

SECTION 6. CAPABILITY ASSESSMENT AND MITIGATION STRATEGIES

This section presents mitigation strategies for Tompkins County to help reduce potential exposure and losses identified as concerns in the Risk Assessment portion of this plan. The Planning Partnership 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. Tompkins 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:

- The County facilitated the development of the original and 2020 update of the Tompkins County Hazard Mitigation Plan. The current planning process represents the required five-year plan update process, which includes participation of the County, all municipal governments in the County, and key county and regional stakeholders.
- All municipalities (except the Town of Enfield) participating in this HMP update also participate in the NFIP, which requires the adoption of FEMA floodplain mapping and certain minimum standards for building within the floodplain. The Town of Enfield is currently considering becoming an NFIP participant.
- In February 2019, the County received a grant from FEMA to update its multi-jurisdictional hazard mitigation plan.



- In 2016, HMGP funds were approved for a shoreline stabilization project along Buffalo Road in the Town of Caroline.
- Multiple municipalities have actively participated in available mitigation grant funding opportunities to implement mitigation projects, as identified in their jurisdictional annexes in Section 9 (Jurisdictional Annexes). Non-participants stated their lack of engagement was primarily due to lack of capacity.
- Reports, plans, and studies relating to or including information on natural hazards or natural hazard policies affecting Tompkins County have been reviewed and incorporated into this plan update as appropriate, as discussed in Section 3 (Planning Process and References).
- The Tompkins County Comprehensive Plan (2015) incorporates various smart land planning and mitigation strategies to decrease effects of climate change and vulnerability throughout the County.
- The County has worked with municipalities to help solve any flood issues or any other related vulnerability that is not solvable by the affected municipality. The County has helped to fund a range of large and small mitigation projects across the county through its previously existing Flood Hazard Mitigation and Stream Corridor Restoration Program.
- The County has received Silver Climate Smart Communities Designation, the highest level attainable by the NYSERDA program. In order to attain this level of certification, the community needs to complete numerous actions to reduce GHG emissions, increase sustainability, and boost overall resilience.
- Municipalities in Tompkins County actively participate in the Municipal Separate Storm Sewer System (MS4) program which is meant to track existing stormwater systems and provide a baseline standard for all stormwater infrastructure.
- Tompkins County is an active participant in the Cayuga Lake Watershed Intermunicipal Organization and has its own Water Resources Council and Environmental Management Council that provide guidance on environmental, water resource and climate adaptation issues faced by the County.
- The County has developed its own Natural Resource Inventory and has developed programs and systems to monitor, maintain, and protect natural resources that are vulnerable to climate change and human activity.
- The County provides its municipalities with hazard mitigation consultation and mapping services.
- The County manages and implements an active Natural Infrastructure Capital Program that actively works to formally protect natural systems that provide hazard mitigative services.
- Enfield in collaboration with the county is currently working with the NY Rural Water Association to help assess local water quality and quantity issues associated with groundwater. Free support to develop water quality plans and may result in water protection ordinance. Uses DoH test well information to assess demand and have developed survey to determine what % town is dealing with water issues.

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 Identification of mitigation capabilities and evaluation of their capacity and effectiveness to mitigate and manage hazard risk.
- Section 6.5 Preparation of 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.

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.

To provide context for this plan in relation to its support of County-wide resiliency, the Steering Committee created an over-arching mission statement to inform the overall County efforts regarding its pro-active efforts to create a resilient and disaster resistant community.



The mission statement, amended goals, and the more specific mitigation objectives are provided below. As part of the 2021 HMP update process, the Tompkins County Steering Committee developed the following mission statement:

The mission of the Tompkins Hazard Mitigation Plan is to develop a pathway, using an integrated and comprehensive approach, to increase capacity for all individuals, communities, municipalities, institutions, businesses and systems within the County, to adapt and thrive in the face of chronic stresses and acute shocks as a result of natural hazard events in Tompkins 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).

Objectives are short-term aims, which when combined form a strategy or course of action to meet a goal. Unlike goals, objectives are specific and measurable.

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.

During the 2021 plan update process, the Steering Committee reviewed the goals and objectives established in the 2014 HMP in consideration of the hazard events and losses since the 2014 plan, the updated hazard profiles and vulnerability assessment, the goals and objectives established in the New York State 2019 HMP, 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.



Table 6-1. 2021 HMP Update Goals and Objectives

Goals and Objectives	
Goal 1: Improve the Resiliency of Systems that Support Public Health and Sustainable Development	
Objective 1-1	Promote resilient and sustainable land use practices to increase overall natural resilience.
Objective 1-2	Develop and maintain sustainable and resilient utility services that serve the County's population and businesses.
Objective 1-3	Develop continuity plans to decrease potential local economic losses.
Objective 1-4	Promote higher building standards and sustainable design to resist impacts of natural hazards.
Objective 1-5	Develop a strategy to address recurring property loss due to natural hazards in the County.
Objective 1-6	Pursue federal and state assistance toward the improvement of facilities and infrastructure.
Objective 1-7	Protect and maintain community lifelines including critical facilities and infrastructure.
Objective 1-8	Improve detection, warning and communication systems.
Objective 1-9	Promote and enhance the enforcement of ordinances, regulations and other mechanisms that facilitate resilient and sustainable construction standards.
Objective 1-10	Integrate risk reduction concepts, policies, and projects into existing local and regional planning and engagement efforts.
Objective 1-11	Work with private dam owners to rebuild/ retrofit any high-risk dams that are privately owned, located within Tompkins County.
Objective 1-12	Increase public awareness around high hazard dams and the potential vulnerability posed to residents living in close proximity to such sites.
Objective 1-13	Support the retrofit and or rebuild all publicly owned dams to decrease risk classification.
Goal 2: Increase Partnerships that Improve Hazard Risk Knowledge and Mitigation	
Objective 2-1	Enhance the capabilities of the County and communities by implementing actions that support the development of data and information to better understand the effects of hazard events to support the projects to increase resiliency.
Objective 2-2	Develop government-led initiatives to assist communities in implementing mitigation activities.
Objective 2-3	Share information and best practices with property owners and encourage property owners to take preventive actions in areas that are especially susceptible to hazards.
Goal 3: Protect and Restore Natural Ecosystems to Reduce Flood Risk	
Objective 3-1	Protect and preserve natural systems to reduce long-term costs due to damages caused by natural hazard events.
Objective 3-2	Incorporate hazard mitigation into land-use planning and natural resource management
Goal 4: Enhance Mitigation Collaboration and Coordination Among Emergency Service Agencies to Further Support Life Safety and Economic Resiliency	
Objective 4-1	Enhance collaborative efforts to support improved natural hazard mitigation management and disaster response to promote resiliency.



Goals and Objectives	
Objective 4-2	Engage a broad range of public agencies, citizens, neighborhood groups, non-profit organizations, businesses, and industries to equitably implement mitigation actions.
Objective 4-3	Encourage shared services in acquiring, emergency services and equipment.
Objective 4-4	Coordinate and integrate hazard mitigation actions into emergency operations plans.
Objective 4-5	Develop a strategy to ensure continuity of governmental operations, emergency services, and essential facilities and lifelines at the local level during and immediately after disaster and hazard events.
Objective 4-6	Support County Emergency Management’s efforts related to community preparedness requirements and response.
Goal 5: Promote and Strengthen Healthy and Equitable Environments for all Residents with Special Considerations for Those Who Are Socially and Physically Vulnerable	
Objective 5-1	Develop and implement additional education and outreach programs to increase public awareness of hazard areas and impacts.
Objective 5-2	Educate the public on specific, individual and household preparedness and recovery activities.
Objective 5-3	Work to identify those individuals and groups most physically and socially vulnerable to local hazard risk.
Objective 5-4	Work with vulnerable groups and individuals to clarify needs in relation to hazard events and design solutions with them to reduce risks
Objective 5-5	Identify residents and business living and operating in high-risk areas prone to negative impacts by disasters and provide targeted outreach.

6.4 Capability Assessment

According to FEMA’s *Mitigation Planning How-To Guide #3*, 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.

During the original planning process, the County and participating municipalities 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:

- Limitations that could exist in 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 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, as well as 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 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 Tompkins County are presented below.

6.4.1 Planning and Regulatory Capabilities - County and Local

6.4.1.1 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). The Tompkins County Department of Planning & Sustainability implements the County’s Comprehensive Plan, provides stakeholder engagement and technical assistance, supports economic development and sustainability initiatives, and provides planning services for the County government.

Section 239 of New York State General Municipal Law requires the referral of certain local planning actions to county planning departments for the examination of possible inter-municipal impacts, including those impacts to known hazard areas including floodplains. The department conducts reviews and renders advisory opinions on land use proposals in the County.

The County has completed a range of connected planning efforts including:



- The Cayuga Inlet Sediment Assessment/Sediment Reduction Report 2016 - Reduce sands, silts and clays from reaching the Flood Control Channel.
- Agriculture and Farmland Protection Plan 2015 - Area farmland protection plan which includes analysis of changing climate on agriculture.
- 2040 Long Range Transportation Plan - Promotion of land development patterns that enable the efficient and equitable provision of multimodal transportation services.
- Cleaner Greener Southern Tier: Regional Sustainability Plan 2013 - Minimize flood losses by preserving and enhancing floodplains and wetlands, and by limiting development in flood-prone areas.
- Tools to Promote and Regulate the Deployment of Renewable Energy Systems - Promote and Regulate the Deployment of Renewable Energy Systems – solar and wind.
- Energy Strategy 2019 - Reduce greenhouse gas emissions to reach a minimum 80 percent reduction from 2008 levels by 2050 and reduce reliance on fossil fuels across all sectors.
- Comprehensive Plan 2015 – Make the County a place where the entire community is prepared for the economic, environmental, and social impacts of climate change.
- Housing Strategy 2017 - Support new development of housing where total costs, including utility and transportation expenses, are affordable to households with a range of incomes.
- Habitat Connectivity Strategy 2018 - Maintain large, intact patches of important native vegetation by preventing fragmentation of those patches by development.
- Comprehensive Emergency Management Plan 2018 - Provide a framework for coordinated response and recovery activities during an emergency.

6.4.1.2 Tompkins County Comprehensive Emergency Management Plan (CEMP)

The Comprehensive Emergency Management Plan (CEMP) is an all-hazards plan that describes how Tompkins County will organize and respond to emergencies and disasters throughout the County. Tompkins County's CEMP is currently in the process of being updated. It is consistent with Federal, New York State and Tompkins County laws as well as other applicable plans, and policies, including the National Response Framework and the New York State Comprehensive Emergency Management Plan. The CEMP is one component of the County's emergency management program designed to address all phases of emergency management including mitigation and prevention, preparedness, response and recovery.

Tompkins County understands emergency management planning as a continuous process linked closely with training and exercises to establish a comprehensive preparedness agenda and organizational culture that prioritizes increased disaster resiliency. The Tompkins County Department of Emergency Response will maintain the CEMP through a program of continuous improvement, including ongoing involvement of County departments and of agencies and individuals with responsibilities and interests in this plan and its supporting documents.



6.4.1.3 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 2018).

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 2018).

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 2018).

Any village, town, or city located along the state's coast or designated inland waterway can prepare a new or amend an existing LWRP. However, only communities located along a [waterway](#) designated in Executive Law are eligible for grants from the Environmental Protection Fund Local Waterfront Revitalization Program for its preparation and implementation. 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 2018).

As of the date of this plan update, there are no municipalities in the County with an approved Local Waterfront Revitalization Plan. In 2004, the County and several waterfront municipalities did however complete the Cayuga Lake Waterfront Plan to guide development and coordinate planning along the shores of Cayuga Lake. The Waterfront Revitalization Area Boundary includes portions of the City of Ithaca, Town of Ithaca, Town of Lansing, Village of Lansing, the Village of Cayuga Heights, and the Town of Ulysses.



6.4.2 Planning and Regulatory Capabilities – State and Federal

6.4.2.1 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 5.4.2 (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 5.4.2 (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.

6.4.2.2 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 2012). Municipalities, and the County as a whole, could expect significant cost savings on premiums if enrolled in the CRS program.

As of May 2020, there are no communities in Tompkins County actively participating in the CRS program. The County will be assessing local community participation in CRS as a part of the companion resiliency and recovery planning effort.

6.4.2.3 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/>).

6.4.2.4 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

6.4.3.1 Tompkins County Department of Planning & Sustainability

The Tompkins County Department of Planning & Sustainability works to implement the County's Comprehensive Plan which presents a long-term vision for the future of the community. The plan is based on three overarching principles that the County should be a place where the needs of current and future generations are met without compromising the ecosystems upon which they depend; all levels of government



work cooperatively to address regional issues; and taxpayer dollars are invested in public infrastructure and facilities in the most efficient manner possible.

Many of the Department's specific work activities have been identified in a series of short-term strategies for working toward achieving the Comprehensive Plan's vision. These strategies have been prepared to address housing, land conservation, energy, tourism, and development.

The Department provides a number of functions and methods to implement its planning efforts. The Department is involved with broad ranging activities including, providing support advisory boards, provides technical support to local governments, facilitates resiliency and recovery planning work, provides support for affordable housing development efforts, and provides technical and financial support for local sustainability initiatives. The Department also undertakes a range of projects that protects the County's water and natural resources.

6.4.3.2 Tompkins County Department of Emergency Response

The Department of Emergency Response (DOER) oversees Countywide emergency dispatch and communications systems that allow residents to dial 9-1-1 to receive emergency medical, fire, police, or other emergency help from any phone within Tompkins County. The 9-1-1 system, through the use of Countywide communications and Computer-Aided Dispatch (CAD) systems, is able to locate callers' addresses and phone information while communicating with fire, police, and medical personnel in the field.

Tompkins County DOER keeps Emergency Action Plans (EAPs) for dams located in the County. Additionally, all NYSDEC Dam Safety inspection reports are sent to DOER as well.

The Department implements County Mutual Aid/Disaster Plans, which provide County fire, emergency medical, and other agency assistance when local services have exceeded their local equipment and personnel resources.

In coordination with Tompkins-Cortland Community College (TC3), the Department provides training of emergency medical personnel. The Department also provides training for 16 fire departments through the Office of Fire Prevention and Control (OFPC) of New York State.

Citizens requesting Emergency Preparedness information are encouraged to visit the Tompkins Ready webpage.

6.4.3.3 Tompkins County Soil and Water Conservation District (SWCD)

The mission of the Tompkins County SWCD is to "to provide assistance to citizens and units of local government in making sound decision on the management of soil, water and related natural resources based on their needs. The SWCD will further assist in the implementation of decisions by seeking and coordinating technical and financial assistance from federal, state, and local governments, and private sources."



The Tompkins County SWCD is one of 58 such districts in New York State. These districts provide services and fund projects related to the conservation of soil and water resources, the improvement of water quality, the control and prevention of soil erosion and the prevention of floodwater and sediment damage. SWCD offers several programs in the areas of agriculture environmental management, stormwater pollution prevention, water quality improvement, and aquatic invasive species control. They actively work with regional organizations such as Cornell University, the Cornell Cooperative Extension of Tompkins County, and the New York Water Resources Institute to facilitate the implementation of new management and conservation methods that can add to the effectiveness and efficiency of the District's work. SWCD also works in close connection with the highway department and provides technical advisement as needed.

6.4.3.4 Tompkins County Highway Department

The Department maintains more than 300 miles of roadway and 109 bridges in the County. The mission of the Highway Department is to provide highway and bridge construction, maintenance, and emergency services safely, effectively, and efficiently for our local and traveling public customers, while promoting self-esteem and growth as individuals.

Road Maintenance staff construct, maintain, and repair roads, maintain intersections and roadside drainage, eliminate roadside hazards, and repair guiderails. The Tompkins County Highway Department also maintains more than 4,500 signs. The highway department works with the County SWCD to conduct stormwater maintenance and stream management to increase efficiency and streamline working collaboration between departments.

6.4.4 Administrative and Technical Capabilities - State and Federal

6.4.4.1 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 State Hazard Mitigation Plan, working with input from other state agencies, authorities and organizations. The plan was approved by FEMA in 2019 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 Tompkins County HMP Update. The state HMP can be found here: <https://mitigateny.availabs.org/>.

6.4.4.2 New York State Department of Environmental Conservation (NYSDEC) – Region 7

Within the NYSDEC – Region 7 Central New York State and includes Broome, Cayuga, Chenango, Cortland, Madison, Onondaga, Oswego, Tioga and Tompkins counties. The Region 7 office is located in Syracuse, NY. DEC is headed by a Commissioner, who is assisted by executive managers. The department has 24 divisions and offices and is further organized into bureaus to fulfill the functions and regulations established by Title 6 of New York Codes, Rules and Regulations (6NYCRR) 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.

It is the Mission of the DEC "To conserve, improve and protect New York's natural resources and environment and to prevent, abate and control water, land and air pollution, in order to enhance the health, safety and welfare of the people of the state and their overall economic and social well-being."

DEC's goal is to achieve this mission through the simultaneous pursuit of environmental quality, public health, economic prosperity and social well-being, including environmental justice and the empowerment of individuals to participate in environmental decisions that affect their lives.

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

Within the NYSDEC – Division of Water, the Bureau of Flood Protection and Dam Safety (<https://www.dec.ny.gov/chemical/290.html#Bureaus>) cooperates with federal, state, regional, and local partners to protect lives and property from floods, coastal erosion and dam failures through floodplain management and both structural and non-structural means; and, provides support for information technology needs in the Division. The Bureau consists of these sections as described below.



Dam Safety

NYSDEC has the regulatory power over dams across the State. The functions of the Dam Safety Section include: safety inspection of dams; technical review of proposed dam construction or modification; monitoring of remedial work for compliance with dam safety criteria; and emergency preparedness.

To provide support and assistance to dam owners and operators, the NYSDEC website contains information that can help. This includes dam safety forms, Emergency Action Plan (EAP) instructions and guidance, documents for dam owners, and a complete inventory of dams for the State. This can all be found on their website: <https://www.dec.ny.gov/lands/311.html>. Counties and municipalities can access the NYS DEC Inventory of Dams on the State's GIS data site (<https://gis.ny.gov/gisdata/inventories/details.cfm?DSID=1130>).

Figure 6-1. Dam Safety Forms

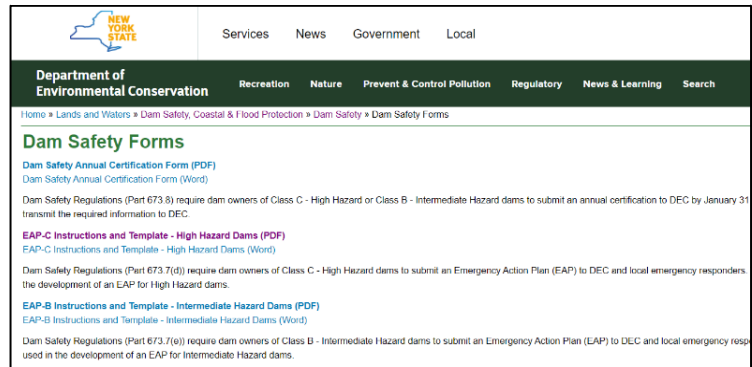
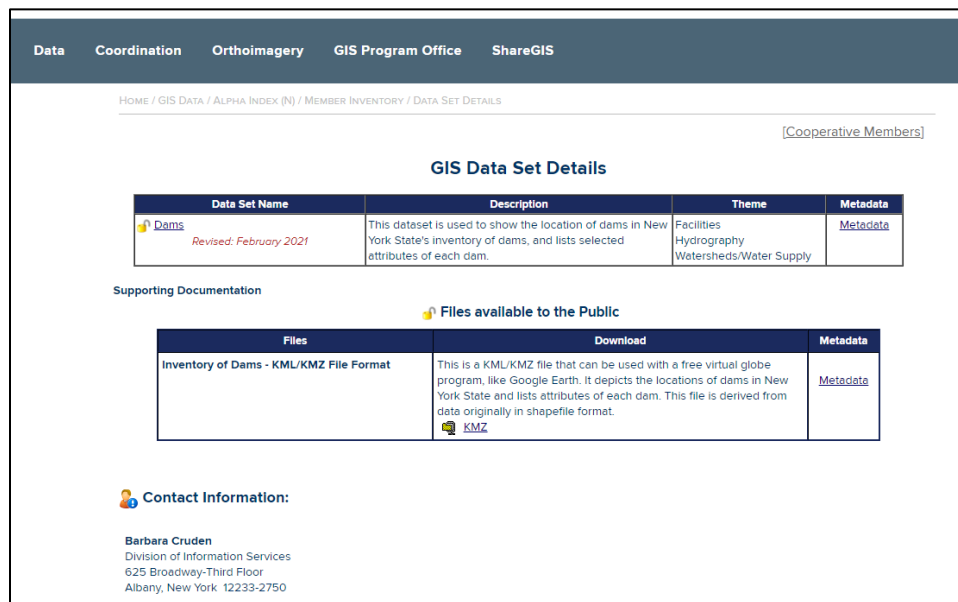


Figure 6-2. New York State GIS Data – Inventory of Dams



Coastal Erosion and Flooding

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.



Flood Protection and Floodplain Management

This section is responsible for reducing flood risk to life and property through construction, operation and maintenance of flood control facilities. NYSDEC works with communities throughout the State to find ways to reduce or protect against physical and property damage caused by flooding. The Department works on: structural flood damage reduction projects to prevent flood water from damaging communities; helps communities establish sustainable floodplain management programs to mitigate flooding; and works with communities participating in the NFIP to administer local regulations and building standards for flood damage prevention (NYSDEC Division of Water 2020).

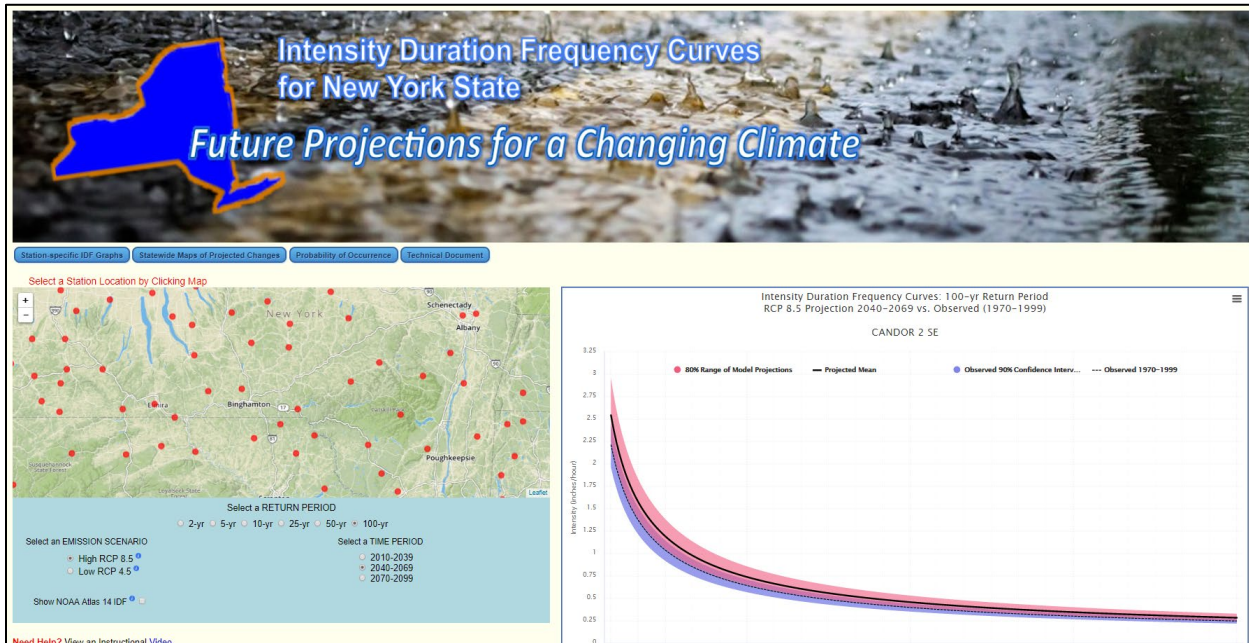
6.4.4.4 Northeast Regional Climate Center

The Northeast Regional Climate Center (NRCC), based out of Cornell, 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. In 2009 alone, 175 total flooding events in New York State led to \$32.82 million in property damage. The state is also still recovering from the \$42 billion toll of Superstorm Sandy. Climate change is resulting in an increase in the frequency of heavy rainfall events. 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. These graphs, called Intensity Duration Frequency (IDF) curves, show anticipated increases of storm events from 2- to 100-year intervals and are projected into the future as far as 2099. These products are designed for use by municipal officials, researchers, planners, highway departments, and other decision-makers who need to take storm events into account. These IDF curves display how precipitation events are being affected by New York State's rapidly changing climate (NRCC 2015).

Projections for Tompkins 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 6-3 displays the screenshot of the website.



Figure 6-3. 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). This data is 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 6-4 shows a screenshot of the website.



Figure 6-4. Screenshot of the Extreme Precipitation in New York & New England website

Extreme Precipitation in New York & New England
An Interactive Web Tool for Extreme Precipitation Analysis

About this Project **Data & Products** **Daily Monitoring** **Documentation**

The climatology of very large precipitation events is a critical component of engineering design and regulations for structures and facilities that must withstand or protect against such events. These events can produce localized urban and widespread flooding with damage to property, degradation of water quality, and potential loss of life. On a national level, a comprehensive climatology of rainfall events has not been updated since the early 1960s

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Web Site Features

A number of features are included in this website to make it compatible with the NWS analysis for the Middle Atlantic region and to enhance its usability. The design of the site and its products have been reviewed by stakeholders with the U.S. Natural Resource Conservation Service (NRCS), various state agencies, and private engineering consulting firms. The site includes estimates of extreme rainfall for various durations (from 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 also included as are the partial duration rainfall series used in their computation. Regional extreme rainfall maps and graphic products are also 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.

Past Extreme Rainfall Analyses

In New York and New England this is a concern as the current climatology excludes almost 50 additional years of data. The National Weather Service is using a regional approach to update the 1960s analysis with two climatologies completed for the southwestern and middle Atlantic regions of the U.S. The Mid-Atlantic analysis extends as far north as Pennsylvania and thus excludes New York and New England. In these states, several regional and state-specific extreme rainfall analyses were conducted in the 1990 and early 2000s, but even these analyses are over a decade old and differences in the data records used do not provide a consistent regional analysis of rainfall extremes.

Extreme Rainfall Since the 1960s

The previous climatologies have been based on the premise that the extreme rainfall series do not change through time. Therefore it is assumed that older analyses reflect current conditions. Recent analyses show that this is not the case, particularly in New York and New England where the frequency of 2 inch rainfall events has increased since the 1950s and storms once considered a 1 in 100 year event have become more frequent. Such storms are now likely to occur almost twice as often.

6.4.4.5 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).

6.4.4.6 New York Rural Water Association

New York Rural Water Association (NYRWA) is the largest membership organization representing small water/wastewater systems in the state. The system members include villages, towns, municipal water and sewer districts, county authorities, state and federal institutions/facilities, schools and colleges, investor-owned water utilities, homeowner associations, and privately owned systems such as mobile home parks.

NYRWA assists communities and systems to comply with complex regulations and to protect the public health and environment. NYRWA also offers specialized training to industry professionals at regional meetings and our statewide annual technical conference. And finally, NYRWA acts as a liaison between the state and federal government, local communities, and rural water and wastewater systems.

Enfield and Tompkins County is currently working with the NY Rural Water Association to help assess local water quality and quantity issues associated with groundwater. Free support to develop water quality plans and may result in water protection ordinance. Uses DoH test well information to assess demand and have developed survey to determine what % town is dealing with water issues.

6.4.5 Fiscal Capabilities – County and Local

6.4.5.1 Municipal Fiscal Capabilities

Tompkins County municipalities' fund mitigation projects largely through existing local budgets, local appropriations (including referendums and bonding), but also supplement this a variety of federal and state loan and grant programs. Many municipalities noted throughout the planning process that they are faced with increasing fiscal constraints, including decreasing revenues, budget constraints, and tax caps. In an effort to overcome these fiscal challenges, municipalities continue to leverage the sharing of resources and combining available funding with grants and other sources. Many however noted limited capacity to be able to take advantage of funding opportunities and noted that inter-municipal cooperation would be beneficial in obtaining funding.



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>. Furthermore, the New York Mitigation Resource Guide (https://www.fema.gov/sites/default/files/2020-09/fema_region-03_mitigation-funding-resource-guide_new-york-09-24-2020.pdf) provides added information on a range of creative funding sources for mitigation.

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

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.

6.4.6.1 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:

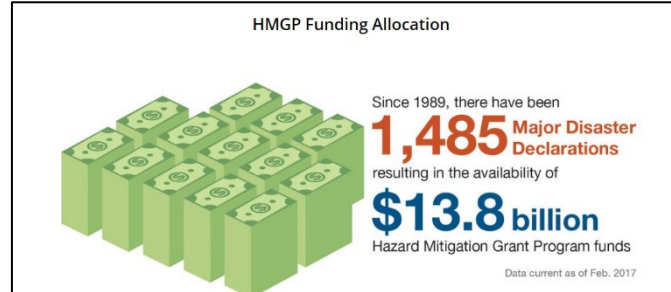
<https://www.fema.gov/hazard-mitigation-assistance>. The FEMA mitigation grant programs are described below.



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

Figure 6-5. FEMA HMGP Funding Allocation



Source: FEMA 2018

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).

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 6-6. 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>

6.4.6.2 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).



6.4.6.3 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.

6.4.6.4 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)

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)

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 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 received 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. SSBG resources are dedicated to covering necessary



including social, health, and mental health services for individuals, and for repair, renovation, and rebuilding of health care facilities, mental hygiene facilities, childcare 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, USED A invests in key public infrastructure, such as traditional public works projects, including water and sewer systems improvements, expansion of port and harbor facilities, brownfields, multi-tenant 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, USEDA 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 USEDA 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). Currently, there are no scour critical/flood prone bridges in Tompkins County. 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.

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 Program

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.

6.4.6.5 FEMA National Dam Safety Program

The National Dam Safety Program (NDSP) is administered by FEMA with the primary purpose of providing financial assistance to states to strengthen their dam safety programs. Funds from this program are used for the following types of activities:

- Dam safety training for state personnel
- Increase in the number of dam inspections
- Increase in the submittal and testing of Emergency Action Plans
- More timely review and issuance of permits
- Improved coordination with state emergency preparedness officials
- Identification of dams to be repaired or removed
- Conduct dam safety awareness workshops and creation of dam safety videos and other outreach materials

In 2016, the President signed the Water Infrastructure Improvements for the Nation Act (WIIN Act) which added a new grant program under the NDSP. Section 5006 of the Act, Rehabilitation of High Hazard Potential Dams, provides technical, planning, design, and construction assistance in the form of grants for rehabilitation of eligible high hazard potential dams.



Rehabilitation of High Hazard Potential Dams (HHPD) Program

A state or territory with an enacted dam safety program, the State Administrative Agency, or an equivalent state agency, is eligible to apply for the HHPD grant. Each eligible state may submit only one HHPD grant application. Nonfederal dams that (i) are in a state or territory with a state or territorial dam safety program; (ii) are classified as having "high hazard potential" by the dam safety agency in the dam's state or territory; (iii) have an emergency action plan approved by the state or territory's dam safety agency; and (iv) the state or territory in which the dam is located determines either of these criteria – the dam fails to meet minimum dam safety standards public. An "eligible high hazard potential dam" does not include: (i) a licensed hydroelectric dam; or (ii) a dam built under the federal authority of the Secretary of Agriculture. For additional information regarding the HHPD program, please refer to: <https://www.fema.gov/emergency-managers/risk-management/dam-safety/grants/resources>.

In New York State, the NYSDEC applies for HHPD funding on behalf of the State. In April 2021, it was announced that \$650,000 is available in the State to support eligible dam repairs. Funding is available to local government and non-profit owners of high-hazard dams.

Figure 6-7. NYSDEC HHPD Funding Announcement

The screenshot shows a press release from the Department of Environmental Conservation (DEC). The header includes the department name and navigation links for Recreation, Nature, Prevent & Control Pollution, Regulatory, News & Learning, and Search. The main title of the press release is "DEC Announces \$650,000 in Grant Funding Now Available to Support Eligible Dam Repairs Funding Available to Local Government and Non-Profit Owners of 'High Hazard' Dams for Pre-Construction Activities". The text below the title provides details about the grant program, including the amount of funding, the purpose of the grants, and the eligibility criteria for applicants. It also mentions the deadline for applications and provides contact information for the Grants Gateway team.

Source: NYSDEC 2021

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

The CSC program is jointly sponsored by the following six New York State agencies: NYSDEC; 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 May 2020, more than 304 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 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 of 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.dec.ny.gov/docs/administration_pdf/certman.pdf.

At the time of this plan update, Tompkins County has seen significant participation in the program. The County itself is Silver Certified. The Town of Ulysses, Town of Ithaca, City of Ithaca, Town of Dryden, and Town of Caroline are certified bronze. The Village of Lansing, Village of Cayuga Heights, Town of Lansing, and Town of Danby are registered in the program.

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.

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 also 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.

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.

6.4.6.7 Added New York State Department of Environmental Conservation (NYSDEC) Funding Opportunities

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.

Tompkins County has utilized WQIP to advance a number of local mitigation efforts including the Ludlowville Stormwater Control Project.



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

NYSDEC, 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 \$65,000 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 \$85,000 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 for the production of 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.

6.4.6.8 Added New York State Department of Transportation (NYSDOT) Funding Opportunities

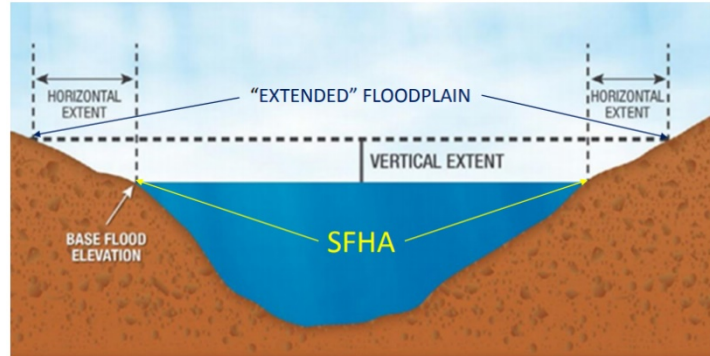
BRIDGE NY

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>.



6.4.6.9 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 NYSDEC 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 NYSDEC 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 NYSDEC, 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 NYSDEC, 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 Mitigation Funding Source Summary

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. For additional resources, refer to the FEMA 2020 *New York Mitigation Resource Guide* (https://www.fema.gov/sites/default/files/2020-09/fema_region-03_mitigation-funding-resource-guide_new-york-09-24-2020.pdf).



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, PDM	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
Pre-Disaster Mitigation (PDM) Competitive Grant Program	Grants to States and communities for planning and projects that provide long-term hazard pre-disaster mitigation measures	FEMA	https://www.fema.gov/pre-disaster-mitigation-grant-program
Building Resilient Infrastructure and Communities (BRIC) Grant Program	Grants to States and communities for planning and projects that provide long-term hazard pre-disaster mitigation measures	FEMA	https://www.fema.gov/bric
Public Assistance: Hazard Mitigation	Hazard mitigation discretionary funding available under Section 406 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act	FEMA	https://www.fema.gov/news-release/2017/05/03/4309/fema-hazard-mitigation-grants-404-and-406



Program	Description	Lead Agency	Website
Funding Under Section 406	following a Presidentially declared disaster		
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
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/



Program	Description	Lead Agency	Website
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 Direct Loan & Grant Program	This program provides affordable funding to develop essential community facilities in rural areas. An essential community facility is defined as a facility that provides an essential service to the local community for the orderly development of the	USDA	https://www.rd.usda.gov/programs-services/community-facilities-direct-loan-grant-program



Program	Description	Lead Agency	Website
	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/
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
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
State			



Program	Description	Lead Agency	Website
Local Government Records Management Improvement Fund (LGRMIF) Disaster Recovery Grants	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
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,	NYSDEC	https://www.dec.ny.gov/regulations/2364.html



Program	Description	Lead Agency	Website
	hand tools, hard hats, hose, portable radios and dry hydrants.		
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 Engineering Planning Grant (EPG)	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 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	NYSDEC	https://www.dec.ny.gov/pubs/81196.html



Program	Description	Lead Agency	Website
	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 Meeting and during subsequent Planning Partnership 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 via Zoom and socially distanced in person) 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 64.

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 • NFIP Community Rating System • Capital improvement programs • Open space preservation • Stormwater management regulations and master plans
Structure and Infrastructure Projects	<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
Natural Systems Protection	These are actions that minimize damage and losses and also preserve or restore the functions of natural systems.	<ul style="list-style-type: none"> • Sediment and erosion control • Stream corridor restoration • Forest management • Conservation easements • Wetland restoration and preservation
Education and Awareness Programs	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.	<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 then was conducted on August 26, 2020 with all 16 participating jurisdictions. This event was done in part to support the development of focused problem statements based on the impacts of the identified natural hazards in the county. 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. Annexes do however also honor and incorporate the diverse, creative mitigation solutions that communities identified that may fall outside of traditional actions.

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 facility lifelines. 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 lifeline 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 2014 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 2014 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 agencies, and:
- 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 Tompkins County Department of Emergency Response, Department of Health, and Highway Department and Facilities Department also included some mitigation actions to address vulnerable critical facility lifelines. 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 (2014) Tompkins 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. Overall, municipalities were able to develop action-oriented and achievable mitigation strategies. 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 initial 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 Tompkins 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. It is suggested that Tompkins County and its partners update and refine their understanding of this important process to better equip themselves for preparing competitive applications. 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.

