknown or unquantifiable, the jurisdictions were asked to describe the losses that will be avoided. This could be done by providing a rating of high, medium, or low, as defined in Table 6-5.

Table 6-5 provides the qualitative cost and benefit ratings definitions when quantitative estimates of costs and benefits were not available.

Table 6-5 Qualitative Cost and Benefit Ratings

Costs	
High	Existing funding levels are not adequate to cover the costs of the proposed project, and implementation would require an increase in revenue through an alternative source (e.g., bonds, grants, and fee increases).
Medium	The project could be implemented with existing funding but would require a re-apportionment of the budget or a budget amendment, or the cost of the project would have to be spread over multiple years.
Low	The project could be funded under the existing budget. The project is part of or can be part of an existing, ongoing program.
Benefits	
High	Project will have an immediate impact on the reduction of risk exposure to life and property.
Medium	Project will have a long-term impact on the reduction of risk exposure to life and property or will provide an immediate reduction in the risk exposure to property.
Low	Long-term benefits of the project are difficult to quantify in the short term.

Using this approach, projects with positive benefit versus cost ratios (such as high over high, high over medium, medium over low) are considered cost-effective.

For some of the Putnam County initiatives identified, the planning partnership might seek financial assistance under FEMA’s HMA programs. These programs require detailed benefit/cost analysis as part of the application process. These analyses will be performed when funding applications are prepared, using the FEMA benefit/cost analysis model process. The planning partnership is committed to implementing mitigation strategies with benefits that exceed costs. For projects not seeking financial assistance from grant programs that require this sort of analysis, the planning partnership reserves the right to define “benefits” according to parameters that meet its needs and the goals and objectives of this plan.