

## SECTION 6: MITIGATION STRATEGIES

This section describes the process by which the Delaware County Planning Partnership performed the update to the county and local mitigation strategies.

This section includes:

- Review and Update of Hazard Mitigation Goals and Objectives
- Update of Capability Assessment
- Update of Municipal Mitigation Strategy
- Update of County Mitigation Strategy
- Mitigation Strategy Prioritization and Implementation

### REVIEW AND UPDATE OF HAZARD MITIGATION 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.” Mitigation planning objectives, associated with the identified goals, are recommended in FEMA mitigation planning guidance.

**Goals** are general guidelines that explain what is to be achieved. They are usually broad, long-term, policy-type statements and 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.

Within this plan and planning process, goals and objectives were used to:

- Help identify appropriate mitigation actions;
- Help prioritize identified mitigation actions;
- Measure the success of the plan once implemented.

In November 2011, the Steering Committee commenced a review of the mitigation goals and objectives identified in the 2006 plan. Committee members were asked to consider the following questions when performing their review:

- Do the goals and objectives identified in the previously approved plan reflect the updated risk assessment?
- Did the goals and objectives identified in the previously approved plan lead to mitigation projects and/or changes in policy that helped the jurisdiction(s) to reduce vulnerability?
- Do the goals and objectives identified in the previously approved plan support any changes in mitigation priorities?
- Are goals identified in the updated Local Mitigation Plan reflective of current State goals?

The Committee considered whether these goals and objectives complemented and supported other related planning documents and mechanisms including:

- New York State Standard Hazard Mitigation Plan
- County and Local Comprehensive/Master Plans
- Other county and municipal planning and land use documents

Further, in January 2012, the Delaware County Stream Corridor Management Program Project Advisory Committee discussed the mitigation plan update and how it related to the Stream Corridor Management Program goals.

Subsequent to this review, the Steering Committee elected to keep the goals and objectives of the 2006 plan unchanged as they were found to embody the overarching needs and concerns of the planning partnership in addressing natural hazard risk reduction, and are in-line with the State mitigation goals.

The following are the mitigation goals and objectives for the ongoing Delaware County plan:

### **Goal 1: Protect Life and Property**

- *Objective 1-1:* Implement mitigation activities that will assist in protecting lives and property by making homes, businesses, infrastructure, and critical facilities more resistant to hazards.
- *Objective 1-2:* Encourage homeowners and businesses to take preventive actions in areas that are especially vulnerable to hazards.
- *Objective 1-3:* Build upon past efforts to characterize flood events by conducting additional flood studies and creating flood models.
- *Objective 1-4:* Review existing local laws and ordinances, building codes, safety inspection procedures, and applicable rules to help ensure that they employ the most recent and generally accepted standards for the protection of buildings and environmental resources.
- *Objective 1-5:* Ensure that public and private facilities and infrastructure meet established building codes and immediately enforce the codes to address any identified deficiencies.
- *Objective 1-6:* Incorporate hazard considerations into land-use planning and natural resource management.
- *Objective 1-7:* Encourage homeowners, renters, and businesses to purchase insurance coverage for damages caused by hazards.
- *Objective 1-8:* Integrate the recommendations of this plan into existing local and county programs.
- *Objective 1-9:* Implement mitigation activities that encourage environmental stewardship and protection of the environment.

### **Goal 2: Increase Public Awareness**



- *Objective 2-1:* Develop and implement additional education and outreach programs to increase public awareness of the risks associated with hazards and to educate the public on specific, individual preparedness activities.
- *Objective 2-2:* Provide information on tools, partnership opportunities, funding resources, and current government initiatives to assist in implementing mitigation activities.
- *Objective 2-3:* Implement mitigation activities that enhance the technological capabilities of the jurisdictions and agencies in the County to better profile and assess exposure of hazards.

### **Goal 3: Encourage Partnerships**

- *Objective 3-1:* Strengthen inter-jurisdiction and inter-agency communication, coordination, and partnerships to foster hazard mitigation strategies and/or projects designed to benefit multiple jurisdictions.
- *Objective 3-2:* Identify and implement ways to engage public agencies with individual citizens, non-profit organizations, business, and industry to implement mitigation activities more effectively.

### **Goal 4: Provide for Emergency Services**

- *Objective 4-1:* Encourage the establishment of policies at the local level to help ensure the prioritization and implementation of mitigation strategies and/or projects designed to benefit essential facilities, services, and infrastructure.
- *Objective 4-2:* Where appropriate, coordinate and integrate hazard mitigation activities with existing local emergency operations plans.
- *Objective 4-3:* Identify the need for, and acquire, any special emergency services and equipment to enhance response capabilities for specific hazards.

*Objective 4-4:* Review and improve, if necessary, emergency traffic routes; communicate such routes to the public and communities.

## **UPDATE OF CAPABILITY ASSESSMENT**

According to FEMA 386-3, 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. It identifies, reviews and analyzes local and state programs, policies, regulations, funding and practices currently in place that may either facilitate or hinder mitigation.

During this plan update process, Delaware County and all participating municipalities were surveyed to provide an updated assessment of their mitigation capabilities. Through this assessment, the County and each jurisdiction learned how or whether they would be able to implement certain mitigation actions by determining:

- The range of local and/or state administrative, programmatic, regulatory, financial and technical resources available to assist in implementing their mitigation actions; and

- Limitations that may prohibit or hinder undertaking actions.

County and municipal capabilities in the areas of planning and regulatory, administrative and technical, and fiscal may be found in Tables E1, E2 and E3, respectively, in their jurisdictional annexes in Section 9.

The following sections describe the various planning and regulatory programs available to promote and support mitigation and risk reduction in the County. Additional information on how this plan integrates with these planning and regulatory mechanisms may be found in Section 3 under “Integration/Coordination with Existing Plans and Programs”.

## **Planning and Regulatory Capabilities**

### **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.

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 U.S. 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% less damage annually than those not built in compliance (FEMA, 2008).

Currently all municipalities in Delaware County participate in the NFIP, with no municipalities having outstanding sanctions or suspensions. All municipalities have adopted a Flood Damage Prevention Ordinance which is administered locally by their Floodplain Administrator, and make current NFIP Flood Insurance Rate Maps (FIRMs) available for review by the public. Typically this mapping is available at the municipal offices in each community. As of this plan update, Delaware County’s FIRMs are currently being updated and the latest versions are considered preliminary.

Municipal participation in and compliance with the NFIP is supported at the Federal level by FEMA Region II and the Insurance Services Organization (ISO), at the state-level by the New York State Department of Environmental Conservation (NYSDEC) and New York State Office of Emergency Management (NYSOEM). In Delaware County, the Planning Department and Soil and Water Conservation District support municipalities with NFIP compliance and flood mitigation as well as associated outreach, training and public education and awareness programs.

Additional information on the NFIP program and its implementation within the County may be found in the flood hazard profile (Section 5).

### **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).

As of the time of this plan update, no jurisdictions within the County currently participate in the CRS. Increased CRS participation in the County has been identified as a mitigation priority. The County has included specific initiatives to support CRS training and local participation, while certain communities have identified that they plan to apply to the CRS program in their updated mitigation strategies. It is noted that the County sponsored an informational CRS workshop for all municipalities during this plan update process.

### **Comprehensive Emergency Management Plans**

The Delaware County Emergency Management Plan is a result of the recognition on the part of local government and state officials that a comprehensive plan is needed to enhance Delaware County's ability to manage emergency/disaster situations. It was prepared by County officials working as a team in a planning effort recommended by NYSOEM. This plan constitutes an integral part of a statewide emergency management program and contributes to its effectiveness. Authority to undertake this effort is provided by both Article 2-B of State Law and New York State Defense Emergency Act.

The development of this plan included an analysis of potential hazards that could affect the county and an assessment of the capabilities existing in the county to deal with potential problems.

Dealing with disasters is an ongoing and complex undertaking. Through implementation of risk reduction measures before a disaster or emergency occurs, timely and effective response during an actual occurrence, and provision of both short and long term recovery assistance after the occurrence of a disaster, lives can be saved and property damage minimized.

This process is called “Comprehensive Emergency Management”, to emphasize the interrelationship of activities, functions, and expertise necessary to deal with emergencies. The plan contains three sections to manage each part of this ongoing process. The plan provides general all-hazards management guidance, using existing organizations, to allow the County to meet its responsibilities before, during and after an emergency.

Delaware County and its municipalities recognize that the findings and recommendations of this plan need to be incorporated into their emergency planning, preparedness, response and recovery programs and operations. Public education and outreach to improve personal preparedness, and promote an awareness of mitigation opportunities and personal protection through risk insurance, have been incorporated in specific county and local initiatives.

### **Comprehensive/Master Plans**

Comprehensive planning is a term used in the United States by land use planners to describe a process that determines community goals and aspirations in terms of community development. The outcome of comprehensive planning is the Comprehensive Plan which dictates public policy in terms of transportation, utilities, land use, recreation, and housing. It is not a law in itself, but state statutes require

that all land use laws in a municipality be consistent with a comprehensive plan. A municipality is authorized to develop and adopt a comprehensive plan by New York State Town Law Section 272-a.

Of the 29 municipalities in Delaware County, all but two operate with comprehensive plans. Existing comprehensive plans were reviewed during this plan update to promote coordination of the findings and recommendations identified in these plans, and to assist in the development of appropriate local mitigation strategies. Many of these comprehensive plans are due for updating, which will allow for the incorporation of hazard mitigation initiatives into community goals and recommendations. Inclusion of hazard mitigation initiatives in each community's comprehensive plan will serve to reinforce the All-Hazard Mitigation Plan.

### **Stormwater Management Planning**

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

All basins in the New York City Watershed must establish a stormwater pollution prevention plan. Stormwater pollution prevention plans must be prepared and implemented according to the requirements of the New York City Department of Environmental Conservation (NYCDEC) Stormwater Pollution and Discharge Elimination System (SPDES).

Under the auspices of the Town Planning Advisory Service (TPAS) described later in this section, the Delaware County Planning Department and the Delaware County Soil and Water Conservation District work with each municipality to develop stormwater management plans that include local initiatives to protect water quality and reduce local flooding. Each municipal strategy analyzes and incorporates previous work to develop a prioritized plan to meet current and future needs for repair, expansion and management of local stormwater infrastructure. Maintenance programs are developed to continually assess the condition of the stormwater system, to track sediment by volume and type removed, and to reduce the likelihood of flooding due to clogged collection and conveyance systems.

### **Highway Management Plans**

Since 2001, when data collection began for individual towns, the highway management planning process has consisted of the following goals:

- Conduction of inventory and evaluation of highway and stormwater infrastructure;
- Development of recommendations for continued assessment and management;
- Implementation of stormwater management practices in areas identified as pollutant contributors;
- Capitalization upon the existing institutional relationship with the towns (established through the County Planning Department's Town Planning Advisory Service) to ensure continued implementation of the maintenance program and stormwater management practices.

The Highway Management Plans for individual towns were designed to be consistent with the Delaware County Action Plan (DCAP), the Delaware County Comprehensive Emergency Management Plan and this plan. This consistency was assured by including plan components that targeted water quality improvement, stormwater runoff reduction, and the evaluation of infrastructure size and capacity and the impacts of these components on flooding.

Highway Management Plans were developed over several years for 17 of the 19 towns in Delaware County. Completed in 2010, the Highway Management Plans contained general recommendations related to common management and maintenance issues faced by the towns. Snow removal and routine road repair comprise the bulk of highway management activities (and budgets), but flood damages are one thing that highway departments are unable to predict or budget for. Projects that reduce flood risks for infrastructure are therefore very important to the towns, so each Highway Management Plan was written with town-specific project recommendations. Many of those projects that have not been completed (mostly due to lack of funding) are identified in the jurisdictional annexes of this plan, and new projects identified through this plan update will be used to update the Highway Management Plans in the future.

### **Stream Corridor Management Plans (SCMP)**

Enabled by a unique relationship between the Delaware County Soil and Water Conservation District (SWCD), the Delaware County Planning Department, and NYCDEP, the development of Stream Corridor Management Plans (SCMP) took place between 2002 and 2007. The West Branch Delaware River SCMP and the subsequently-written East Branch Delaware River SCMP were adopted by the Delaware County Board of Supervisors and the vast majority of the NYC watershed communities. Both SCMPs contain recommendations for better stream management, which – since healthy stream systems equate to more flood-resistant communities – supports flood mitigation efforts in both the West and East Branch Delaware River basins. Not only do the recommendations help justify flood mitigation projects, but a NYC-funded Stream Management Grant Program provides funding to stream projects and programs that support or meet SCMP goals, objectives, and recommendations.

### **Delaware County Action Plan (DCAP)**

DCAP is the only comprehensive management program for watershed protection under local auspices in the New York City watershed. It represents a novel attempt to protect water resources, based on land management, through scientifically and economically sound governance based on local democracy. DCAP operates within the framework of state and federal laws in full partnership with the agencies representing those governmental levels.

The Department of Watershed Affairs provides overall coordination and administrative support for the activities in the County. The accomplishments of DCAP demonstrate capacities to successfully manage land uses and nonpoint sources of contamination. DCAP therefore demonstrates the critical role of local government in protecting water quality. Experience subsequent to the signing of the NYC Watershed Memorandum of Agreement has clarified and demonstrated the capacities and interests of the various federal, state, NYC and watershed levels of government. This experience is a basis for an integrated partnership, which more fittingly incorporates the responsibilities of watershed communities.

With respect to hazard mitigation the DCAP includes the following components:

- Storm Water and Flood Management
  - Characterize and quantify storm water sources from various land uses.
  - Identify and adopt storm water pollution prevention measures.
  - Collect GIS information and create databases to assist businesses and communities in their decision-making.
- Highway Drainage
  - Conduct an inventory to determine need and opportunity for improved drainage and run-off for infrastructure improvement and phosphorus control.
  - Identify short-term management opportunities.

- Describe long-term infrastructure improvements that will reduce adverse impacts on water quality.
- Stream Corridor Protection and Rehabilitation
  - Identify stream corridors where management will provide the greatest benefit.
  - Reduce risks posed by excessive floodwater activity.
  - Reduce contaminant transport that results from flooding.

### **Long Term Community Recovery (LTCR) Strategy Plans**

In the wake of Hurricane Irene and Tropical Storm Lee that resulted in devastating losses throughout New York's Southern Tier, many of the affected communities received federal and state assistance, and untold hours of volunteer services to help meet basic shelter, humanitarian and cleanup needs. As communities moved beyond the immediate recovery phase of a disaster, the need for long-term community recovery planning was evident to help focus their efforts by establishing a vision for how they will rebuild and reduce their vulnerability to future disasters. The resultant long-term recovery strategy will ensure rebuilding that strengthens community vitality, maximizes use of available funds, and reduces future flood related damages.

Planning for recovery takes time, leadership, resources, and support from community stakeholders. As such, the NYS Department of State (NYS DOS) developed the Long-Term Community Recovery (LTCR) Strategy Grant program to augment current efforts to help communities with the most damage and least capacity to develop strategies for long-term recovery.

The LTCR Strategy Grants provide up to \$50,000 per application to aid a community in developing a strategy for long-term community recovery of the storm-struck area identified in the application. The planning process will develop a post-disaster community vision; identify and describe projects needed to achieve the vision and reduce future hazard damages; estimate costs and benefits of recovery options; prioritize projects that have the most significant recovery value and can be accomplished quickly; and develop funding strategies to implement priority projects including identification of available federal, state, municipal, nonprofit and private resources. The process will result in a strategy that should consider the following:

- Housing development, redevelopment and/or relocation within the community to meet the needs of residents displaced by flooding and wishing to return to the community while reducing the risk to life and property.
- Commercial, industrial and agricultural uses to be developed, redeveloped and/or relocated within the community. This may include Main Street, business/commercial districts, industrial districts and parks, and/or agricultural uses damaged or destroyed by flooding.
- Infrastructure repair, redevelopment and/or relocation within the community. This may include roads, bridges, water, sewer, health and safety, and communications infrastructure damaged or destroyed by flooding.
- Environmental feature repair, restoration and/or enhancement within the community.

In Delaware County, the Town of Middletown and the Villages of Margaretville, Fleischmanns and Sidney applied for and were granted funding to develop an LTCR strategy. These municipalities plan to use their LTCR strategy to increase their resilience to flooding and other disasters, including implementing the mitigation strategies identified in their jurisdictional annexes (Section 9).



### **Administrative and Technical Capabilities**

Specific administrative and technical capabilities at the county and local levels are identified in each jurisdiction's annex in Section 9, Table E2, of this plan update. Municipalities are further supported by county, regional, state and federal administrative and technical capabilities.

#### **Delaware County Planning Department (DCPD)**

The Delaware County Planning Department assists in the gathering of data that can be used in hazard mitigation management and planning. The information collected by the Planning Department includes the condition of local infrastructure such as local roads. This data can be used to improve local infrastructure that can improve the County's ability to respond to hazardous events, like providing emergency services to county residents.

Department staff provide environmental planning expertise to residents, businesses, municipalities and other environmental stakeholders in the County in the areas of stormwater analysis, infrastructure assessment and permit compliance, stream corridor management, onsite and community wastewater, sourcewater protection, highway management planning, State Environmental Quality Review Act (SEQRA) compliance, watershed technical assistance, hazard mitigation and floodplain analysis and open space and recreational planning. Many of these services are provided to Delaware County municipalities through the Town Planning Advisory Service (TPAS) program.

The TPAS program is a community-based regional planning service. Individual communities contract with the Delaware County Planning Department to obtain professional planning services and technical assistance. The program was initiated in 1975 when it was recognized that the all-volunteer planning boards needed assistance transforming their ideas about their communities into logical plans of action. The original goal was to assist local planning boards with subdivision and zoning reviews as well as provide technical assistance in developing land use laws to protect the rural character of the communities. While local land use issues are still of central importance to TPAS work, the current regulatory environment that the County and municipalities are situated in requires even greater technical expertise than in the past.

TPAS staff are positioned to effectively deliver additional County programs, like those offered through the Delaware County Action Plan (DCAP), and still provide the monthly guidance and technical planning expertise to the municipal boards. Today, the assistance provided to the participating communities includes current and comprehensive planning, municipal capital projects, watershed management, grant writing, hazards planning, sourcewater protection, SEQRA compliance, land use training and outreach, mapping services, and stream corridor planning. Twenty-seven of the twenty-nine municipalities in Delaware County currently participate in TPAS.

#### **Delaware County Soil and Water Conservation District (SWCD)**

The SWCD provides technical assistance to landowners and local governments for the wise use and conservation of Delaware County's soil and water resources. The SWCD has 20 full-time staff including an Executive Director, Secretary/Treasurer, Special Programs Technician and a Soil and Groundwater Specialist as core staff. Eleven SWCD staff work exclusively on the New York City Watershed Agricultural Program, which is a voluntary program intended to protect drinking water quality for the nine million users of New York City's reservoir system, while helping to sustain agriculture's economic viability in the region. Six SWCD staff also manage the Stream Corridor Management Program, which seeks to enhance stream corridor management within the New York City Watershed.

Some of the mitigation-related programs in Delaware County supported by the SWCD include stream corridor management, stormwater management, and DCAP. SWCD technical staff have been trained in proper techniques of erosion and sediment control, and stormwater management practices are designed into all construction projects overseen by the District.

Since federal stormwater regulations were established in late 1990, the NYSDEC has been charged with managing stormwater through its permitting authority. Upon request by the NYSDEC, the SWCD provides inspections and stormwater management recommendations for construction sites experiencing erosion problems. The SWCD also provides technical support to municipalities through the DCPD.

### **Delaware County Department of Emergency Services**

The Emergency Services Office was created in 1991 after the Delaware County Board of Supervisors realized the need to establish a full time centralized office for emergency management. The Emergency Services Office's mission is to improve the quality of the County's ability to prepare, respond, recover, and mitigate life changing events which affect its' residents.

Currently the office is charged with managing a multitude of tasks regarding emergency management. Some of the responsibilities include fire coordination, EMS coordination, New York State EMS course sponsorship, AHA training center, 911 oversight and policy development, County addressing program and managing all aspects in regards to the County's' comprehensive emergency management plan. The Delaware County Department of Emergency Services works hand in hand with all of the Fire and Emergency Medical response units which call Delaware County home.

### **Delaware County Department of Public Works (DC DPW)**

Delaware County Department of Public Works is responsible for the operation, maintenance and capital projects associated with the County's highway system and Solid Waste Management Center. The highway system includes 260.34 miles of road, 291 bridges, 78 box culverts, 66 large diameter pipes and miles of small diameter cross culverts. In 1994, the County adopted the 21<sup>st</sup> Century bridge program which allowed the county to petition the State Legislature to change the highway law allowing the County to assume ownership of all publically owned structures in the County not owned by NYSDOT. That allows the county to ensure that bridges are built and maintained to standards that will withstand flooding. In 2008, the County adopted standards for the construction of bridges in the county. These standards were written to ensure that new bridges would be constructed to withstand future flooding events. The departments staff of engineers and constructors study damages and successes from each storm event to refine our construction details to make them more flood sustainable. The Department provides guidance to local governments in the county on the proper sizing of hydraulic structures and construction techniques that reduce scour impacts. The Department maintains a capital program of upgrading worst condition structures to the new standards.

The Department Engineering staff is in the process of working with the US COE to perform a small structure study. The study will inventory all structures having a span of between 5 and 20 feet on Town Roads and Village Streets. Once inventoried, they will be evaluated for structural and hydraulic capacities. Deficient structures will be identified and funding will be sought to replace structures that do not meet current design standards.

The Solid Waste Management Center is responsible for recycling, composting, household hazardous wastes, and landfilling. Solid Waste Staff work to ensure that annual contracts are in place for the management and ultimate disposal of debris resulting from flooding events. Staff works closely with

NYSDEC, USCOE and USEPA to make sure that all types of waste generated from a flooding event are separated, recycled or managed in accordance with all Federal, State and Local rules and regulations.

### **Delaware County Department of Watershed Affairs**

The Delaware County Department of Watershed Affairs was created in 1999 to assist the communities with watershed issues and to collaborate with state and federal agencies to resolve pollution issues of the Cannonsville and the Pepacton Reservoirs. Working with the local communities and all interested stakeholders, the Department of Watershed Affairs works to increase awareness of the New York City Watershed located within the boundaries of Delaware County and to preserve the environment and economy of the communities within the watershed.

The Department of Watershed Affairs and the NYCDEP work together under a Memorandum of Agreement (MOA) which documents that "the parties recognize that the goals of drinking water protection and economic vitality within the watershed communities are not inconsistent and it is the intention of the parties to enter into a Partnership to cooperate in the development and implementation of the watershed protection program that maintains and enhances the quality of the New York City drinking water supply system and the economic vitality and social character of the watershed communities."

The Department of Watershed Affairs developed and administers the Delaware County Action Plan (DCAP), described earlier in this section.

### **New York State Office of Emergency Management (NYSOEM)**

For more than 50 years, NYSOEM 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. NYSOEM 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.

NYSOEM 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. NYSOEM prepared the current State Hazard Mitigation Plan working with input from other State agencies, authorities and organizations. It was approved by FEMA on January 4, 2011, and it keeps New York 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.

### **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 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 the following Sections:

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

### **New York City Department of Environmental Protection (NYCDEP)**

NYCDEP and its partners at county Soil and Water Conservation Districts and Cornell Cooperative Extension work closely with local towns in the Catskill/Delaware Watershed to develop management plans for the streams that feed the City's water supply reservoirs.

Stream management plans provide comprehensive recommendations for managing streams and floodplains to achieve multiple objectives such as erosion and flood hazard mitigation, fish habitat improvement, public recreation, and water quality protection. By 2011, stream management plans will have been completed for all six reservoir basins in all "West of Hudson" watersheds.

In those reservoir basins where stream management plans have been developed and completed, communities have adopted these plans by resolution which in turn makes them eligible for City funding to implement each plan's recommendations. Locally-based watershed advisory committees are being formed in a number of stream management basins to advise the implementation of the plans and to help set priorities.

It is noted that the County and many of the municipalities have identified specific mitigation initiatives in this plan update to help build and enhance mitigation-related administrative and technical capabilities in the County.

### **Fiscal Capabilities**

Mitigation projects and initiatives are largely or entirely dependent on available funding. As such, it is critical to identify all available sources of funding at the local, county, regional, state and federal level to support implementation of the mitigation strategies identified in this plan update.

Jurisdictions fund mitigation projects through existing local budgets, local appropriations (including referendums and bonding), and through a myriad of Federal and State loan and grant programs. Federal mitigation grant funding (Stafford Act 404 and 406) is available to all communities with a current hazard mitigation plan (this plan); however most of these grants require a "local share" in the range of 10-25% of the total grant amount. The FEMA mitigation grant programs are described below.

### **Federal Hazard Mitigation Funding Opportunities**

**Hazard Mitigation Grant Program (HMGP):** The HMGP is a post-disaster mitigation program. It is made available to states by FEMA after each Federal disaster declaration. The HMGP can provide up to 75% funding for hazard mitigation measures. The HMGP can be used 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 the likely damage from future disasters. Examples of projects include acquisition and demolition of structures in hazard prone areas, floodproofing 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 Hazard Mitigation Plan (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 NYSOEM and 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 may be considered as additional HMGP funding becomes available.

**Flood Mitigation Assistance (FMA) 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 the program. Applications must come from local governments or other eligible organizations. The federal cost share for an FMA project is 75%. At least 25% of the total eligible costs must be provided by a non-federal source. Of this 25%, 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. NYSOEM serves as the grantee and program administrator for FMA.

**Pre-Disaster Mitigation (PDM) Program:** The PDM program is an annually funded, nationwide, competitive grant program. No disaster declaration is required. Federal funds will cover 75% of a project's cost up to \$3 million. As with the HMGP and FMA, a FEMA-approved local Hazard Mitigation Plan is required to be approved for funding under the PDM program.

**Repetitive Flood Claims (RFC) Program:** The RFC program is an annually funded, nationwide mitigation grant program with the goal of reducing flood damages to individual properties for which one or more claim payments for losses have been made under flood insurance coverage, and will result in the greatest amount of savings to the National Flood Insurance Fund (NFIF) in the shortest period of time. RFC funding is available for property acquisition and structure demolition or relocation, structural elevations, and minor localized flood reduction projects. Federal funding covers 100% of the project costs.

**Severe Repetitive Loss (SRL) Program:** The SRL program is an annually funded, nationwide mitigation grant program with the goal of reducing flood damages to residential properties that have experienced severe repetitive losses under flood insurance coverage, and as such, will result in the greatest amount of savings to the NFIF in the shortest period of time. SRL funding is available for property acquisition and structure demolition or relocation, structural elevations, and minor localized flood reduction projects. Federal funding covers 75% of the project costs (90% if the community has a repetitive loss strategy).

### **Federal Disaster Assistance Programs**

Following a disaster, various types of assistance may 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. Among the general types of assistance that may be provided should the President of the United States declare the event a major disaster are the following:

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 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% for mitigation. For businesses, loans may 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, private universities, etc. 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.

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.

### **Other Potential Mitigation Funding Sources**

Community Development Block Grants (CDBG): CDBG are federal funds intended to provide low and moderate-income households with viable communities, including decent housing, as 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, planning, and administration. Public improvements may 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 may 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.

Specific fiscal capabilities at the county and local levels are identified in each jurisdiction’s annex in Section 9, Table E3, of this plan update. While most of the identified fiscal capabilities are available to all of the municipalities in the County, the extent to which communities have leveraged these funding sources varies widely, and it is logical to expect that communities that are familiar with accessing specific grant programs will continue to consider and pursue those sources as appropriate.

It is noted that known, targeted and potential funding sources are identified for each project/initiative in the mitigation strategies summarized in each jurisdictional annex in Section 9.

### **Capability Assessment Recommendations**

It is well recognized that a jurisdiction’s ability to effectively manage natural hazard risk is directly related to their level of hazard mitigation capabilities. The County and all municipalities have identified specific actions to improve these capabilities, as identified in their jurisdictional annexes in Section 9.

## UPDATE OF MUNICIPAL MITIGATION STRATEGIES

This plan update process was focused on improving the County and local mitigation strategies, and so addressed the updating of mitigation strategies from the outset of the planning process.

Along with their invitation to, and as part of the July 2011 Kick-Off meeting, all municipalities were provided a survey (“Municipal Information Worksheet”) to assist in identifying local vulnerabilities, and mitigation activities completed, ongoing and potential/proposed. Further, the county and each municipality with specific mitigation initiatives/projects identified in the 2006 plan were provided with a worksheet to help identify progress on their local mitigation strategy, and whether they wished to carry the actions forward in the plan update.

Also at that time each municipality was provided with a Capability Assessment survey form to assist in identifying their local mitigation capabilities (see previous section).

During August to November 2011, representatives of Delaware County Planning Department met with each municipality to support them with data collection, evaluating their mitigation capabilities, identifying vulnerable areas, reviewing progress on their 2006 mitigation strategy, and identifying potential new actions and initiatives.

Throughout the planning process, the County and municipalities were encouraged to carefully consider their natural hazard risks and vulnerabilities, and to identify appropriate projects or initiatives to mitigate those risks. 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 (see Section 3), communities were made aware of these either through direct communication (local support meetings, email, phone) or via their draft municipal annexes.

As ongoing or uncompleted activities from the 2006 plan, or potential new initiatives were identified, municipalities were provided with “Project Capture Worksheets” to facilitate the gathering of additional information on each potential project, including additional project description, estimated cost, potential benefits, responsible agency/department, and timeline.

### **Jurisdictional Annexes**

A major change in the format of this plan update was the incorporation of jurisdictional annexes. Each jurisdiction participating in this update (both counties and all municipalities) has assisted in the authoring of their own annex or chapter to this plan, included in Section 9. One of the key elements of each annex is the updated jurisdictional mitigation strategy.

As data, information and other input was compiled and received from the municipality, it was input directly into their draft annex. 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, through review of available county and local plans and reports, and through the hazard profiling and vulnerability assessment process.

Annexes were pre-populated with both specific mitigation actions identified during the course of the plan update, as well as general (“common”) initiatives developed during the planning process and included for municipal consideration.

Specific mitigation actions included in the draft municipal annexes included:

- Those being carried forward from the 2006 plan;
- Those specifically identified by the jurisdiction during the course of the planning process;
- Those identified in other relevant county and local plans and reports (e.g. Stream Corridor Management Plans, Highway Management Plans, Capital Plans, local engineering studies, etc.);
- Those identified during the public and stakeholder outreach process (see Section 3);
- Those identified by local flood commissions, and as part of the Irene/Lee HMGP program in the County; and,
- Those that became evident through the updated hazard profiling and risk/vulnerability assessment effort.

Each draft jurisdictional annex was also pre-populated with a suite of “general” or “common” mitigation initiatives for their consideration and inclusion as appropriate. Throughout the plan update process, and in consideration of federal and state mitigation guidance, the Steering Committee recognized that all municipalities would benefit from the inclusion of certain mitigation initiatives. These include initiatives to address vulnerable public and private properties, including RL and SRL properties; initiatives to support continued and enhanced participation in the NFIP; improved public education and awareness programs; initiatives to build greater local mitigation capabilities; and a commitment to implement and maintain the plan.

All municipalities were asked to thoroughly review these “general” initiatives, and include, amend or delete them as they found appropriate for their jurisdiction.

From February to September 2012, representatives of the DCPD worked directly with each jurisdiction 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). As part of this process, the DCPD worked with the municipalities to carefully review the “general” initiatives, and to delete, include and amend those as deemed appropriate to meet the specific needs and interests of the community.

Further, concerted efforts were made to assure that municipalities develop updated mitigation strategies that included activities and initiatives covering the range of mitigation actions types described in FEMA guidance (FEMA 386-3), including:

1. **Prevention:** Government, administrative or regulatory actions or processes that influence the way land and buildings are developed and built. These actions also include public activities to reduce hazard losses. Examples include planning and zoning, floodplain local laws, capital improvement programs, open space preservation, and storm water management regulations.
2. **Property Protection:** Actions that involve (1) modification of existing buildings or structures to protect them from a hazard or (2) removal of the structures from the hazard area. Examples include acquisition, elevation, relocation, structural retrofits, storm shutters, and shatter-resistant glass.
3. **Public Education and Awareness:** Actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. Such actions include outreach projects, real estate disclosure, hazard information centers, and school-age and adult education programs.



4. **Natural Resource Protection:** Actions that minimize hazard loss and also preserve or restore the functions of natural systems. These actions include sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.
5. **Emergency Services:** Actions that protect people and property, during and immediately following, a disaster or hazard event. Services include warning systems, emergency response services, and the protection of essential facilities.
6. **Structural Projects:** Actions that involve the construction of structures to reduce the impact of a hazard. Such structures include dams, setback levees, floodwalls, retaining walls, and safe rooms.

## UPDATE OF COUNTY-LEVEL MITIGATION STRATEGIES

The update of the county-level mitigation strategy included review of progress on the 2006 mitigation strategy, and identification and development of new mitigation actions and initiatives.

Members of the Steering Committee and other county department and agency representatives from Emergency Services, Public Works, Planning, and Health Services were provided with a mitigation section review worksheet identifying all of the county-level actions/initiatives from the 2006 plan. All departments and agencies were asked to identify progress on their relevant projects, indicate if they wished to carry the action or initiative forward in the plan update, and provide additional relevant project information for those being carried forward to support improved project implementation.

Projects/initiatives identified as completed, as well as certain continuous/ongoing actions, are identified in subsection F1 of the county annex found in Section 9 of this plan. Actions and initiatives from the 2006 plan that were no longer determined to be viable were removed from this plan update. Those actions the county has elected to carry forward are identified in Table F3 of the county annexes found in Section 9 of this plan.

Throughout the course of the plan update process, additional regional and county-level mitigation actions have been identified through:

- Review of the results and findings of the updated risk assessment;
- Review of available regional and county plans, reports and studies;
- Direct input from regional and county agencies, including emergency services, public works, planning, and health/human services; and,
- Input received through the public and stakeholder outreach process.

## MITIGATION STRATEGY PRIORITIZATION AND IMPLEMENTATION

The mitigation actions are the key element of the natural hazards mitigation plan. It is through the implementation of these actions that Delaware County and the participating jurisdictions can strive to become disaster-resistant through sustainable hazard mitigation. For the purposes of this plan, mitigation actions are defined as activities designed to reduce or eliminate losses resulting from natural hazards.

Although one of the driving influences for preparing this plan was grant funding eligibility, its purpose is more than just access to federal funding. It was important to the Steering Committee to look at mitigation actions that will work through all phases of emergency management. Some of the actions outlined in this

plan may not be grant eligible as grant eligibility was not the focus of the selection. Rather, the focus was the actions' effectiveness in achieving the goals of the plan and whether they are within the capabilities of the county or municipalities.

A series of mitigation actions were identified by the County and each participating jurisdiction. These actions are summarized in Section 9, Volume II of this plan. Along with the hazards mitigated, goals and objectives met, lead agency, estimated cost, potential funding sources and the proposed timeline are identified.

The parameters for the timeline are as follows:

- Short Term = To be completed in one to five years
- Long Term = To be completed in greater than five years
- Ongoing = Currently being funded and implemented under existing programs.

### Prioritization

Section 201.c.3.iii of 44 CFR requires an action plan describing how the actions identified will be prioritized. The Steering Committee has reviewed and adopted a prioritization methodology for the plan that meets the needs of the County and participating jurisdictions while at the same time meeting the requirements of Section 201.6 of 44 CFR. The mitigation actions identified were prioritized according to the criteria defined below.

- **High Priority:** A project that meets multiple plan goals and objectives, benefits exceed cost, has funding secured under existing programs or authorizations, or is grant-eligible, and can be completed in one to five years (short-term project) once project is funded.
- **Medium Priority:** A project that meets at least one plan goal and objective, benefits exceed costs, funding has not been secured and would require a special funding authorization under existing programs, grant eligibility is questionable, and can be completed in one to five years once project is funded.
- **Low Priority:** A project that will mitigate the risk of a hazard, benefits exceed costs, funding has not been secured, and project is not grant-eligible and/or timeline for completion is considered long-term (five to ten years).

It should be noted that these priority definitions are considered to be dynamic and can change from one category to another based on changes to a parameter such as availability of funding. For example, a project might be assigned a medium priority because of the uncertainty of a funding source. This priority could be changed to high once a funding source has been identified such as a grant. The prioritization schedule for this plan will be reviewed and updated as needed annually through the plan maintenance strategy described in Section 7 of this plan.

### Benefit/Cost Review

Section 201.6.c.3iii of 44CFR 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. Members of the Steering Committee and the contract consultant assisted the municipalities with the identification of project benefits and costs, and with the overall prioritization of their mitigation actions. This exercise allows the community to focus their efforts on their most cost-effective actions, not only to use resources efficiently, but to make a realistic start toward mitigating risks.

The same parameters were used by each of the participating jurisdictions as outlined in Volume II of this Plan.

Please note that this benefit/cost review did not include the level of detail required by FEMA for project grant eligibility under the Hazard Mitigation Assistance (HMA) grant programs. This generally qualitative approach was used because projects may not be implemented for up to five years or more, and the associated costs and benefits could change dramatically in that time.

Mitigation benefits are future damages and losses that would be eliminated and/or reduced by implementing the proposed mitigation project. Where actual project benefits could be identified per FEMA's benefit calculation methodology (e.g., physical damages, loss of service or function, emergency management costs, etc.), the benefits were noted in Table F of each annex (Volume II, Section 9) and the appropriate rating as defined in Table 6-1 was assigned. When project benefits could not be reasonably established, a subjective rating was assigned based on the parameters outlined below.

Where the project cost for each mitigation initiative was reasonably estimated (including preliminary engineering, engineering, design, and construction) the appropriate rating as outlined in Table 6-1 was assigned in Table F of each annex (Volume II, Section 9). Where actual project costs could not be reasonably established at this time, a best estimate was provided and a subjective rating was assigned as defined below.

Table 6-1. Cost and Benefit Definitions

<b>Costs</b>	
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 (for example, bonds, grants, and fee increases) or project costs are greater than approximately \$100,000.
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 or project costs are between approximately \$10,000 and \$100,000.
Low	The project could be funded under the existing budget. The project is part of or can be part of an existing, ongoing program or project costs are less than approximately \$10,000.
<b>Benefits</b>	
High	Project will have an immediate impact on the reduction of risk exposure to life and property or benefits are greater than approximately \$100,000.
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 or benefits are between approximately \$10,000 and \$100,000.
Low	Long-term benefits of the project are difficult to quantify in the short term or benefits are less than approximately \$10,000.

Using this approach, projects with positive benefit versus cost ratios (such as high over high, high over medium, medium over low, etc.) are considered cost-beneficial and are prioritized accordingly.

For certain initiatives identified, the County or municipalities may seek financial assistance under FEMA's Unified HMA or HMGP 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 model process. The planning partnership is committed to implementing mitigation strategies with benefits that exceed costs. For projects not seeking financial assistance from grant

programs that require this sort of analysis, the County and participating jurisdictions reserve the right to define “benefits” according to parameters that meet its needs and the goals and objectives of this plan.

The annexes in Section 9, Volume II present the results of applying the prioritization methodology presented to the set of mitigation actions identified by the County and each participating jurisdiction, and includes the following prioritization parameters:

- Number of objectives met by the initiative
- Benefits of the project (high, medium, or low)
- Cost of the project (high, medium, or low)
- Do the benefits equal or exceed the costs?
- Is the project grant-eligible?
- Can the project be funded under existing programs and budgets?
- Priority (high, medium, or low)

The annexes in Section 9, Volume II of this plan present the County’s and each participating jurisdiction’s mitigation action implementation strategy including:

- Mitigation actions for individual and multiple hazards
- Mitigation goals and objectives supported by each action.
- Implementation priority
- Potential funding sources for the mitigation action (grant programs, current operating budgets or funding, or the agency or jurisdiction that will supply the funding; additional potential funding resources are identified)
- Estimated budget for the mitigation action (financial requirements for new funding or indication that the action is addressed under current operating budgets)
- Time estimated to implement and complete the mitigation action
- Existing policies, programs, and resources to support implementation of the mitigation action (additional policies, programs, and resources identified)

Specific mitigation actions were identified to prevent future losses; however, current funding is not identified for all of these actions at present. Delaware County and its municipalities have limited resources to take on new responsibilities or projects. The implementation of these mitigation actions is dependent on the approval of the local elected governing body and the ability of the community to obtain funding from local or outside sources. Where such actions are high priorities, the community will work together with NYSOEM, FEMA and other Federal, State and regional agencies to secure funds.

In general, mitigation actions ranked as high priorities will be addressed first. However, medium or even low priority mitigation actions will be considered for concurrent implementation. Therefore, the ranking levels should be considered as a first-cut, preliminary ranking and will evolve based on input from planning area departments and representatives, the public, NYSOEM, and FEMA as the plan is implemented.