

## SECTION 6: MITIGATION STRATEGIES

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

This section includes:

- (1) Background and past mitigation accomplishments
- (2) General mitigation planning approach
- (3) Plan mitigation goals and objectives
- (4) Identification, prioritization, analysis, and implementation of potential mitigation actions

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

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

### BACKGROUND AND PAST ACCOMPLISHMENTS

Although DMA 2000 does not require a discussion regarding past mitigation activities, an overview of past efforts is provided as a foundation for understanding the mitigation goals, objectives, and activities outlined in this Plan. The County, through previous and ongoing hazard mitigation activities, has demonstrated that it is pro-active in protecting its physical assets and citizens against losses from natural hazards. Examples of previous and ongoing actions and projects include:

Village of Baldwinsville: The Village has conducted repairs on the control gates to the dam.

Town of Clay: The Town of Clay completed a DMA-2000 planning process, and has been working under an approved HMP since 2006.

Town of Dewitt: U.S. Army Corps of Engineers has studied the flooding and drainage issues in the Butternut Drive area; however, the benefit-cost ratio did not justify the projects proposed.

Town of Dewitt: The Town of Dewitt Highway Department is continuously doing drainage projects throughout the Town to alleviate drainage problems.

Town of Dewitt: Drainage improvement projects are in-progress in Franklin Park, DunRovin, Jamesville and Park Hill neighborhoods, as well as along Butternut Creek.

Town of Manlius: Town Code Chapter 72 is established for flood damage prevention and Chapter 127-19 specifies design standards for lots including slope, wetlands and floodplains.

Town of Marcellus: Drainage pipe was installed along Pleasant Valley Road to alleviate ‘disappearing lake flooding.’

Town of Spafford: Drainage project in the Spring of 2008 including berm-work to protect Town Hall from flooding.

These past and ongoing activities have contributed to the County’s and participants’ understanding of their hazard preparedness and future mitigation activity needs, costs, and benefits. These efforts provide a foundation for the Planning Committee to use in developing this HMP.

**GENERAL MITIGATION PLANNING APPROACH**

The general mitigation planning approach used to develop this plan is based on the FEMA publication, “Developing the Mitigation Plan: Identifying Mitigation Actions and Implementing Strategies” (FEMA 386-3) and input provided by NYSEMO. The FEMA document and NYSEMO guidance include four steps, which were used to support mitigation planning. These steps are summarized below and presented in more detail in the following sections.

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

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

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

- **Develop mitigation goals and objectives:** Mitigation goals were developed using the hazard characteristics, inventory, and findings of the risk assessment, and through the results of the public outreach program. By reviewing these outputs and other municipal policy documents, objectives tying to these overarching goals were identified and characterized into similar themes.
- **Identify and prioritize mitigation actions:** Based on the risk assessment outputs, the mitigation goals and objectives, existing literature and resources, and input from the participating entities, alternative mitigation actions were identified. The potential mitigation actions were qualitatively evaluated against the mitigation goals and objectives and other evaluation criteria. They were then prioritized into three categories: high, medium, and low.
- **Prepare an implementation strategy:** High priority mitigation actions are recommended for first consideration for implementation, as discussed under each hazard description in the following sections. However, based on community-specific needs and goals and available funding and costs, some low or medium priority mitigation actions may also be addressed or could be addressed before some of the high priority actions.
- **Document the mitigation planning process:** The mitigation planning process is documented throughout this Plan.

**Guiding Principle, Mitigation Goals and Objectives**

This section presents the guiding principle for this Plan, and mitigation goals and objectives identified to reduce or avoid long-term vulnerabilities to the identified hazards.

**Mission Statement**

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

The mission statement for the Onondaga County Plan is as follows:



*The mission of the Onondaga County Multi-Jurisdictional Hazard Mitigation Plan is to protect the health, safety, property, environment and economy of the communities within Onondaga County by partnering to identify and reduce our vulnerability to natural hazards in a proactive and efficient manner.*

### 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 Steering Committee developed mitigation goals based on the risk assessment results, input received, and the existing authorities, policies, programs, resources, and capabilities within the Town, County and region.

**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 were then developed and/or selected by the Planning Committee through its knowledge of the local area, review of past efforts, findings of the risk assessment, qualitative evaluations, and identification of mitigation options. The objectives are used to 1) measure the success of the Plan once implemented, and 2) to help prioritize identified mitigation actions. For the purposes of this Plan, objectives are defined as follows:

**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.

The goals and associated objectives developed for this planning process are compatible with the needs and goals expressed in other available community planning documents, including:

- New York State Hazard Mitigation Plan
- Onondaga County Comprehensive Emergency Management Plan (date)
- 2010 Development Guide for Onondaga County (June 1998)
- Framework for Growth in Onondaga County (June 1998)
- Central New York Comprehensive Economic Development Strategy (2005)
- Onondaga County Settlement Plan and Pilot Projects(2001)
- City of Syracuse Comprehensive Plan 2025 (January 2005)
- Other local comprehensive and emergency management plans

The following are the hazard mitigation planning goals and associated objectives for the Onondaga County Plan:

**Goal 1: Protect Life and Property**

Objective 1-1: Address repetitive and severe repetitive loss properties throughout the County.

Objective 1-2: Protect and maintain critical facilities and infrastructure.

Objective 1-3: Identify flood and other natural hazard areas.

Objective 1-4: Identify the need for, and acquire, any special emergency services, training, and equipment to enhance response capabilities for specific hazards.

Objective 1-5: Improve detection, warning and communication systems.

Objective 1-6: Pursue federal and state assistance toward the improvement of facilities and infrastructure.

Objective 1-7: Develop, maintain, strengthen and promote enforcement of ordinances, regulations and other mechanisms that facilitate hazard mitigation.

Objective 1-8: Integrate the recommendations of this plan into existing regional and local programs.

**Goal 2: Increase [Understanding of Hazard Risk, and] Public Awareness and Preparedness**

Objective 2-1: Develop and implement additional education and outreach programs to increase public awareness of hazard areas and the risks associated with hazards, and to educate the public on specific, individual preparedness activities.

Objective 2-2: Develop and implement program(s) to better understand the public's level of individual and household preparedness.

Objective 2-3: Implement mitigation actions that enhance the capabilities of the County and communities to better profile and assess exposure of hazards.

Objective 2-4: Promote awareness among homeowners, renters, and businesses about obtaining insurance coverage available for natural hazards (i.e., flooding).

Objective 2-5: Encourage property owners to take preventive actions in areas that are especially vulnerable to hazards.

Objective 2-6: Provide information on tools, partnership opportunities, funding resources, and current government initiatives to assist in implementing mitigation activities.

**Goal 3: Promote Sustainability throughout the County**

Objective 3-1: Promote sustainable land development practices (from 2010 Development Guide)

Objective 3-2: Reduce the disruption of activities of daily living via protection of the vital infrastructure and critical facilities.

Objective 3-3: Promote the development of government and business continuity plans.

Objective 3-4: Develop and maintain adequate services and utilities to serve the County's population and business

Objective 3-5: Decrease the potential local economic loss and maintain local and government business continuity.

Objective 3-6: Decrease time to recover and reduce social dislocation and family and individual stress (return to normalcy).

Objective 3-7: Reduce general public dependency on disaster response and recovery support services.

### **Goal 4: Protect the environment and natural resources**

Objective 4-1: Promote the continued use of natural systems and features, open space preservation, and land use development planning for natural hazard mitigation activities wherever possible to anticipate and reduce long term costs and maximize hazard mitigation effectiveness.

Objective 4-2: Protect and preserve environmentally sensitive and critical areas

Objective 4-3: Continue to preserve, protect and acquire open space

Objective 4-4: Incorporate hazard considerations into land-use planning and natural resource management.

### **Goal 5: Promote and Support Partnerships**

Objective 5-1: Create, maintain and enhance collaborative efforts with other identified stakeholders involved with natural hazard management.

Objective 5-2: Coordinate, where applicable or required, natural hazard mitigation efforts with adjacent jurisdictions agencies natural risk management activities.

Objective 5-3: Strengthen inter-jurisdiction and inter-agency communication, coordination, and partnerships to foster hazard mitigation actions and/or projects.

Objective 5-4: Identify and implement ways to engage public agencies with individual citizens, non-profit organizations, business, and industry to implement mitigation actions more effectively.

Objective 5-5: Encourage shared services in acquiring maintaining and providing emergency services and equipment.

Objective 5-6: Encourage partnerships between neighborhood groups to work together and address hazards specific to their areas.

### **Goal 6: Enhance Disaster Preparedness, Response and Recovery**

Objective 6-1: Encourage the establishment of policies to help ensure the prioritization and implementation of mitigation actions and/or projects designed to benefit essential facilities, services, and infrastructure.

Objective 6-2: Where appropriate, coordinate and integrate hazard mitigation actions with existing local emergency operations plans.

Objective 6-3: Identify the need for, and acquire, any special emergency services, training, equipment, facilities and infrastructure to enhance response capabilities for specific hazards.

Objective 6-4: Review and improve, if necessary, emergency traffic routes; communicate such routes to the public and communities.

Objective 6-5: Ensure continuity of governmental operations, emergency services, and essential facilities at the local level during and immediately after disaster and hazard events.

Objective 6-6: Maintain and expand shared services in acquiring maintaining and providing emergency services and equipment.

### 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.

A capability assessment was prepared by Onondaga County and each participating jurisdiction. The capability assessments are presented in Section 9, Volume II of this Plan. By completing this assessment, Onondaga County and each jurisdiction learned how or whether they would be able to implement certain mitigation actions by determining the following:

- Types of mitigation actions that may be prohibited by law;
- Limitations that may exist on undertaking actions; and
- The range of local and/or state administrative, programmatic, regulatory, financial and technical resources available to assist in implementing their mitigation actions.
- Action is currently outside the scope of capabilities (funding)
- The jurisdiction is not vulnerable to the hazard
- Action is already being implemented

### Identification, Prioritization, Analysis, and Implementation of Mitigation Actions

This subsection discusses the identification, prioritization, analysis and implementation of mitigation actions for Onondaga County.

#### Strengths, Weaknesses, Opportunities and Obstacles (SWOO)

On July 1, 2009, a Strengths, Weaknesses, Opportunities, and Obstacles (SWOO) session was held with the Steering Committee. The purpose of this session was to review information garnered from the risk assessment and the public involvement strategy to identify strengths, weaknesses, opportunities and obstacles in hazard mitigation within Onondaga County through a facilitated brainstorming session on risks, vulnerabilities, and capabilities. All information shared during this session was recorded and used to prepare catalogs of mitigation alternatives to be used by the Planning Committee in preparing their individual jurisdictional annexes. Many of the strategies (such as community outreach) identified in the catalogs could be applied to multiple hazards. This Plan identifies strategies for multiple hazards for the County and each jurisdictional annex for participating jurisdictions (Section 9).

The Planning Committee generated a comprehensive list of mitigation actions (see Appendix E) to be considered that met the following objectives:

- Use information obtained from the public involvement strategy;
- Use information provided in the risk assessment;
- Seek mitigation actions consistent with the goals and objectives for the Onondaga County Hazard Mitigation Plan;
- Create catalogs of mitigation actions to be used as a tool by the Planning Committee in selection of mitigation actions.

#### Catalogs of Mitigation Actions

Based on information gathered during the SWOO session, catalogs of mitigation actions were created that list initiatives that could manipulate the hazard, reduce exposure to the hazard, reduce vulnerability to the hazard, and increase the Planning Committee's ability to respond to or be prepared for a hazard (Appendix E). These catalogs are separated by responsibility for implementation (i.e., who would most likely implement the initiative: personal property owners, private sector business, or government). The hazards addressed by the catalogs were deemed to be those to which the planning area is most vulnerable based on the risk assessment.

The catalogs are not meant to be exhaustive or site-specific but rather to inspire thought and provide members of the Planning Committee a baseline of initiatives backed by a planning process, consistent with the goals and objectives of the planning area, and within the capabilities of the Partners. The Planning Committee was not bound to these actions. They could have added to the catalogs if an action was not included. Actions in the catalogs that were not selected by the Partners in their jurisdictional annexes were not selected based on the following:

- Action is currently outside the scope of capabilities (funding)
- The jurisdiction is not vulnerable to the hazard
- Action is already being implemented

All proposed mitigation actions were identified in relation to the goals and objectives presented above. The mitigation actions include a range of options in line with the six types of mitigation actions 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.

### Mitigation Actions

The mitigation actions are the key element of the natural hazards mitigation plan. It is through the implementation of these actions that Onondaga 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 Planning 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 grant eligible—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 County or each jurisdiction's capabilities.

A series of mitigation actions were identified by Onondaga 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 1 to 5 years
- Long Term = To be completed in greater than 5 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 Onondaga County Steering Committee, along with their contract consultant, developed 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 (Table 6-6) 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 1 to 5 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 1 to 5 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 (5 to 10 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 6 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. The County was asked to weigh the estimated benefits of a project versus the estimated costs to establish a parameter to be used in the prioritization of a project, utilizing the same parameters used by each of the participating jurisdictions as outlined in Volume II of this Plan.

This benefit/cost review was qualitative; that is, it did not include the level of detail required by FEMA for project grant eligibility under the Hazard Mitigation Grant Program (HMGP) and Pre-Disaster Mitigation (PDM) grant program. This qualitative approach was used because projects may not be implemented for up to 10 years, and the associated costs and benefits could change dramatically in that time. Each project was assessed by assigning subjective ratings (high, medium, and low) to its costs and benefits, described in Table 6-1:

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).
Medium	The project could be implemented with existing funding but would require a re-apportionment of the budget or a budget amendment, or the cost of the project would have to be spread over multiple years.
Low	The project could be funded under the existing budget. The project is part of or can be part of an existing, ongoing program.
<b>Benefits</b>	
High	Project will have an immediate impact on the reduction of risk exposure to life and property.
Medium	Project will have a long-term impact on the reduction of risk exposure to life and property or will provide an immediate reduction in the risk exposure to property.
Low	Long-term benefits of the project are difficult to quantify in the short term.

Using this approach, projects with positive benefit versus cost ratios (such as high over high, high over medium, medium over low, etc.) are considered cost-beneficial and are prioritized accordingly. For many of the County initiatives identified, Onondaga County may seek financial assistance under FEMA’s HMGP or PDM programs. Both of 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 Committee is committed to implementing mitigation strategies with benefits that exceed costs. For projects not seeking financial assistance from grant programs that require this sort of analysis, the Planning Committee reserves the right to define “benefits” according to parameters that meet its needs and the goals and objectives of this plan.

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.

The annexes presented in Section 9, Volume II present the results of applying the prioritization methodology presented to the set of mitigation actions identified by Onondaga 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 objectives supported by each action. Goals are not listed because all objectives meet multiple goals.
- 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. Onondaga County has 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 NYSEMO, FEMA and other Federal, State and County 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 Onondaga County departments and representatives, the public, NYSEMO, and FEMA as the Plan is implemented.