Section 6. Mitigation Strategies

This section presents the mitigation strategies that Genesee County can take to reduce potential exposure and losses identified as concerns in the Risk Assessment portion of this hazard mitigation plan (HMP). The Planning Partnership reviewed the risk assessment to identify and develop these mitigation strategies.

Specifically, this section includes (1) background and past mitigation accomplishments, (2) the general mitigation planning approach, (3) review and update of mitigation goals and objectives, (4) the Capability Assessment, and (5) mitigation strategy development and update information.

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

Mitigation actions can include revisions to land-use planning, training and education, and structural and non-structural safety measures.

6.1 Background and Past Mitigation Accomplishments

In accordance with Disaster Mitigation Act of 2000 (DMA 2000) requirements, this section includes the following discussion regarding past mitigation activities and an overview of past efforts as foundation for understanding mitigation goals, objectives, and activities outlined in this plan. The County, through previous and ongoing hazard mitigation activities, has been 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 2008 Genesee County Multi-Jurisdictional HMP. The current planning process represents the regulatory five-year plan update process, which includes participation of the county, 19 municipal governments in the county, and key county and regional stakeholders.
- Reports, plans, and studies relating to or including information on natural hazards or natural hazard policies affecting Genesee County have been reviewed and incorporated into this plan update as appropriate, as discussed in Section 3 (Planning Process and References).
- Installing backup power generators at critical facilities
- Rehabilitating and replacing bridges and culverts
- Maintaining building codes

6.2 General Mitigation Planning Approach

The overall approach to update County and local hazard mitigation strategies is based on Federal Emergency Management Agency (FEMA) and New York State (NYS) regulations and guidance regarding local mitigation plan development, including:

- DMA 2000 regulations, specifically 44 *Code of Federal Regulations* (CFR) 201.6 (local mitigation planning)
- FEMA *Local Mitigation Planning Handbook*, March 2013
- FEMA *Integrating Hazard Mitigation into Local Planning*, March 2013
- FEMA *Plan Integration: Linking Local Planning Efforts*, July 2015.
- FEMA (386-3) *Identifying Mitigation Actions and Implementing Strategies*

- 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 detailed in later sections of this section:

- Review and update mitigation goals and objectives.
- Identify mitigation capabilities and evaluate their capacity and effectiveness to mitigate and manage hazard risk.
- Identify progress on previous county and local mitigation strategies.
- Develop updated county and local mitigation strategies.
- Prepare an implementation strategy, prioritizing projects and initiatives in the updated mitigation strategy.

6.3 Review and Update of Mitigation Goals and Objectives

This section documents efforts to update hazard mitigation goals and objectives established to reduce or avoid long-term vulnerabilities to identified hazards.

FEMA defines ***Goals*** as general guidelines that explain what should be achieved. Goals are usually broad, long-term policy statements and represent a global vision.
FEMA defines ***Objectives*** as strategies or implementation steps to attain mitigation goals. Unlike goals, objectives are specific and measurable, where feasible.
FEMA defines ***Mitigation Actions*** as specific actions that help achieve mitigation goals and objectives.

6.3.1 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 Planning Partnership developed mitigation goals and objectives based on risk assessment results, discussions, research, and input from Planning Partnership members, existing authorities, policies, programs, resources, stakeholders, and the public.

The original goals and objectives of the Genesee County HMP were established by the Planning Partnership during the 2008 update. During the 2019 update, these goals were revised to reflect changes in County needs and expectations, and to align with the New York State HMP goals. This plan defines goals as follows:

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

Genesee County goals are compatible with needs and goals expressed in other available community planning documents as well as the NYS HMP. Achievement of these goals indicates effectiveness of mitigation strategy.

Objectives are short-term aims that form a strategy or course of action to meet a goal. Unlike goals, objectives are specific and measurable. The Planning Partnership envisioned use of objectives to (1) measure success of the plan and mitigation strategy once implemented, and (2) help prioritize identified

mitigation actions. Objectives were selected by the Planning Partnership through its knowledge of the local area, review of past efforts, findings of the risk assessment, qualitative evaluations, and identification of mitigation options.

The Steering Committee reviewed the 2008 goals and objectives during the 2019 plan update process. The 2008 goals and objectives were reviewed in consideration of hazard events and losses since issuance of the 2008 plan; updated hazard profiles and vulnerability assessment; goals and objectives established in other related state, county, and local risk management plans; and direct input on how the County and municipalities can best address their hazard risks.

Goals and objectives for the 2019 update have been revised to show current County priorities and needs. The following are the goals and objectives for the 2019 plan update (Table 6-1 and Table 6-2). Table 6-3 shows how several objectives may support multiple goals.

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

Goal Number	Goal Statement
G-1	Reduce the likelihood and impacts of hazards on life, property, and the environment.
G-2	Protect life, property, critical infrastructure, the environment, and the economy from the impacts of natural, technological, and human-caused disasters.
G-3	Educate the public, officials, and other stakeholders about the hazards they face and what can be done to mitigate hazard impacts.

Table 6-2. Genesee County Hazard Mitigation Plan Objectives

Objective Number	Objective Statement
O-1.1	Develop and/or update local regulations based on current information and best practices.
O-1.2	Maintain natural systems to reduce the impacts of hazards.
O-2.1	Acquire, retrofit, or relocate structures from flood-prone areas.
O-2.2	Retrofit critical infrastructure to protect against hazard impacts.
O-2.3	Ensure that critical facilities can continue to function during and after hazard impacts.
O-2.4	Work with residents to maintain drainage ditches on private property.
O-2.5	Encourage residents and business owners to insure their property against hazard impacts, including through flood insurance through the National Flood Insurance Program (NFIP).
O-3.1	Work with legislators to develop and enact legislation that reduces long-term vulnerability to hazards.
O-3.2	Increase public awareness of the hazards and risks faced by the County's residents and businesses, and what measures they can take to protect their property.

Table 6-3. Genesee County Hazard Mitigation Plan Goals and Objectives

Obj. #	Objective Statement	Goal 1	Goal 2	Goal 3
O-1.1	Develop and/or update local regulations based on current information and best practices.	X	X	

Obj. #	Objective Statement	Goal 1	Goal 2	Goal 3
O-1.2	Maintain natural systems to reduce the impacts of hazards.	X	X	
O-2.1	Acquire, retrofit, or relocate structures from flood-prone areas.	X	X	
O-2.2	Retrofit critical infrastructure to protect against hazard impacts.	X	X	
O-2.3	Ensure that critical facilities can continue to function during and after hazard impacts.		X	
O-2.4	Work with residents to maintain drainage ditches on private property.	X	X	X
O-2.5	Encourage residents and business owners to insure their property against hazard impacts, including through flood insurance through the National Flood Insurance Program (NFIP).		X	X
O-3.1	Work with legislators to develop and enact legislation that reduces long-term vulnerability to hazards.			X
O-3.2	Increase public awareness of the hazards and risks faced by the County's residents and businesses, and what measures they can take to protect their property.			X

6.4 Capability Assessment

According to FEMA 386-3, a Capability Assessment is (1) an inventory of a community's missions, programs, and policies; and (2) 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 may either facilitate or hinder mitigation.

During the original planning process, the Planning Partnership reviewed a wide range of state, county, and local plans, regulations, and documents. Specifically, the Planning Partnership considered datasets that catalogued structures and infrastructure by type, number, and assessed valuation through resources such as census information, tax assessment files, land use, and other available government sources. County Geographic Information System (GIS) datasets were also incorporated, including a building inventory (tax maps), property values (property assessments), land use (zoning boundaries), Pictometry (photo images), critical infrastructure/key resources (water, sewer, electric, natural gas, national pipeline intercepts, telecommunications, information technology—facilities and distribution systems), and vulnerable populations facilities (hospitals, schools, nursing homes, group homes, daycare facilities, malls, arenas/stadiums). The 2008 version of the plan listed these documents to accurately express both vulnerability and assets in the County. Results of the document review were incorporated into the risk assessment and the mitigation strategy of the 2008 plan.

During the 2019 plan update process, all participating jurisdictions were tasked with developing or updating their capability assessments, paying particular attention to evaluating effectiveness of these capabilities in supporting hazard mitigation, and identifying opportunities to enhance local capabilities.

County and municipal capabilities in the areas of planning and regulatory, administrative and technical, and fiscal are presented in the respective Capability Assessment sections of their jurisdictional annexes in

Section 9. Furthermore, within each annex, participating jurisdictions have identified how they have integrated hazard risk management into their existing planning, regulatory, and operational and administrative framework ("integration capabilities"), and how they intend to promote this integration ("integration actions"). A summary of these continued efforts to develop and promote a comprehensive and holistic approach to hazard risk management and mitigation appears in Section 7.

This section summarizes the plans, programs, and resources available to support mitigation; administrative and technical capabilities on the local and state/regional levels; and federal and state fiscal capabilities.

6.4.1 Summary of Plans, Programs, and Resources Available to Support Mitigation

Following are descriptions of various federal, state, county, and local planning and regulatory, administrative, technical, and fiscal programs available to promote and support mitigation and risk reduction in Genesee County.

Evacuation and Sheltering

The Genesee County Office of Emergency Management Services (OEMS) addresses evacuation and sheltering in its Comprehensive Emergency Management Plan (CEMP), which is available on the OEMS website. Also available on the OEMS website is information regarding evacuation and sheltering and how the public will be made aware of the decision to evacuate.

Evacuation routes are determined at the time of an incident by the Incident Commander or his/her designee. Generally, evacuation routes will be whatever major roads lead away from the evacuated area. Major roads are shown in Section 4.

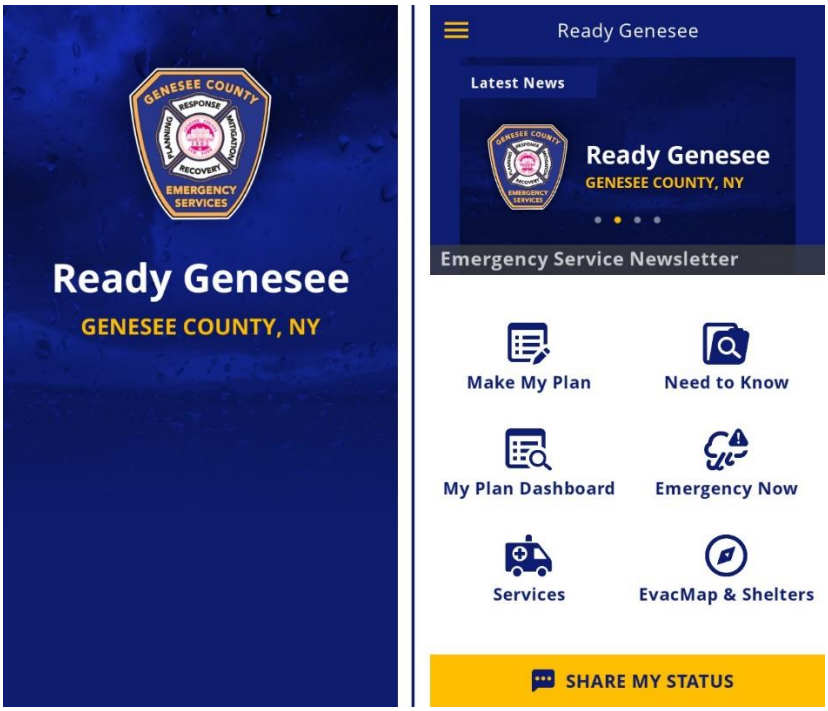
Genesee County partners with the American Red Cross (ARC) to operate emergency shelters throughout the County, in accordance with the existing "Red Cross Sheltering Plan." The ARC has pre-identified a set of facilities that could be used as emergency shelters. Compliance with the Americans with Disabilities Act (ADA) is included in the criteria that the ARC uses to approve a facility to serve as a shelter, as is the requirement that facilities must be outside of the Special Flood Hazard Area (SFHA). During an incident that requires evacuation of an area, the County OEMS will work with the ARC to activate one or more shelters (depending on the need and the resources available to operate a shelter) and will ensure that the location(s) of the shelter(s) is/are provided to evacuees. How evacuees will be notified of shelter locations is also addressed by the "Public Warning and Emergency Information" section of the CEMP.

During an incident, Genesee County's emergency management structure will establish a Human Needs resources group to address medical needs, access and functional needs, compliance with the ADA, and other issues that arise during an evacuation. This group is also described in the CEMP in the "Meeting Human Needs" section.

READYGenesee

Genesee County has developed a personal preparedness program called READYGenesee. This program is designed to help residents learn how to protect themselves from the impacts of all hazards, including developing family emergency plans and creating disaster supply kits. The County developed a "Ready Genesee" smartphone app that provides information on road closures, weather events, and preparedness reminders.

Figure 6-1. Ready Genesee App



National Flood Insurance Program (NFIP)

The U.S. Congress established the NFIP with enactment 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 compliance with state and community floodplain management regulations that reduce future flood damage.

The three components of the NFIP are 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 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 via implementation by communities of sound floodplain management requirements and purchases by property owners of flood insurance. Additionally, buildings constructed in compliance with NFIP building standards undergo approximately 80 percent less damage annually than those not built in compliance (FEMA 2008).

Many of the County's individual jurisdictions actively participate in the NFIP. As of 2018, 395 NFIP policies were in effect in Genesee County. Claims numbered 171, involving nearly $1.5M for damages to structures and contents. NFIP Repetitive Loss (RL) properties numbered 11 with two NFIP Severe Repetitive Loss (SRL) properties in the County. Further details on the County's flood vulnerability appear in the flood hazard profile in Section 5 (Risk Assessment).

Municipal participation in and compliance with the NFIP is supported at the federal level by FEMA Region II and the Insurance Services Office (ISO), and at the state-level by the NYS Department of Environmental Conservation (NYSDEC) and NYS DHSES. Additional information on the NFIP program and its implementation throughout the County is in the flood hazard profile in this HMP (Section 5.4.6).

The State and communities may adopt higher regulatory standards when they implement provisions of the NFIP. Specifically identified are the following:

Freeboard: By law, NYS requires Base Flood Elevation (BFE) plus two (2) feet (BFE+2) for all residential and non-residential construction. Communities may go beyond this State requirement, providing for additional freeboard. Furthermore, a number of communities across the State have supported property owners in meeting and exceeding freeboard requirements through the site plan review and zoning board of approvals process (for instance, allowing determination of overall structure heights from BFE+2 rather than from grade within NFIP floodplains).

Cumulative Substantial Improvements/Damages: The NFIP permits improvements valued at up to 50 percent of a building's pre-improvement value without need to meet flood protection requirements. Over the years, a community may issue a succession of permits for various repairs or improvement to the same structure. However, issuing this succession of permits can greatly increase overall flood damage potential for the structure and within a community. Thus, the community may wish to deem "substantial improvement" cumulative so that once a threshold of improvement is reached within a certain length of time, the structure is considered substantially improved and must meet flood protection requirements.

In addition to its overall requirements and identification of areas for enhancement, the NFIP supports and promotes use of certain tools, such as Flood Insurance Studies (FIS) and Flood Insurance Rate Maps (FIRM), which can help Genesee County and its jurisdictions identify specific locations of greater flood vulnerability. These tools are described in more detail immediately below.

Flood Insurance Studies

FEMA is responsible for implementing the federal directives of identifying flood-prone areas in the United States and establishing flood risk zones within flood-prone areas. These directives are in the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973. To this end, FEMA develops a Flood Insurance Study (FIS) for participating communities. The FIS consists of a narrative report of countywide flood hazards, including descriptions of flood areas studied, engineering methods used, principal flood problems, flood protection measures, and graphic profiles of flood sources. For most participating communities, FEMA has prepared an FIS that presents water surface elevations of floods of various magnitudes, including the 1-percent annual chance flood and the 0.2-percent annual chance flood (the 500-year flood).

Flood Insurance Rate Maps and Digital Flood Insurance Rate Maps

In addition to the FIS, FEMA also provides Flood Insurance Rate Maps (FIRM) or digital FIRMs (DFIRM) for entire counties and individual jurisdictions. BFEs and boundaries of 100-year floodplains are shown on a FIRM, which is the principal tool for identifying locations and extents of flood hazards.

FIRMs depict SFHAs, which are areas subject to inundation from the 1-percent annual chance flood (also known as the base flood or the 100-year flood). Those areas are defined as follows:

- Zones A1-30 and AE: SFHAs subject to inundation by the base flood, determined via detailed hydraulic analysis. BFEs are shown within these zones.
- Zone A (also known as Unnumbered A-zone): SFHAs where no BFEs or depths are shown because detailed hydraulic analyses have not been performed.
- Zone AO: SFHAs subject to inundation by types of shallow flooding with average depths between 1 and 3 feet. These are normally areas prone to shallow sheet flow flooding on sloping terrain.
- Zone VE, V1-30: SFHAs along coasts that are subject to inundation by the base flood and which are threatened by additional hazards stemming from actions by waves with heights of 3 feet or greater. BFEs derived from detailed hydraulic analysis are shown within these zones.

Other areas of potential flooding not specified as SFHAs are defined as follows:

- Zones B and X (shaded): Zones where land elevation has been determined above the BFE but below the 500-year flood elevation.
- Zones C and X (unshaded): Zones where land elevation has been determined above both the BFE and the 500-year flood elevation.

Per the FEMA Map Service Center, effective dates for the FIS and FIRM/DFIRM of each jurisdiction are listed in Table 6-4.

Table 6-4. Effective FIS and FIRM Dates for Genesee County Jurisdictions

Jurisdiction	FIRM Panels	FIS Reports
Alabama (T)	11/18/1983	N/A
Alexander (T)	5/4/1987	N/A
Alexander (V)	5/4/1987	N/A
Attica (V)	7/3/1986	7/3/1986
Batavia (C)	9/16/1982	9/16/1982
Batavia (T)	1/17/1985	7/17/1984
Bergen (T)	7/6/1984	N/A
Bergen (V)	6/8/1979	N/A
Bethany (T)	9/24/1984	N/A
Byron (T)	2/1/1988	N/A
Corfu (V)	10/15/1985	N/A
Darien (T)	7/6/1984	N/A
Elba (T)	10/5/1984	N/A
Elba (V)	1/20/1984	N/A
Le Roy (T)	9/14/1979	N/A
Le Roy (V)	8/3/1981	2/3/1981
Oakfield (T)	5/25/1984	N/A
Oakfield (V)	3/23/1984	N/A
Pavilion (T)	2/27/1984	N/A
Pembroke (T)	1/20/1984	N/A
Stafford (T)	7/16/1982	N/A

Source: FEMA Map Service Center 2018
SFHA Special flood hazard area

Risk Mapping, Assessment, and Planning

FEMA's Risk Mapping, Assessment, and Planning (Risk MAP) program provides communities with flood information and tools to enhance their mitigation plans and take action to protect their citizens. It builds on flood hazard data and maps produced by the Flood Map Modernization (Map Mod) program. Through more precise flood mapping products, risk assessment tools, and planning and outreach support, Risk MAP strengthens local ability to make informed decisions about reducing risk. It combines quality engineering with state-of-the-art flood hazard data to assist communities in planning and preventing risk by using the most current information.

Risk MAP collaborates with state, tribal, and local governments and delivers quality data that increases public awareness and leads to action resulting in reduced risk to property and life. Risk MAP focuses on products and services beyond the traditional FIRMs and works with officials to utilize flood risk data and assessment tools. Risk MAP also helps effectively communicate risk to citizens and enables communities to enhance their mitigation plans and actions (FEMA 2012).

The goals of Risk MAP are as follows:

- Flood Hazard Data – Addresses gaps in flood hazard data to (1) form a solid foundation for risk assessment and floodplain management, and (2) render the NFIP actuarially sound.
- Public Awareness/Outreach – Ensures that measurable increases of public awareness and understanding of risk result in measurable reduction of current and future vulnerability.
- Hazard Mitigation Planning – Leads and supports states, localities, and tribal communities to effectively engage in risk-based mitigation planning, resulting in sustainable actions that reduce or eliminate risks to life and property from natural hazards.
- Enhanced Digital Platform – Provides an enhanced digital platform that improves management of Risk MAP, conserves information produced by Risk MAP, improves communication of risk data and related products to all levels of government and the public, and facilitates sharing of risk data and related products among those entities.
- Alignment and Synergies – Aligns risk analysis programs and develops synergies to enhance decision-making capabilities through effective risk communication and management.

FEMA headquarters and regional offices lead a team of contractors and stakeholders to deliver its Risk MAP program. The team is composed of representatives from entities whose responsibilities are as follows:

- FEMA Headquarters – Responsible for overall program implementation.
- FEMA Regions – Manage regional flood map production and help implement the Risk MAP outreach strategy.
- State, Local, and Tribal Entities – Help ensure that updated mapping information is used to make informed decisions regarding risk.
- Program Management Contractor – Provides general oversight for Risk MAP of integration of activities, development and implementation of a national outreach strategy, and stakeholder relations.
- Production and Technical Services Contractors – Update flood hazard data and maps.

- Customer and Data Services Contractor – Provides the digital platform for sharing flood mapping products and information.

Risk MAP will provide state and community officials with three flood risk products (Flood Risk Report, Flood Risk Map, and Flood Risk Database) to help them better understand flood risk and potential impacts of floods on communities and individuals. These products will enable communities to take proper mitigation actions to reduce flood risk by referencing summaries within the three products of information captured through the Flood Risk Datasets during a Flood Risk Study (FEMA 2018). These Flood Risk Datasets include:

- Changes since last FIRM
- Flood depth and analysis grids
- Flood risk assessment data
- Areas of mitigation interest (FEMA 2018)

The Flood Risk Report conveys to stakeholders a comprehensive analysis of flood hazard and risk exposure within their communities, watersheds, or other geographic areas. The report parallels the FIS by providing a narrative of the flood risk assessment methodology and results. The report provides risk assessment information at the project level, emphasizing risk reduction activities with possible effects beyond the specific stream or community. The report also presents risk assessment information that can be incorporated into mitigation plans (FEMA 2018).

NFIP Community Rating System Program

As an additional component of the NFIP, the Community Rating System (CRS) Program is a voluntary incentive program that recognizes and encourages community floodplain management activities exceeding minimum NFIP requirements. The three goals of the CRS Program are to (1) reduce flood losses, (2) facilitate accurate insurance rating, and (3) promote awareness of flood insurance (FEMA 2012). Community actions to meet those goals result in discounted flood insurance premium rates to reflect reduced flood risk.

For participating communities, flood insurance premium rates are discounted in increments of 5 percent. For example, a Class 1 community receives a 45-percent premium discount, and a Class 9 community receives a 5 percent discount. Class 10 communities do not participate in the CRS and therefore do not receive a discount. The CRS classes for local communities are based on 19 creditable activities in the following categories:

- Public information
- Mapping and regulations
- Flood damage reduction
- Flood preparedness

As of October 1, 2016, 50 communities within NYS were participating in the CRS Program; however, 14 of those communities had their classifications rescinded due to failure to meet annual participation requirements. Currently, only one jurisdiction in Genesee County participates in the CRS Program (City of Batavia). Policyholders in the County's towns and villages could receive significant cost savings on premiums if enrolled in the CRS Program. For example, if all towns and villages in the County would be

enrolled in the CRS Program and would maintain a CRS Class 8 rating (10 percent reduction in flood insurance premiums in the SFHA), policyholders in the County would save up to approximately $69,500.

Homeowner Flood Insurance Affordability Act of 2014

On March 21, 2014, President Obama signed into law the Homeowner Flood Insurance Affordability Act (HFIAA). HFIAA of 2014 repeals certain provisions of the Biggert-Waters Flood Insurance Reform Act of 2012 (BW-12) that eliminated (1) eligibility for Pre-FIRM subsidies of buildings newly purchased or newly insured on or after July 6, 2012, and (2) reinstatements of lapsed policies (effective on or after October 4, 2012). FEMA's initial priority is to restore Pre-FIRM subsidies for policyholders covered by Section 3 of the HFIAA (FEMA 2014a).

Federal Dam Safety Resources and Programs

Because the U.S. Army Corps of Engineers (USACE) National Inventory of Dams (NID) notes 15 dams in Genesee County, dam regulation is an important concern to County officials and residents. In fact, potential for catastrophic flooding caused by dam failures is a national concern and led to passage of the National Dam Safety Act (Public Law 92-367). For 30 years, the National Dam Safety Program (NDSP) has helped protect Americans from dam failure. The NDSP is a partnership of the states, federal agencies, and other stakeholders that encourages individual and community responsibility for dam safety. Under FEMA's leadership, state assistance funds have allowed all participating states to improve their programs through increased inspections, emergency action planning, and purchases of needed equipment. New York is one of those participating states. FEMA has also expanded existing training programs and initiated new training programs. Grant assistance from FEMA provides support for improvement of dam safety programs that regulate most dams in the United States (FEMA 2018a).

U.S. Army Corps of Engineers Dam Safety Program

USACE is responsible for safety inspections of some federal and non-federal dams in the United States that meet the size and storage limitations specified in the National Dam Safety Act. USACE has inventoried dams and has surveyed each state's and federal agency's capabilities, practices, and regulations regarding design, construction, operation, and maintenance of dams. USACE has also developed guidelines for inspection and evaluation of dam safety. According to USACE, Emergency Action Plans (EAP)—required for high-risk dams—are in place for two dams in Genesee County. None of the 15 dams tracked by USACE have undergone inspections within the past 5 years.

FEMA NDSP

NDSP helps protect people from dam failures. It is a partnership of state agencies, federal agencies, and other stakeholders that encourages individual and community responsibility for dam safety (FEMA 2018c). The program was established to improve safety and security around dams by providing assistance grants to state dam safety agencies to assist them in improving their regulatory programs, funding research to enhance technical expertise as dams are built and rehabilitated, establishing training programs for dam safety inspectors, and creating a NID. The NDSP includes:

- Information needs for dam safety – Under FEMA's leadership, state assistance funds have enabled all participating states to better their programs through increased inspections, emergency action planning, and purchase of needed equipment.

- Dam safety training – Grant assistance provides vital support for improvement of state dam safety programs that regulate most dams in the United States.
- Dam safety research – A national research program in dam safety focuses on priorities, produces products for both the layperson and the expert, and develops technological tools that drive data collection and analysis toward a better understanding of risk and remediation needs (FEMA 2013b).

The National Dam Safety Program Act was signed into law on October 12, 1996, as part of the Water Resources Development Act of 1996. It was amended by the Dam Safety and Security Act of 2002. It is administered through the U.S. Department of Homeland Security (DHS) and FEMA. The Act calls for FEMA to educate the public, dam owners, and others about need for strong dam safety programs, nationally and locally, and to coordinate partnerships among all players within the dam safety community to enhance dam safety (Association of State Dam Safety Officials 2010).

Federal Energy Regulatory Commission Dam Safety Program

The Federal Energy Regulatory Commission (FERC) has the largest dam safety program in the United States. FERC cooperates with a large number of federal and state agencies to ensure and promote dam safety and, more recently, homeland security, regarding dams associated with hydropower. A total of 3,036 dams are part of regulated hydroelectric projects and are included in the FERC program. Two-thirds of these are more than 50 years old. As dams age, concern about their safety and integrity grows, so oversight and regular inspection are important (FERC 2011). FERC staff inspects hydroelectric projects on an unscheduled basis to investigate the following:

- Potential dam safety problems
- Complaints about constructing and operating a dam
- Safety concerns related to natural disasters
- Issues concerning compliance with the terms and conditions of a license (FERC 2018)

Every five 5 years, an independent consulting engineer, approved by FERC, must inspect and evaluate projects that include dams higher than 32.8 feet (10 meters) or involve total storage capacity of more than 2,000 acre-feet (FERC 2011).

FERC monitors and evaluates research within geographic areas of concern regarding seismic activity. This information is applied to investigations and structural analyses of hydroelectric projects within these areas. FERC staff also evaluates effects of potential and actual large floods on safety of dams. During and after floods, FERC staff visits dams and licensed projects, determines extent of damage, and directs any studies or remedial measures the licensee must undertake. FERC's *Engineering Guidelines for the Evaluation of Hydropower Projects* guides FERC engineering staff and licensees in evaluating dam safety. The publication is frequently revised to reflect current information and methodologies (FERC 2011).

FERC requires licensees to prepare emergency action plans and conducts training sessions on how to develop and test these plans. The plans outline an early warning system pertaining to an actual or potential sudden release of water from a dam failure. The plans include applicable operational procedures such as reducing reservoir levels and reducing downstream flows as well as procedures for notifying affected residents and agencies responsible for emergency management. These plans are frequently updated and tested to ensure that everyone knows what to do in emergency situations (FERC 2011). In addition, FERC

provides dam safety publications that Genesee County can share with local municipal officials and residents to help promote regulations awareness and general information about dam safety.

New York State Floodplain Management

Two departments have statutory authorities and programs that affect floodplain management at the local jurisdiction level in NYS: NYSDEC and the Department of State's Division of Building Standards and Codes (BSC).

In 1992, the NYS Legislature amended an existing law, finding that "it is in the interests of the people of this state to provide for participation" in the NFIP (NYS BSC 2018). Although the legislature recognized that "land use regulation is principally a matter of local concern" and that local governments "have the principal responsibility for enacting appropriate land use regulations," the law requires all local governments with land use restrictions over SFHAs to comply with all NFIP requirements (NYS 2018). The law clearly advises local governments that failure to qualify for the NFIP may result in sanctions under federal law and specifies that the State "will cooperate with the federal government in the enforcement of these sanctions" (NYS 1992).

The 1992 law that provides for local government participation in the NFIP also requires state agencies to "take affirmative action to minimize flood hazards and losses in connection with state-owned and state-financed buildings, roads and other facilities, the disposition of state land and properties, the administration of state and state-assisted planning programs, and the preparation and administration of state building, sanitary and other pertinent codes" (NYS 2018). In particular, the commissioner of the NYSDEC is to assist state agencies in several respects, including reviewing potential flood hazards at proposed construction sites.

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 Coastal Management Section works to reduce coastal erosion and storm damage to protect lives, natural resources, and properties through structural and nonstructural means. The Coastal Management Section impacts Genesee County because the Coastal Management Section also considers shorelines associated with the Atlantic Ocean, major rivers, Great Lakes, and connecting water bodies, bays, harbors, shallows, and wetlands. The Dam Safety Section is responsible for "reviewing repairs and modifications to dams, and assuring that dam owners operate and maintain dams in a safe condition through inspections, technical reviews, enforcement, and emergency planning." 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 Floodplain Management 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 Floodplain Management Section provides a wide range of technical assistance.

Comprehensive Master Plans

"Comprehensive planning" is a term used by land use planners to describe a process that establishes community goals and aspirations in terms of community development. The outcome of comprehensive planning is the "Comprehensive Plan" or "Master Plan" that dictates public policy in terms of transportation, utilities, land use, recreation, and housing. Towns are authorized to develop and adopt a Comprehensive Plan by NYS Town Law Section 272-a.; villages can do the same per Section 7-722 of the Village Law. State statutes require that all land use laws in a municipality be consistent with a Comprehensive Plan.

The County encourages municipal-level comprehensive planning. A County Comprehensive Plan was developed in 1997. The plan is updated on an annual basis through monitoring report updates. The status of each jurisdiction's comprehensive master plan is listed in its jurisdictional annex in Section 9 of this HMP.

6.4.2 Administrative and Technical Capabilities – Local

Stormwater Management Planning

When proper controls are not in place, research studies show a clear link between urbanization and increased flooding and pollutant export. The goal of stormwater management is to ensure that quantity and quality of stormwater runoff from a site undergoing construction or development should not be substantially altered from its pre-development conditions (NYSDEC 2014).

According to the federal law commonly known as Stormwater Phase II, permits are required for stormwater discharges from Municipal Separate Storm Sewer Systems (MS4) in urbanized areas and those additionally designated by the NYSDEC. Owners or operators of these MS4s must be authorized in accordance with the State Pollutant Discharge Elimination System (SPDES) General Permit for Stormwater Discharges from Municipal Separate Storm Sewer Systems. The permit requires development of a Stormwater Management Program (SWMP).

Genesee County Planning Department

The Genesee County Planning Department provides planning services to the County and its municipalities and disseminates information to private agencies and citizens. The Department is involved in county planning projects, local technical assistance, housing, environment, transportation, economic development, capital programming, education, data dissemination, SEQR reviews, County Water System, Smart Growth, agriculture and farmland protection, the County's Comprehensive Plan and other special County projects. The Department is also the staff to the County Planning Board who is responsible for undertaking reviews of local planning actions including construction and development projects under Section 239 L, M & N of New York State General Municipal Law.

Genesee County Planning Board

The Genesee County Planning Board is the acting authority that reviews local development projects and land use actions subject to referral under New York State General Municipal Law (GML). GML Article B, Sections 239-m and 239-n require municipal boards to refer certain planning actions to the County Planning Board for review before taking final action. The purposes of these laws are to encourage local decision-makers to consider the countywide and inter-municipal impacts of their local land use decisions.

It consists of nine members (eight volunteer members and one County Legislator) appointed to two-year terms by the Genesee County Legislature.

6.4.3 Administrative and Technical Capabilities – State and Regional

Local mitigation is further supported by county, regional, state, and federal administrative and technical capabilities. Entities supporting local mitigation efforts are described in the sections below.

New York State Division of Homeland Security & Emergency Services

For more than 50 years, the New York State Division of Homeland Security and Emergency Services (NYS DHSES) and its predecessor agencies have been responsible for coordinating 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 HMP. NYS DHSES prepared the current State HMP working with input from other state agencies, authorities, and organizations. FEMA approved the State HMP on December 18, 2014, and it keeps New York eligible for recovery assistance in all Public Assistance Categories A through G, and for Hazard Mitigation assistance in each of the Unified Hazard Mitigation Assistance Program's five grant programs. For example, the 2008–2011 State HMP allowed the State and its communities to access nearly $57 million in mitigation grants to prepare plans and carry out projects. Every 5 years, NYS DHSES updates the New York State HMP. The State HMP was used as guidance in updating the Genesee County HMP.

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

Within the NYSDEC – Division of Water, the Bureau of Flood Protection and Dam Safety 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 nonstructural means and provides support for information technology needs in the Division. The Bureau consists of the following sections:

- Coastal Management: Works to reduce coastal erosion and storm damage to protect lives, natural resources, and properties through structural and nonstructural means.
- Dam Safety: Responsible for reviewing repairs and modifications to dams and ensures that dam owners operate and maintain dams in a safe condition by conducting inspections, technical reviews, enforcement, and emergency planning.
- Flood Control Projects: Responsible for reducing flood risk to life and property through construction, operation, and maintenance of flood control facilities.
- Floodplain Management: 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.

Department of State's Division of Building Standards and Codes

Technical Bulletins for the 2010 *Codes of New York State*

The Division of Building Standards and Codes (BSC) publishes technical bulletins regularly to convey understanding of and information on the State's building codes. Seven current technical bulletins (excluding archived bulletins) relate to the Uniform Fire Prevention and Building Code, effective December 2010. Two of these bulletins provide guidance related to flood hazard areas:

- Determination of Stories Above Grade in Elevated One- and Two-Family Dwellings in Flood Hazard Areas
- Electrical Systems and Equipment in Flood-damaged Structures

One archived bulletin from January 2003, Flood Venting in Foundations and Enclosures Below Design Flood Elevation, refers to the out-of-date edition of FEMA Technical Bulletin 1, and to American Society of Civil Engineers (ASCE) 24-98, which is not the edition referenced by current codes.

Forms and Publications

The BSC posts several model reporting forms and related publications on its web page. The Building Permit Application requests the applicant to indicate whether the site is or is not in a floodplain and advises checking with town clerks or NYSDEC. The General Residential Code Plan Review form includes a reminder to "add 2-foot 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 (NYS BSC 2018).

Genesee/Finger Lakes Regional Planning Council

The Genesee/Finger Lakes Regional Planning Council fosters coordination among neighboring counties and provides a regional approach to concerns crossing local boundaries. The Genesee/Finger Lakes Planning Council includes Genesee County, Livingston County, Monroe County, Ontario County, Orleans County, Seneca County, Wayne County, Wyoming County, and Yates County. The voting members of the Council represent participating counties, the City of Rochester, and the community at-large. These members include chief elected officials, local legislators, department heads, and key community leaders in the region. The Council aims to address common economic and social concerns through communication, planning, policy making, coordination, advocacy, and technical assistance (GFLRPC 2018).

6.4.4 Fiscal Capabilities – Federal and State

Mitigation projects and initiatives depend largely or entirely on available funding. Genesee County is able to fund mitigation projects though existing local budgets, local appropriations (including referendums and bonding), and a myriad of federal and state loan and grant programs.

Federal Hazard Mitigation Funding Opportunities

Federal mitigation grant funding is available to all communities with current HMPs (this plan); however, most of these grants require a "local share" in the range of 10 to 25 percent of the total grant amount. The FEMA mitigation grant programs are described below.

Hazard Mitigation Grant Program

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

Applicants eligible for the HMGP are state and local governments, certain nonprofit organizations or institutions that support essential government services, and Indian tribes and authorized tribal organizations. Individuals or homeowners cannot apply directly for HMGP support; 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 assigned an inactive status and may be reconsidered as additional HMGP funding becomes available. Further information on the HMGP is available at http://www.fema.gov/hazard-mitigation-grant-program.

Flood Mitigation Assistance (FMA) Program

The FMA Program combines previous RL Flood Claims and SRL Grants into one grant program. 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 program support. Applications must come from local governments or other eligible organizations. The federal cost share for an FMA project is 75 percent. At least 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. FMA funds are distributed from FEMA to the state. NYS DHSES serves as the grantee and program administrator for FMA. Additional information on the FMA Grant Program is available at https://www.fema.gov/flood-mitigation-assistance-grant-program.

Pre-Disaster Mitigation Program

The Pre-Disaster Mitigation (PDM) program is an annually funded, nationwide, competitive grant program. No disaster declaration is required. Federal funds cover 75 percent of a project's cost up to $3 million. As with the HMGP and FMA, a FEMA-approved local HMP is required for funding approval under the PDM program. More information on the PDM program is available at http://www.fema.gov/pre-disaster-mitigation-grant-program.

Federal and State Disaster and Recovery Assistance Programs

After a disaster, various types of assistance may be made available by local, state, and federal governments. Types and levels of disaster assistance depend on severity of damage and declarations that result from the

disaster event. General types of assistance that may be provided if the President of the United States declares the event a major disaster are described below.

Individual Assistance

Individual Assistance (IA) provides help for homeowners, renters, businesses, and some nonprofit entities after disasters occur. This program is largely funded by the U.S. Small Business Administration (SBA). Homeowners and renters who suffered uninsured or underinsured losses may 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 may 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. Loans to businesses may occur to repair or replace disaster damages to property owned by the businesses, including real estate, machinery and equipment, and inventory and supplies. Businesses of any size are eligible. Nonprofit organizations such as charities, churches, and private universities are also eligible. An Economic Injury Disaster Loan provides necessary working capital until normal operations resume after a physical disaster. These loans are restricted, by law, to small businesses only. More information on IA Program Tools is available at http://www.fema.gov/individual-assistance-program-tools.

Public Assistance

Public Assistance (PA) provides cost reimbursement aid to local governments (state, county, local, municipal authorities, and school districts) and certain nonprofit agencies that were involved in disaster response and recovery programs or that underwent 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. More information on PA funds is available at http://www.fema.gov/public-assistance-local-state-tribal-and-non-profit/.

U.S. Small Business Administration Loans

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

Homeowners may apply for up to $200,000 to replace or repair their primary residences. Renters and homeowners may borrow up to $40,000 to replace or repair personal property such as clothing, furniture, cars, and appliances damaged or destroyed in a disaster. Physical disaster loans of up to $2 million are available to qualified businesses or most private nonprofit organizations. More information on SBA disaster assistance is available at https://www.sba.gov/content/disaster-assistance.

U.S. Department of Homeland Security

The Homeland Security Grant Program (HSGP) plays an important role in implementation of the National Preparedness System by supporting building, sustainment, and delivery of core capabilities essential to achieving the National Preparedness Goal of a secure and resilient nation. The Fiscal Year (FY) 2013 HSGP supports core capabilities across the five mission areas of Prevention, Protection, Mitigation, Response, and Recovery based on allowable cost. HSGP is composed of three interconnected grant programs including the State Homeland Security Program (SHSP), Urban Areas Security Initiative (UASI), and Operation Stonegarden (OPSG). Together, these grant programs fund a range of preparedness

activities, including planning, organization, equipment purchase, training, exercises, and management and administration. Further information is available at https://www.dhs.gov/homeland-security-grant-program-hsgp.

Community Development Block Grants

Community Development Block Grants (CDBG) furnish federal funds intended to provide low- and moderate-income households with decent housing, a suitable living environment, and expanded economic opportunities. Eligible activities include construction of and improvements to community facilities, roads, and infrastructure; housing rehabilitation and preservation; development activities; public services; economic development; planning; and administration. Public improvements may include flood and drainage improvements. In limited instances, and during times of "urgent need" (post-disaster) as defined by the CDBG National Objectives, CDBG funding may be used to acquire a property within a floodplain 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 is available at http://portal.hud.gov/hudportal/HUD?src=/program_offices/comm_planning/communitydevelopment/programs.

New York State Department of Transportation

Damaged Roads and Signals

High winds and flooding have caused significant damage to New York State Department of Transportation (NYSDOT) facilities, roads, and local transportation infrastructure in Genesee County. Repair and replacement of these facilities and infrastructure is necessary. In some cases, municipalities will be direct applicants; therefore, not all FEMA-eligible costs are included for damaged infrastructure. Additional information on NYSDOT funding and grant opportunities is available at https://www.dot.ny.gov/programs-services.

Scour Around Culverts and Bridges

Scour causes some of the most significant and destructive effects on roadway culverts and bridges. It results when fast-flowing water erodes and carries away foundation materials (sand and rocks from around and beneath abutments, piers, foundations, and embankments). Water's intensity and velocity can quickly compromise the integrity of roadway culverts and bridges and is one of three main causes of bridge failures (the other two are collision and overloading). Superstorm Sandy, Tropical Storm Lee, and Hurricane Irene each exposed the vulnerability of the State's bridges and culverts to scour, as the storms weakened or damaged these structures across the State.

NYS has 20,000 bridges, with 91 state bridges, 731 local bridges, and 431 culverts at risk of scour. The Scour-Critical/Flood-Prone Bridge Program will address scoured and critical roadway culverts and bridges. It will provide replacements or permanent scour retrofits to facilities unable to protect the transportation system from storm events. Over $500 million will be made available for this critical work. Identified as the initial priority for this project are 105 scour-critical/flood-prone bridges in the Capital District, Long Island, Mid-Hudson, Mohawk Valley, North Country, Finger Lakes, Central/Western, and Southern Tier regions. Genesee County had two bridges included in the initial list. More information on this program is available at the NYSDOT website at https://www.dot.ny.gov/cbow.

Emergency Watershed Protection Program

The Emergency Watershed Protection (EWP) Program 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 eliminating or muting imminent hazards to life and property caused by floods, fires, drought, windstorms, and other natural occurrences. The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) administers the EWP Program: EWP-Recovery and EWP-Floodplain Easement (FPE). Additional information is available at http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/ewp/.

EWP-Recovery

The EWP Program is a recovery effort program aimed at eliminating or muting 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 is a legal subdivision of the State (such as a city, county, township, or conservation district) or Native American Tribes or tribal governments. NRCS may 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. Instead, it is designed to install recovery measures to safeguard lives and property as a result of a natural disaster. NRCS completes a Damage Survey Report (DSR) that 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 stream banks, jeopardized water control structures and public infrastructures, wind-borne debris, and damaged upland sites stripped of protective vegetation by fire or drought. Additional information on this program is available at http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/landscape/ewpp/.

EWP-FPE

Privately owned lands or lands owned by local and state governments may 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 that would contribute to restoration of flood storage and flow, provide for control of erosion, or improve practical management of the floodplain easement
- Lands that would be inundated or otherwise damaged as a result of a dam breach

EWP-FPE easements are restored to the extent practicable to the natural environment and may include both structural and nonstructural practices to restore flood storage and flow, provide erosion control, and improve 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.

More information is available at http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/programs/financial/ewp/?cid=nrcs143_008225.

6.5 Mitigation Strategy Development and Update

This section describes how the County's and jurisdictions' mitigation strategy was updated during the planning process.

6.5.1 Update of Municipal Mitigation Strategies

To evaluate progress on local mitigation actions, each jurisdiction that planned to take actions specified in the previous HMP or related plans (including jurisdictions that participated in the 2008 Genesee County HMP) was provided with a Mitigation Action Plan Review Worksheet. Municipalities were asked to indicate the status for each action ("No Progress/Unknown," "In Progress/Not Yet Complete," "Ongoing," "Completed," or "Discontinued") and provide review comments on each. Municipalities were requested to quantify the extent of progress and provide reasons for the level of progress accomplished or explanations for why actions were discontinued. Each jurisdictional annex provides a table identifying the prior mitigation strategy, the status of those actions and initiatives, and disposition of those actions within the jurisdiction's updated strategy.

Local mitigation actions identified as "Complete" and those actions identified as "Discontinued" have been removed from the updated strategies. Those local actions that municipalities identified as "No Progress/Unknown," "In Progress/Not Yet Complete," as well as certain actions or initiatives identified as "Continuous" have been carried forward in the municipalities' local updated mitigation strategies. Municipalities were asked to provide further details on these projects to help better define the projects, identify benefits and costs, and improve implementation.

Certain ongoing mitigation strategies represent programs that are, or since the 2008 plan have become, fully integrated into the normal operational and administrative framework of the community. These programs and strategies have been identified within the Integration Actions section of each annex (or noted as continuing/ongoing actions) and removed from the updated mitigation strategy.

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

Beginning in August 2017, members of the Steering Committee and the contracted consultant worked directly with each jurisdiction (via phone, e-mail, and local meetings) to help the jurisdiction develop and update its annex and include mitigation strategies. This activity focused on identifying well-defined, implementable projects with careful consideration of benefits (risk reduction and losses avoided), costs, and possible funding sources (including mitigation grant programs).

Concerted efforts occurred to ensure that municipalities developed updated mitigation strategies which included activities and initiatives covering the range of mitigation action types described in recent FEMA planning guidance (FEMA 2013), specifically:

- Local Plans and Regulations – These mitigation actions involve government authorities, policies, or codes that influence the way land and buildings are developed and built.
- Structure and Infrastructure Project – These mitigation actions involve modifications of existing structures and infrastructure to protect them from a hazard or remove them from a hazard area. The

structures could be public or private. Critical facilities and infrastructure also fall within this type of action, as do projects to construct structures to reduce impacts of hazards.

- Natural Systems Protection – These mitigation actions minimize damage and losses and preserve or restore functions of natural systems.
- Education and Awareness Programs – These mitigation actions 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 the NFIP, StormReady (National Oceanic and Atmospheric Administration [NOAA]), and Firewise (National Fire Protection Act [NFPA]) Communities.

In consideration of federal and state mitigation guidance, the Steering Committee and Planning Partnership recognized that all municipalities would benefit from inclusion of certain mitigation initiatives. These include initiatives to address vulnerable public and private properties, including RL properties; initiatives to support continued and enhanced participation in the NFIP; improved public education and awareness programs; and initiatives to support countywide and regional efforts to build greater local mitigation capabilities.

6.5.2 Update of County Mitigation Strategy

The update of the County-level mitigation strategies included a review of progress made on actions and initiatives identified in the 2008 HMP, implementing a process similar to that used to review progress of the municipal mitigation strategy. The County was provided with a Mitigation Action Plan Review Worksheet identifying all County-level actions and initiatives specified in the 2008 plan. 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 and initiatives identified as "Complete" as well as 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 "Ongoing" have been carried forward in the County's updated mitigation strategy.

Throughout the course of the plan update process, additional regional and County-level mitigation actions were identified through the following methods:

- Review of results and findings of the updated risk assessment
- Review of available regional and County plans, reports, and studies
- Direct input from County departments and other County and regional agencies, including:
    - OEM
    - Soil and Water Conservation
    - Department of Health
    - Planning Department
    - Public Works
- Input received through the public and stakeholder outreach process

Additionally, the County has determined that it will review and incorporate the latest information on climate change projections while considering, planning, engineering, and undertaking mitigation actions and other projects throughout the County. Current climate change information is available from the following sources:

- NYSERDA's ClimAid report and 2014 updated sea level rise projections (http://www.nyserda.ny.gov/Cleantech-and-Innovation/Environment/Environmental-Research-and-Development-Technical-Reports/Response-to-Climate-Change-in-New-York.aspx)
- NYSDEC's Climate Smart Communities program (http://www.dec.ny.gov/energy/50845.html)
- NYS Community Risk and Resiliency Act (adopted September 2014) (http://assembly.state.ny.us/leg/?default_fld=&bn=A06558&term=2013&Summary=Y&Actions=Y&Memo=Y&Text=Y)

6.5.3 Mitigation Strategy Evaluation and Prioritization

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

Recent FEMA planning guidance (FEMA 2013) conveys a modified STAPLEE (Social, Technical, Administrative, Political, Legal, Economic, and Environmental) mitigation action evaluation methodology that applies a set of 10 evaluation criteria suited to the purposes of hazard mitigation strategy evaluation. This methodology involves systematic consideration of opportunities and constraints of implementing a particular mitigation action.

The Steering Committee and Planning Partnership applied the STAPLEE methodology to assist in evaluating and prioritizing mitigation actions identified in the 2017 update. Specifically, members of the Steering Committee assigned a numeric rank (-1, 0, or 1) to each mitigation action within each of the 10 evaluation criteria. These rankings indicate the following:

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

Jurisdiction representatives on the Planning Partnership were then asked to validate and update the evaluation values for each of their mitigation initiatives. Numerical results of this exercise were used to help prioritize each action or strategy as "Low," "Medium," or "High." This approach allowed consistent, systematic evaluation, and prioritization of mitigation actions.

Importantly, certain initiatives from the 2008 Genesee County HMP are carried forward in the updated strategy, with or without modification. These initiatives were previously prioritized via approaches that may have differed from those followed in this update process; however, it is reasonable to assume that all evaluation and prioritization approaches included similar considerations (such as mitigation effectiveness, technical and administrative feasibility, and cost-effectiveness).

An earlier priority ranking for a "carry forward" initiative considered by the Steering Committee to remain valid is indicated on the prioritization table; however, the 2019 criteria ratings are indicated with a null "-" marking.

6.5.4 Benefit/Cost Review

Section 201.6.c.3iii of 44 CFR requires 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 evaluation and prioritization of all actions that make up the overall mitigation strategy.

The benefit/cost review applied to evaluate and prioritize projects and initiatives in this plan update process was qualitative; that is, it did not include the level of detail required by FEMA for project grant eligibility under the HMGP and PDM grant programs. However, jurisdictions have identified costs and benefits associated with projects, actions, or initiatives specified in their local strategies.

Costs – Total cost of an action or project. May include administrative costs, construction costs (including engineering, design, and permitting), and maintenance costs.

Benefits – Savings from losses avoided because of implementation of a project. May include savings from avoided losses of life-safety, avoided losses or damages to structures and infrastructure, avoided losses of service or function, and avoided economic and environmental damage and losses.

Jurisdictions were asked to identify available actual or estimated dollar values of project costs and associated benefits. Knowledge of defined costs and benefits allows direct comparison of benefits to costs and a quantitative evaluation of project cost-effectiveness. However, numerical costs or benefits often are not identified or may be impossible to quantitatively assess.

This planning process evaluated project cost-effectiveness by assigning costs and benefits "High," "Medium," and "Low" ratings. If quantitative estimates of costs and benefits were available, ratings/ranges were defined as:

Low = < $10,000 Medium = $10,000 to $100,000 High = > $100,000

If quantitative estimates of costs or benefits were not available, qualitative ratings according to the definitions listed in Table 6-5 were applied.

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 (such as bonds, grants, and fee increases).
Medium	The project could be implemented with existing funding but would require 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.

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

For some of the Genesee County initiatives identified, the jurisdictions may seek financial assistance under FEMA's Hazard Mitigation Assistance (HMA) programs. These programs require detailed benefit/cost analysis as part of the application process. The benefit/cost analysis occurs during preparation of funding applications via application of the FEMA Benefit/Cost Analysis (BCA) model process. The County and its towns and villages are committed to implement mitigation strategies with benefits that exceed costs. For projects that require BCAs, the jurisdictions that are not seeking financial assistance from grant programs reserve the right to define "benefits" according to parameters that meet their needs and according to the goals and objectives of this plan.