

Section 4.0 – Mitigation Strategy

The following requirements are met throughout this section:

- §201.4(c)(3) *[To be effective the plan must include a] Mitigation Strategy that provides the State’s blueprint for reducing the losses identified in the risk assessment.*
- §201.4(c)(3)(iii): *[State plans **shall** include an] identification, evaluation, and prioritization of cost-effective, environmentally sound, and technically feasible mitigation actions and activities the State is considering and an explanation of how each activity contributes to the overall mitigation strategy. This section **should** be linked to local plans, where specific local actions and projects are identified.*
- §201.4(c)(4)(ii): *[The section on the Coordination of Local Mitigation Planning **must** include a] description of the State process and timeframe by which the local plans will be reviewed, coordinated, and linked to the State Mitigation Plan.*

4.1 – Hazard Mitigation Goals

Operationally, this Plan defines Hazard Mitigation as the process whereby hazards are identified, risks and vulnerabilities are quantified, risk elimination or reduction measures are identified, awareness is created, and cooperative efforts are undertaken to prevent, reduce or eliminate losses. The following sub-sections will present the vision, goals and objectives that the State considers pertinent to reducing or eliminating losses from all types of disasters. Hazards that are determined to produce the greatest threats and through which impacts are frequent and severe will be given special attention. With the introduction of the FEMA Severe Repetitive Loss Program (SRL), a new source of funding will enable the state and its residents to initiate mitigation actions which may have been fiscally prohibited in the past. Mitigation goals will reflect this new mitigation program. The current effort to update the State Plan required some modification of the goals, objectives, and the activities, but several were felt to be ongoing issues that required a longer term to complete.

4.1.1 – State Hazard Mitigation Vision

The development of the State Hazard Mitigation Vision Statement took place over several years. The **Vision Statement** that resulted from the 1995 Planning Summit was stated as:

“A society whose daily activities reflect a commitment shared by government, business, and the public to reduce or eliminate impacts from natural and technological disasters”

The 2002 Planning Summit participants reviewed and updated the State’s **Hazard Mitigation Vision Statement** to read:

“To create communities whose daily activities reflect a comprehensive commitment by government, business, non-profit organizations, and the public to eliminate or reduce risks and adverse impacts from natural, technological, and human-caused hazards.”

It will be noted that the updated vision statement appears to be somewhat more quantifiable and broad. It also expanded its multi-hazard emphasis and added “human-caused hazards”.

During the 2008 plan update process, Planning Committee Members reviewed the vision statement, and concurred that the Hazard Mitigation Vision Statement should be maintained in its current form as it envelopes the essential concepts of the State Hazard Mitigation Plan.

4.1.2 – Goals and Update Assessment

With a successful hazard mitigation program, New York State can meet many of the serious and pervasive disaster-related challenges facing the State and Local governments, residents and businesses. After an analysis of the hazards that impact the state, the following goals were developed in order to guide the state and its agencies in the selection of appropriate mitigation activities. The pursuit of these goals will allow the State to achieve the ideal described in the State’s Hazard Mitigation Vision Statement. These goals and objectives were assessed and updated by the Planning Committee, as well, through comments and input received from various State agencies, Local governments, and other stakeholders. Various opportunities for suggestion of revision or addition of the goals were given to all stakeholders through meetings, survey tools, and through the review of drafts of the plan at various stages of development. The majority of goals were determined to be valid, and they were continued in the current plan, however some goals were deleted because they have been accomplished or they were felt to be redundant. The goals and objectives of the New York State Hazard Mitigation Program are as follows:

A. End Users

Goal: Promote hazard mitigation awareness and education throughout the State.

Objectives

- Develop an annual hazard mitigation training schedule and deliver scheduled courses, based on training needs identified by State and Local mitigation staff.
- Train State and Local officials to incorporate hazard mitigation considerations into their day-to-day operations
- Educate the residents of the State to play an active and vital role in hazard mitigation

- Develop a comprehensive list of users of the State Hazard Mitigation Program.
- Distribute hazard mitigation information targeted to Local officials, businesses and the general public in coordination with the network of Local mitigation coordinators.
- Develop and deliver mitigation training to Local Hazard Mitigation Coordinators (LHMC).
- Support hazard mitigation training and awareness programs designed and implemented by LHMCs and other key state and local agencies and organizations.
- Distribute FEMA’s training catalog to Local appropriate officials and encourage attendance at training courses held at the National Emergency Training Center—Emergency Management Institute.

B. SERVICES

Goal 1: Build a State and Local hazard mitigation infrastructure within the State and promote mitigation as the most effective means to reduce future disaster losses.

Objectives

- Establish and maintain a network of County Hazard Mitigation Coordinators to serve as focal points for Local hazard mitigation programs, training, and awareness efforts and implementation of mitigation measures.
- Maintain active hazard mitigation committees and subcommittees under the Disaster Preparedness Commission (DPC) in order to develop and implement statewide mitigation plans and strategies.

Goal 2: Implement, maintain, and update a comprehensive State Multi-Hazard Mitigation Plan.

Objectives

- Periodically evaluate the effectiveness of the Plan
- Ensure the Plan identifies and recommends general policies and strategies for dealing with the hazards which pose the greatest risk to life and property
- Ensure that state agencies are consulted and allowed to contribute to the planning process
- Update the State Hazard Mitigation Plan as necessary

Goal 3: Reduce risk to lives and property from frequent natural, technological and human caused disasters. Set priority on hazards that are repetitive and pose severe risk to life and property.

Objectives

- Encourage the implementation of cost-effective mitigation measures that will reduce costs of disaster assistance and administration
- Ensure safe and appropriate development in hazardous locations throughout the State by encouraging and supporting Local jurisdiction hazard mitigation initiatives.
- Promote and encourage the development of community mitigation plans
- Strategically and objectively allocate community planning grants from the Flood Mitigation Assistance Program, the Hazard Mitigation Grant Program, the Pre-Disaster Mitigation Program and the Severe Repetitive Loss Program as well as any other funding sources that might be available.
- Provide technical assistance to communities with respect to the development and implementation of Local mitigation plans

Goal 4: Promote the implementation of flood mitigation plans and projects in flood prone areas of the State, in accordance with the FMA program as well as the Severe Repetitive Loss (SRL) program.

Objectives

- Conduct education/awareness programs outlining project identification and selection criteria under the FMA and the SRL programs.
- Provide technical assistance to communities with respect to the project identification and implementation under the FMA program
- Allocate FMA project grants in accordance with the guidelines and criteria for the FMA program and the SRL programs.
- Review and comment on FMA and SRL program project applications
- Support NYS Department of Environmental Conservation DEC in Flood related activities, including the goals and objectives in the State Flood Mitigation Plan.

Goal 5: Encourage the development and implementation of long-term, cost-effective and environmentally sound mitigation projects at the local level.

Objectives

- Assist eligible communities in applying for 404 HMGP funds to implement long-term, cost-effective and environmentally sound hazard mitigation projects

- Submit to FEMA only those projects which are long-term, cost-effective and environmentally sound
- Pre-identify feasible and potentially effective measures, and prepare information to support expeditious application submission as funds become available.

Goal 6: Promote Hazard Resistant Construction, especially in residential buildings throughout the State

Objectives

- Reduce disaster losses to residential structures, particularly those losses which are caused by wind and flood (riverine and coastal surges), by developing and distributing hazard resistant design and construction standards.
- Develop and deliver programs to train various groups involved in the home construction industry on the principles and methods of hazard resistant construction.
- Create a heightened awareness of the benefits of hazard resistant construction among local elected and professional staffs, and encourage all participants to take these steps to reduce losses through improved constructions, techniques, and materials.
- Educate the consumer on the effects of natural hazards on poorly constructed buildings as well as on acceptable hazard resistant design and construction standards.
- Describe newly developed materials, methods, and techniques used in hazard resistant construction and retrofitting projects.
- Document a list of incentives that supports hazard resistant construction

Goal 7: Ensure hurricane safety for the people and infrastructure of vulnerable areas of NYS.

Objectives

- Develop effective and coordinated coastal storm response plans for all communities at risk, especially those in counties with the highest vulnerabilities including Nassau, Suffolk, Westchester Counties, and the New York City area.
- Promote the development of effective and coordinated coastal storm response plans for each of the major transportation authorities in vulnerable areas of New York State.

Goal 8: Ensure earthquake safety for the people, property, and infrastructure of NYS.

Objectives

- Conduct earthquake vulnerability analyses for every County in NYS.
- Promote State and Local earthquake mitigation activities.

- Promote State and Local seismic building codes.
- Participate in the conduct of a loss estimation study for New York State.

Goal 9: Reduce the risks of wildfire and utility failure resulting from damaged trees.

Objectives

- Encourage local government to prevent or limit development at the wildland/urban interface
- Promote wildfire hazard resistant construction and other appropriate mitigation for development that must occur in the wildland/urban interface.
- Increase funding for technical assistance to local communities to perform tree maintenance and debris clearing.
- Work with local communities in the development of model tree ordinances and comprehensive tree care management systems, including establishing a model tree pruning standard.
- Educate the public sector regarding the benefits and potential liabilities of the tree resources as well as the need for routine tree maintenance.
- Promote State and Local urban forestry mitigation activities.
- Support State and Local tree maintenance programs.
- Secure funding for State, County, Towns, and other Municipalities for hazardous tree and branch removal, pruning, and maintenance. Provide technical assistance to consumers concerning the importance of properly maintaining mature trees around utilities and in areas that may threaten public safety
- Provide technical assistance to consumers related to techniques for selecting competent tree care professionals
- Provide technical assistance to tree care professionals with respect to techniques for repair and replacement of storm damaged trees
- Work in conjunction with utility companies to setup planting projects that demonstrate proper tree and site selection.

Goal 10: Reduce the length of utility “downtimes”.

Objectives

- Improve the quality and timeliness of information on system damage assessment and restoration projections provided by utilities following widespread power outages.

- Evaluate and as appropriate, improve the level of coordination with SEMO concerning the use of State resources and processing of special information requests to limit the impact of power outages
- Evaluate the adequacy of inter-utility coordination during disasters and emergencies; recommend improvements where necessary

C. ADMINISTRATION

Goal 1: Ensure adequate administrative support to enable SEMO hazard mitigation staff to meet their goals and objectives in a professional and efficient manner.

Objectives

- Address identified shortfalls and needs in hazard mitigation staff, equipment, and telecommunications within a time frame that positively impacts productivity and the meeting of program goals
- Reorganize the hazard mitigation section of the SEMO library to include all relevant electronic and printed information, and assign a staff person to maintain and update information.
- Support and comply with all elements of the New York State Hazard Mitigation Plan Monitoring, Maintenance, and Update Section.

D. LEGISLATION

Goal 1: Track, and/or recommend, Federal, State and local legislation related to hazard mitigation.

Objective

- Prepare a hazard mitigation legislative agenda on an annual basis.

4.2 - State Capability Assessment

New York State has a wide number of options and capabilities in order to manage mitigation matters in both the pre and post disaster phase of any hazard. The preferred methodology of mitigation is to initiate actions before a disaster impacts the State, and in general this pre-disaster approach is the cornerstone of all the efforts that have been put forth in both the planning and project activities. **Section 2** - State Coordination Efforts and Capabilities, provides a general overview of the State laws, regulations, programs, and policies that are implemented by a number of agencies. As has been indicated in **Section 2**, the NYS Consolidated Laws, Executive Law, Article 2-B establishes the framework for the State's management of all disaster related activities, and it also empowers the Disaster Preparedness Commission with the authority to act on behalf of the state in pre and post disaster matters, including planning activities. However, it must again be reemphasized that the concept of Local rule determines and sets limits on level of involvement any State agency may have within the boundaries of a jurisdiction. Refer to Section 2 for further detail about the

agencies, policies and programs which encompass the State's integrated approach toward mitigation.

An evaluation of the State's capabilities in a pre-disaster operational phase reveals both strengths and weaknesses. Greater detail on the specific capabilities can be found in **Sections 2, 4, 7, and 10**, but the responsibility of pre-disaster actions rests on the shoulders of SEMO and the DPC agencies. Through a coordinated level of preparedness, the DPC can assure that resources and manpower are available to assist Jurisdictions and /or State Facilities that may experience a disaster. Each agency is required to have in place a Continuity of Operations Plan (COOP) for each facility in order to assure that essential services and functions can be provided. Several levels of contingency plans are in place for State agencies and each agency is required to designate a manager to perform the necessary planning and exercises to assure the essential functions of the facility can continue.

The support and funding the State receives from FEMA are essential and much appreciated resources that enable most phases of mitigation activity.

A weakness in the State's capabilities is a lack of adequate staffing and related resources to carry out the pre-disaster mitigation efforts which could enhance the goals and objectives presented in this section of the plan. Having recognized this, efforts are underway to secure the appropriate approvals to strengthen the areas of weakness and to secure appropriate staffing.

As the local jurisdictions are considered under this evaluation, the state's capabilities are sometimes further diminished by the Local Jurisdiction's inability to wholeheartedly engage in pre-disaster planning activities. This reluctance may have a number of causes, but the State Agencies are not able to step beyond appropriate efforts to engage the Jurisdiction if these efforts are met with resistance. It is clear that the educational efforts conducted across the State have had a positive impact on the willingness of jurisdictions to participate in pre-disaster mitigation efforts. It is important for State agencies to assure that its programs and funding sources remain user friendly and that bureaucratic requirements do not serve as a deterrent to smaller Jurisdictions that may not have the resources to compete with larger Jurisdictions. Through training and technical assistance, much can be accomplished.

The capabilities of the State to manage in a post-disaster phase are fairly strong when the information presented in Sections 2, 7, 10, and 11 are considered in total. Article 2-B provides a considerable framework for the activities of State agencies during and after a disaster. Specifically, Article 2-B of the New York State Executive Law, § 28-a. *Post disaster recovery planning*, defines the requirements for the development and implementation of local recovery and redevelopment plans whenever a State disaster emergency has been declared. Per the statute:

“A local recovery and redevelopment plan shall include, but need not be limited to: plans for replacement, reconstruction, removal or relocation of damaged or destroyed facilities; proposed new or amended regulations such as zoning, subdivision, building, or sanitary ordinances and codes; and plans for economic recovery and community development. Such plans shall take into account and to the extent practicable incorporate relevant existing plans and policies and such plans

shall take into account the need to minimize the potential impact of any future disasters on the community.”

The section further defines the requirement for public input to the recovery plan via public hearings; submittal of the plan to the State Disaster Preparedness Commission; the ability of the Commission to assist the municipality in preparing the recovery plan; and provisions for adoption and revision of the recovery plan as necessary.

In addition, the full resources of the State are brought together in the State Emergency Operations Center (EOC), where all DPC agencies, including FEMA, the American Red Cross and the Salvation Army are on call to assist with the more immediate needs of jurisdictions that do not have the resources to manage the affects of the hazard.

The resources of the SEMO Recovery Section are essential components of the post –disaster activities required to mitigate the impact of any hazard. The Recovery Section works closely with the Mitigation Section of SEMO in order to assure that appropriate measures are followed in order to assure jurisdictions are restored to their pre-disaster condition. However, there are some circumstances where mitigation projects can be initiated as long as the benefit –cost ratios justify rebuilding to exceed the pre-disaster conditions.

The Mitigation Project Section of SEMO has developed a comprehensive set of policies and procedures which enable an efficient process that jurisdictions can follow from application through project completion. Further information about the specific process utilized to prioritize project applications can be found in this Section and in **Appendix 2**. The environmental review and benefit cost analysis is detailed in **Section 8** and **Section 10**, presents the various grant funding capabilities of the State and how these funds have been expended over past years. The vast majority of funding flows from FEMA to the State, and the State is obligated to assure that the funds are appropriately utilized and accounted for at all times. SEMO has instituted several levels of accountability in order to assure this obligation is honored.

The Plan Update for 2008 includes some new hazard management capabilities that were not in place in 2005. As noted in Section 10 of this plan, many more jurisdictions have approved Hazard Mitigation Plans, and many more are currently working on plans. This development in mitigation planning has empowered jurisdictions in the State with the knowledge and ability to take actions to avoid or reduce the impact of hazards in their community. Communities will no longer have to just view hazards, such as floods, with apathy and helplessness. Given the upsurge of plans and projects, it is clear that a great development in NYS has been the development of a positive and forward thinking attitude that demonstrates the will to take steps before a hazard impacts a community.

Another development in the hazard management capabilities of NYS has been the development and implementation of NY Alert, a system with the capabilities to inform or forewarn citizens in small specific areas or statewide of a pending event. The capabilities of this system are profound in terms of the potential to save lives and protect property. Additional information about this new development can be found in **Section 2** of the Plan. A new capability that exists is the Severe Repetitive Loss (SRL) Program, which has been instituted by FEMA, and which will enable many more jurisdictions and citizens to initiate

actions to mitigate against the risk of flood damage. If States have an approved hazard Mitigation Plan, Jurisdictions and Citizens will be eligible for a Federal Grant for up to 90% of cost of the project. In the past, applicants were obligated to contribute 25% of the cost of the acquisition of elevation, but under this new program, they will only be responsible for 10% of the cost. Specific criterion and limitations for the SRL program are currently being developed, and the specifics have not been published by FEMA as this plan is being finalized it is strongly suggested that communities research this grant for properties with a history of NFIP claims. See **Section 10.1.4** for more information on the SRL Program

4.2.1 – Local Capability Assessment

The SEMO Mitigation Section has been actively working with local governments in the development of Local Hazard Mitigation Plans and guiding them toward identifying measures effective for mitigation purposes. New York State is a “home-rule” State and therefore, much of the impetus for mitigation needs to come from the local level, and the past three years have demonstrated that Local governments are realizing the benefits of developing and adopting a local hazard mitigation plan. Through a variety of outreach methods, SEMO has been actively encouraging the local governments to incorporate mitigation into their daily activities. Additionally, between 1996 and 2007 in cooperation with FEMA, SEMO has awarded more than \$493 million in mitigation grants to implement a variety of mitigation projects across the State. As a result, support for mitigation policies and planning has increased considerably across the State. Section 10 of the Plan provides additional detail about both Mitigation Projects and Mitigation Planning at the Local level.

Currently, New York State has over 1,400 municipalities participating in the development of a plan or covered by an approved plan. Through SEMO’s work with communities throughout the planning process, SEMO has encouraged the Local governments to review policies that are currently in place to determine their effectiveness for hazard mitigation. The concepts, goals and actions developed in a Local Hazard Mitigation Plan can be integrated and merged with existing planning and regulatory mechanisms. SEMO actively encourages the use of building codes, zoning ordinances, land use plans (current and potential future land use), revitalization plans, economic development plans, subdivision regulations as well as capital improvement plans for the mitigation process. SEMO staff provides technical assistance for incorporating these and other planning tools into the mitigation process. A list of mitigation implementation tools for Local governments is included in **Table 4-1**. It should be noted that the effectiveness of each of these planning tools, including the adoption of a hazard mitigation plan, is determined by each Jurisdictions resolve to support and enforce the specific terms of each plan or code. Jurisdictions where growth and development are on the increase must take particular care in all decisions which might authorize development in hazard prone areas or areas which rely on open space or wet lands to absorb flood waters. Political pressures and short term fiscal considerations must be subordinate to the safety and well being of the citizens and infrastructure of the community.

While improvement has been noted in terms of the Local capability to prevent or reduce the damage from hazards, much progress is yet to be made in terms of having jurisdictions realize the empowerment that will come from a full integration and merging of mitigation goals and objectives into all municipal planning and code enforcement tools.

**Table 4-1
Mitigation Implementation Tools for Local Governments**

Policy	Description	Applicability	Effectiveness
Building Codes	The State has adopted the IBC building code and local governments adopt and enforce this code.	The adoption and enforcement of building codes relates the design and construction of structures to standards established for withstanding a variety of forces.	All structures built after 2002 must comply with the IBC code, which includes special provisions for building in the floodplain.
Zoning	Laws and ordinances regulate development by dividing the community into zones and by setting development criteria for each zone. Zoning decisions are delegated to local governments in New York State	Zoning can keep inappropriate development out of hazard-prone areas and can designate certain areas for such things as conservation, public use, or agriculture.	Many communities in NYS have designated areas in their community as “open space” thereby reducing the effect of flooding on the community.
Land Use Planning	Comprehensive land use planning provides a mechanism to prevent development in hazardous areas or allows development in a manner that minimizes damage from hazards.	Local governments can use land use planning to identify those areas subject to damage from hazards and work to keep inappropriate development out of these areas. Land use planning can also be used for a more regional approach when local governments work together.	Many communities are incorporating a mitigation review into the land use planning process, thereby potentially minimizing development in identified hazard areas.
Subdivision Regulations	Sets construction and location standards for subdivision layout and infrastructure.	Contains standards for such things as storm water management and erosion control, subdivision size.	Urban flooding is often a result of building residential or commercial developments without consideration for stormwater drainage issues. These regulations have the potential to reduce the impact of urban flooding on a community.
Capital Improvements Planning	Identifies where major public expenditures will be made over the next five to ten years.	Capital Improvement Plans can secure hazard-prone areas for low risk uses, identify roads or utilities that need strengthening, replacement, or realignment, and can prescribe standards for the design and construction of new facilities.	May reduce the amount of public dollars spent on construction in hazard prone areas.

As part of the Multi-Hazard Mitigation Plan development, Local communities identify programs and policies within their community that can contribute to mitigation activities. Additionally, the Local communities identify methods to incorporate the Mitigation Plan into the routine activities in their community, thereby ensuring the Mitigation Plan continues to play an active role in the community.

To assist in expanding the capabilities of Local officials and to facilitate learning and thus enhance disaster preparedness, SEMO offers a variety of courses. The SEMO Training Section offers training opportunities developed by FEMA and the Emergency Management Institute as well as those created by SEMO and our DPC partners in response to needs specific to emergency management in New York State. In addition to the Training Section’s efforts, the SEMO Mitigation and Planning Sections each provide training opportunities for Local officials endeavoring to expand their knowledge of mitigation and planning.

4.3 – Mitigation Projects, Actions and Activities

4.3.1 – Mitigation Projects

Due to the large size of New York State, the great number of municipalities located within the State, their physical, demographic, political, and socio-economic characteristics, it is unrealistic to attempt to develop a list of prioritized projects that encompass the entire State. Furthermore, the responsibility to implement appropriate mitigation measures generally resides in the municipality where the action is needed. Because of this situation, the State has developed a recommended list of project types and non-structural mitigation measures based upon the hazards to which the State is vulnerable. This list is further supported by a listing of completed or in-progress mitigation projects which demonstrate the applicability of specific measures to resolve specific problems. In this sense, this section of the Plan will serve as a valuable tool for Local government and State agencies to use in considering alternative mitigation measures to reduce or eliminate specific risks.

The recommended project types by hazards, for the hazards in the State are included in **Table 4-2** and an inventory of funded mitigation projects across New York including statistical breakdowns are included in **Section 10 “Effective Use of Available Mitigation Funding”**, **Tables 10-1** through **10-7**.

The SEMO Mitigation Staff has developed a Mitigation Project Database to track the projects submitted to SEMO under the Hazard Mitigation Grant Program, Flood Mitigation Assistance and Pre-Disaster Mitigation programs. As the SRL Program is instituted by FEMA, that too will be monitored and tracked. In cooperation with the Disaster Recovery Section, a system has been developed to track Section 406, or Public Assistance mitigation projects. The databases tracks items such as type of applicant or sub-grantee, project type, intended benefit and/or property to be protected, project cost, benefit-cost ratio, estimated completion time and the program and/or disaster funding the project was submitted under. These databases assist in the constant updating of the methodology used to prioritize projects that are submitted for funding and allow for the targeting of specific needs when funding becomes available.

It should be noted that some Local projects were included in the following Mitigation Action tables to demonstrate the capabilities and vision Local Jurisdictions are utilizing in their mitigation plans. The local projects or mitigation actions are included only as a sample of types of high priority, high cost projects that are being considered as the State Plan is being updated. As mentioned above, each project will be extensively reviewed by the Mitigation Project Staff in order to assure that each meets the criterion for funding.

Jurisdictions across the state are encouraged to look closely at the relatively low cost actions that they can implement in order to initiate a sound mitigation program in a relatively short time period. For instance, zoning regulations, land use policies, and public awareness campaigns can all be initiated through the existing resources of most jurisdictions. The following list can be utilized by Local Jurisdictions to develop strategies to address specific hazards that impact their area, but it is not intended to be all inclusive.

**Table 4-2
Recommended Project Types by Natural Hazards**

Natural Hazard	Recommended Project Types
Flooding / Dam Failure	<ol style="list-style-type: none"> 1. Public Awareness 2. Planning and Zoning 3. Acquisition 4. Relocation 5. Protective Measures for Critical Facilities 6. Storm water Management 7. Elevation 8. Wet/Dry Flood Proofing 9. Reduce public infrastructure within high hazard areas 10. Transfer Development Rights 11. Property swap program
Hurricane / Tropical Storm / Windstorm / Tornado	<ol style="list-style-type: none"> 1. Public Awareness 2. Tree Pruning 3. Strengthen/Improve/Enforce Building Codes in Hazard Areas 4. Wind Resistant Design and Construction 5. Structural Retrofit 6. Evacuation Plan
Winter Storm/Ice Storm	<ol style="list-style-type: none"> 1. Public Awareness 2. Hazard Resistant Construction 3. Tree Pruning 4. Strengthen/Improve/Enforce Building Codes in Hazard Areas 5. Retrofit Critical Structures 6. Redundant Utilities/Communications
Landslide / Land Subsidence	<ol style="list-style-type: none"> 1. Public Awareness 2. Planning and Zoning 3. Open Space Preservation 4. Acquisition of Structures (Demolish & Convert to Open Space) 5. Relocation of Structures 6. Bank Stabilization
Wildfire	<ol style="list-style-type: none"> 1. Public Awareness 2. Planning & Zoning (i.e.,urban-wildland interface set-back ordinances) 3. Open Space Preservation (especially along the urban-wildland interface)
Drought	<ol style="list-style-type: none"> 1. Public Awareness 2. Drought Preparedness/Planning 3. Drought Resistant Vegetation 4. Increase Water Conservation Standards 5. Retrofit/Upgrade Irrigation System
Earthquake	<ol style="list-style-type: none"> 1. Public Awareness 2. Planning and Zoning 3. Strengthen/Upgrade/Enforce Building Codes 4. Retrofit/Upgrade Critical Facilities 5. Seismic Retrofit
Hail Storm	<ol style="list-style-type: none"> 1. Building Codes 2. Public Awareness 3. Weather warning system improvements and modernization
Extreme Heat	<ol style="list-style-type: none"> 1. Public Awareness 2. Identify location of vulnerable populations 3. Establish cooling centers 4. Issue advisories and warnings
Power Failure	<p>This hazard is typically a cascading effect of the previously listed Hazards; therefore it is recommended that the effects of a power failure be taken into account when researching potential projects for specific hazards.</p>

4.3.2 – Actions and Activities

Mitigation Actions and Activities included in this section were developed through a collaborative effort by New York State agencies and organizations. For the current plan update, several meetings of the plan group were held as well as numerous meetings with separate State agencies in order to ensure that information gathered for the plan was up-to-date and accurate. Mitigation activities stated in the 2005 NYS Hazard Mitigation Plan were extensively reviewed and in some cases it appeared appropriate to combine activities that had similar objectives or outcomes. The original plan collaborative effort included outcomes from the 2002 NYS Mitigation Planning Summit and subsequent follow-up and Mitigation Planning Development meetings where the framework, guidelines, and criteria were discussed and established to ensure that appropriate mitigation measures were developed following the requirements as stated in the regulation:

44 CFR 201.4(c)(3)Mitigation Strategy...This section shall include....(iii) An identification, evaluation, and prioritization of cost-effective, environmentally sound, and technically feasible, mitigation actions and activities the State is considering and an explanation how each activity contributes to the overall mitigation strategy.

The mitigation strategy tables were developed to foster guidance and to prompt those involved with identification and development of mitigation measures for certain information that lends to satisfying various elements of the regulation as stated above. Below is an excerpt of guidance material provided to the plan development participants. It describes the table headings and clarifies the type of information necessary for sound mitigation strategy.

Description of Activity

Description of Activity	Agency	Est. Cost(\$) m- marginal, s – significant	Potential Funding Source	Negative Impact (l- low, m- medium, h- high)	Priority h- high, l- low	Time frame (o-ongoing, s-short, l-long term)	Status
(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)

(1) Hazard – Mitigation Strategy – identifies the natural hazard the activity addresses.

(2) Description of Activity – This element prompts consideration for evaluation, technical feasibility, and mitigation value. Include: a. the name of the program and the activity with results including a reduction of potential impact from the natural hazard, b. Depending on the nature of the activity described, if appropriate, briefly include more detail on the specific activity. For example, provide a detailed element of the program, or how the program activity will serve the purpose of the larger program, and c if appropriate, very briefly describe the implementation strategy, or how the activity will be implemented to meet the desired outcome. For instance, if the proposed activity type is “increased awareness,” the implementation strategy might be the use of web sites or increase collaboration among stakeholders via scheduled meetings and conferences.

(3) **Involved Agency/Agencies** – list the agency or agencies that would likely be involved in the implementation of the proposed action. These agencies might include Federal, State, and Local organizations and local governments. For the purpose of this plan, the term *All State Agencies* is used in this category to imply that all agencies are equally responsible to accomplish the activity listed

(4) **Est. Cost (\$, or m-marginal, s-significant)** – This element prompts consideration for cost-effectiveness. Estimate the actual cost of, or budget, for the activity. If the actual cost cannot be determined, but it is determined that it would be marginal or significant compared with the overall agency program/activity cost, identify accordingly.

(5) **Potential Funding Sources** – identify all potential funding sources that support the agency program, or funding sources for the activity itself.

(6) **Negative Impact (l-low, m-medium, h-high)**– This element prompts consideration for evaluation and to ensure the project is environmentally sound and supported by local population. Estimate the level of negative impact or absence of support. For instance, if the activity results in adverse environmental impact, or is not supported by residents, the negative impact would be “high”. On the other hand, if the environmental impact would be low and the activity/action is fully funded and supported, the negative impact would be “low.” Consider using STAPLEE evaluation criteria. The acronym represents the following evaluation criteria; S-social, T-technical, A-administrative, P-political, L-legal, E-economic, and E-environmental. STAPLEE is generally accepted evaluation process which provides a systematic approach to help identify opportunities and challenges of a particular alternative.

(7) **Priority (h-high, l-low)** – This element prompts consideration for prioritization. Rate the priority based on the urgency of the need, the potential effectiveness of the activity, and its associated cost. For instance, if the activity results in the protection of critical or valuable assets, reduces impact to people or property in imminent danger, or it is affordable, easily implemented and potentially highly effective, such activity would be assigned a “high” priority.

(8) **Timeframe (o-ongoing, s-short, l-long term)** – Identify the timeframe within which the activity will be implemented. For instance, “ongoing” if it is a current and ongoing programmatic/regulatory activity, “Short term”(< 5 year)– if the activity can reasonably be expected to be implemented within the next 5 years or “Long term”(>5 years)- if the activity is more complex, requires significant time, widespread support, and resources in order for implementation to occur.

(9) **Status** - For the purpose of the plan update, this column was inserted to evaluate the progress made during the past planning cycle. In evaluating each item, the planning taskforce surveyed each agency to gain feedback on progress made on each specific activity. While some of the responses obtained from agencies were more detailed, the information was edited to provide a concise summary of the progress. The terminology used to describe the progress was discussed by the planning committee and it was determined that utilizing the phrases: **Good**, which indicates significant progress has been made and it is anticipated that this activity will be ongoing, thus requiring consistent effort and monitoring; **Fair**, which will

indicate moderate progress has been made but it is clear that additional effort is needed; *Inadequate*, is used to indicate areas where there has been limited or no progress on the specified activity. *Newly inserted* refers to activities which were proposed during the current plan update.

The mitigation strategy activity table format, as seen in the foregoing pages, was developed to present actions and support information the most logical way, by hazard. The format employed does not provide for a description of how each activity corresponds to, or how development was guided by the goals and objectives. However, it is clear that the mitigation period in the table is linked to developed goals and objectives of the strategy as they should be, and as required by the regulation.

A significant period of time was dedicated to developing and preparing the methodology to build the mitigation strategy in support of the mitigation goals and objectives. The Mitigation Planning Team recognized the fundamental importance of ensuring that all participants were clear regarding the philosophy of institutionalizing hazard mitigation capabilities. Accordingly, the initial focus was to ensure that all agency participants realized hazard mitigation exists in current programs and policies, and in fact those programs would be part of the action strategy. The importance of the planning initiative was emphasized as a way to build the framework for a long-term process. Further, explanation was given for the proposed long-term process as a collaborative effort necessary to support comprehensive integration and effective implementation of mitigation activities and philosophies into the day to day operations of Local and State government.

The mitigation strategy development process and method included the following key issues and activities:

The mitigation strategy goals and objectives developed for the previously approved State Plan were reviewed by the plan update work group and by the Planning Committee. The progress on each was assessed based on surveys and personal interviews of numerous agency representatives. In general, it was felt that the short time period that has elapsed since the initial State Plan was developed, and the global nature of most activities does not mandate a major revision of this section. Many of the goals, objectives, and activities are related to ongoing concerns and ongoing programs implemented throughout the state

- Hazard and risk analysis data, maps, and draft mitigation strategies were provided to the team and summarized to ensure that mitigation strategy and project development is driven by the findings of the hazard and risk analysis.
- A list and description of the six (6) classes of mitigation strategies (prevention, property protection, public awareness education, natural resources protection, emergency services, and structural project) were provided and summarized to ensure that a comprehensive range of potential actions were explored and identified.
- Evaluation criteria guidelines were discussed including the STAPLEE criteria. The acronym represents the following evaluation criteria; S-social, T-technical, A-administrative, P-political, L-legal, E-economic, and E-environmental. STAPLEE is a generally accepted evaluation process which provides a systematic approach to help

identify opportunities and challenges of a particular alternative. A summary of STAPLEE was provided and discussed to ensure that alternatives were appropriately identified, considered, and prioritized based on the key evaluation criteria with an emphasis on being cost-effective, environmentally sound, and technically feasible.

- Sample Local plan mitigation strategies were excerpted and provided. Local mitigation strategy analysis findings were shared with the team including the fact that all local mitigation strategies include strategy measures similar to each other and the draft State Plan strategy.
- Development team participants (NYS agencies) were prompted to review previously developed draft capability assessment and to further identify funding and technical assistance capabilities. Agencies were then asked to consider these existing programs and policies that have been identified for integration into the mitigation strategy.

Mitigation strategy activity, as mentioned in the methodology discussion above, is different than projects, in that “strategy activity” identifies existing or potential hazard mitigation tools. Although the conventional or more readily recognized mitigation projects hold obvious value, it is the potential long term value of institutionalizing mitigation philosophy through integration of existing or developed programmatic and regulatory systems that makes the strategy development so important. The mitigation activities outlined in this strategy will result in projects which, when implemented, will directly resolve the problem they are designed to address. **Tables 4-3 through 4-8** identify specific activities resulting in hazard mitigation. Hazard mitigation strategies are categorized and summarized for multiple hazards (Multi-Hazard) and also for specific hazards. That is, the strategies identified as multi-hazard would be relevant to any of the hazards discussed in the plan and listed in **Tables 4-1 and 4-2**. **Tables 4-4 through 4-8** describe specific strategies identified for flood, landslide, winter storm, earthquake, and wildfire hazards.

4.3.2.1 – Multi-Hazard

Table 4-3 Multi-Hazard - Mitigation Strategy

Description of Activity	Agency	Est. Cost (m-marginal s-significant)	Potential Funding Source	Negative Impact (l-low, m-medium, h-high)	Priority h-high, l-low	Timeframe (o-ongoing, s-short, l-long term)	Status
<p>MH 1. Statewide Mitigation Collaboration - Build and establish mitigation relationships and increase mitigation awareness and training. Continue holding periodic NYS mitigation planning conferences. Consider regional conferences, mitigation training to individual property owners, public education initiatives, conferences, builders and environmental groups. Identify areas of common interests, information sharing via websites, newsletters, etc. Develop an outreach program to local communities about mitigation planning, upgrading capabilities and technical resources.</p>	<p>All State Agencies, Local/Regional Planning Agencies, Local Emergency Management Agencies and elected leadership</p>	<p>m</p>	<p>Operating budget</p>	<p>l</p>	<p>h</p>	<p>o</p>	<p>Good progress has been made on outreach to local communities regarding planning issues. Statewide conference efforts and collaboration are in need of improvements NYS Dept of State, division of Coastal Resources, is working in conjunction with DEC's Climate Change Office to formulate priorities for research, policy initiatives and mitigation activities addressing the spectrum of climate change impacts..</p>
<p>MH 2. Summarize Potential Funding Sources for Mitigation Activities- Continue development of a comprehensive informative resource of potential mitigation activity funding sources and facilitate Statewide awareness. Include description of funding source, eligibility criteria, agency or staff point of contact. Continue collaboration among appropriate State & Federal agencies to ensure complete and comprehensive funding. Awareness would be enhanced via the NYSEMO web site mitigation page.</p>	<p>NYSEMO & appropriate NY and federal agencies including: DOS, DEC, SED, FEMA, USACE, NRCS, HUD, NOAA, etc.</p>	<p>m</p>	<p>Operating budget</p>	<p>l</p>	<p>h</p>	<p>s</p>	<p>Good progress has been made by FEMA and NYSEMO. DOS's Division of Coastal Resources manages over \$100 million in Environmental Protection Fund grants aimed at planning and implementation of projects in coastal areas. The division is anticipating another \$20 million in grants for the next fiscal year.</p>
<p>MH 3. Improve Coordination with Key State Partners – continue to identify partners including private sector, universities and industry leaders. Ensure they are invited to participate in future state and local mitigation planning initiatives (i.e. State Plan revision development and Mitigation Conferences).</p>	<p>SEMO, State Agency Liaisons</p>	<p>m</p>	<p>Operating budget</p>	<p>l</p>	<p>h</p>	<p>o</p>	<p>There has been fair progress with coordination efforts. In future years, SEMO will look to improve coordination.</p>
<p>MH 4. Increase collaboration among local-State technical resources such as GIS, databases, partner with universities and industries to share technical resources and data (GIS layers), and develop GIS resources to support local government mitigation planning efforts</p>	<p>SEMO, State Agencies</p>	<p>tbd</p>	<p>Tbd</p>	<p>l</p>	<p>h</p>	<p>o/l</p>	<p>The state has made good progress with collaboration efforts; however more progress is needed with regards to mitigation efforts.</p>
<p>MH 5. Public Education Hazard Awareness Program – 1 Continue the Hazard Awareness Program - Maintain NYS citizens and public officials' awareness of natural hazards via the program network capabilities including NYS web site and links, circulating print media,</p>	<p>SEMO, OTDA</p>	<p>m</p>	<p>Operating Budget</p>	<p>l</p>	<p>h</p>	<p>o</p>	<p>The state has made good progress and will continue to improve on its efforts.</p>

Table 4-3

Multi-Hazard - Mitigation Strategy

Description of Activity	Agency	Est. Cost (m-marginal s-significant)	Potential Funding Source	Negative Impact (l-low, m-medium, h-high)	Priority h-high, l-low	Timeframe (o-ongoing, s-short, l-long term)	Status
and public service news release.							
<p>MH 6. Public Education Hazard Awareness Program - 2 Enhance the Hazard Awareness Program - Assess program to ensure comprehensive format and collaborate with State agencies to improve information dissemination, i.e. County links to the State Web site and other appropriate outlets.</p>	NYSEMO & appropriate State and Local agencies including DOS, DEC, FEMA, and NWS (NOAA)	m	Operating Budget	l	h	l	Good Progress has been made within the state and local emergency management system.. DOS disseminates information pertaining to hazard management and watershed planning on its website and the Division of Coastal resources recently completed material on watershed planning to be used in public outreach
<p>MH 7. General Hazard Awareness - continue and advance hazard awareness initiatives, consider accomplishing initiatives via Schools and Curriculum Development.</p>	Education Department, American Red Cross, SEMO, OTDA	tbd	tbd	l	h	l	Good progress has been to insure education of mitigation activities are incorporated into school curriculum. OTDA distributes an emergency action newsletter.
<p>MH 8. Develop Web based resources – Support Local jurisdiction planning efforts by providing comprehensive resources for mitigation plan development</p>	SEMO	m	Operating budget	l	h	o	Poor progress has been made and NYS is looking to make drastic improvements for the next planning cycle.
<p>MH 9. General Data Gather – Continue to identify & fill data gaps as needed to advance Statewide hazard mitigation planning. For instance; gathering and analysis of local mitigation risk assessment data will continue as local plans are developed. This information will be used to support accurate and detailed State level risk assessment. Similarly, gathering state facility data such as building attributes and site specific data including positional accuracy will continue through agency partnerships and collaboration in order to support more accurate vulnerability analysis and loss estimation.</p>	SEMO, All State Agencies	m	Operating budget FEMA grants	l	h	o	Fair progress has been made with regards to the data which is collected. In future years, the analysis and recording of local plan data will improve.
<p>MH 10. Mitigation Planning and Project Resources Increase mitigation planning and project activity by providing comprehensive assistance for local jurisdictions, agencies and organizations. Provide comprehensive technical assistance and training for mitigation including grant application and administration, plan development, and project identification. Advance the county mitigation coordinators program</p>	SEMO County Mitigation Coordinators	m	Operating Budget	l	h	o	Good progress. SEMO will continue to provide assistance and training to local municipalities
<p>MH 11. Natural Hazard Analysis data and mapping Enhance existing statewide hazard analysis data and mapping and</p>	SEMO NYS Geological	tbd	Operating budgets	l	h	o	Fair Progress. SEMO will continue to improve on its efforts.

Table 4-3

Multi-Hazard - Mitigation Strategy

Description of Activity	Agency	Est. Cost (m-marginal s-significant)	Potential Funding Source	Negative Impact (l-low, m-medium, h-high)	Priority h-high, l-low	Timeframe (o-ongoing, s-short, l-long term)	Status
continue to improve efforts to make data accessible. Continue use of GIS mapping technology to develop and improve hazard mapping and vulnerability assessments. For instance, consider exploring use of real property data and overlay with landslide hazard characteristics (topo and soils) data to identify vulnerable structures and to assist with hazard mitigation requirements, such as vulnerability assessment and loss estimation. Utilize NYSEMO web site for web based downloadable hazard information. Encourage NYS Agency contribution to and promote community use of NYS GIS Clearinghouse	Services DEC OGS		FEMA Grants				
MH 12. Weather Emergency Communication -NOAA Weather Radio (NWR) Alert Receivers - Continue and enhance efforts to promote awareness and use of the NOAA Weather Alert receivers and warning program by all citizens, government agencies, and emergency managers. Continue and enhance encouragement of weather warning alert receivers	NWS, SEMO, All State Agencies	tbd	Operating budget	l	h	o	Fair progress has been made. More effort is needed for a widespread campaign. ODTA has distributed radios to facility control directors
MH 13. NY-Alert System - Encourage utilization of NY-Alert at the statewide and local level.	SEMO (Lead) All State and Local Agencies	s	Operating Budget	l	h	o	Newly inserted activity
MH 14. Emergency Alert System (EAS) (Radio and TV broadcast) Support and enhance FCC EAS broadcast initiative by providing all NYS broadcasters with satellite distribution receivers. Enhance effectiveness and utility of the Statewide EAS system by providing a direct link from SEMO to all NYS broadcasters	SEMO	s	NYS EAS funds	l	h	o	
MH 15. Public and Local Officials Education – Mitigation through Hazard Resistant Construction - Enhance efforts to educate NYS citizens and local officials regarding hazard resistant construction methods	SEMO DOS, DEC Local Mitigation Coordinators	tbd	tbd	l	h	o	Poor Progress has been made. Further action is needed to improve on activity.
MH 16. NYS Agency Mitigation Liaison - Continue NYS Agency Mitigation Liaison at each State agency. Explore opportunities to provide hazard mitigation training to other State agencies concerning mitigation basics.	SEMO, Agency Department Heads	m	Operating budget	l	h	o	To date, poor progress has been made. This activity will be continued and implemented in the near future.
MH 17. Damage loss estimation for NYS government critical facilities Analyze individual NY State critical facilities to determine potential loss from natural hazards. Conduct detailed loss assessment using NYS OGS fixed asset database, NYS Cyber Security Critical Infrastructure	SEMO OGS, All State Agencies	tbd	NY State Operating Budget-Federal Grant funds	l	h	o	Fair progress has been made; however, updated information is not readily available.

Table 4-3

Multi-Hazard - Mitigation Strategy

Description of Activity	Agency	Est. Cost (m-marginal s-significant)	Potential Funding Source	Negative Impact (l-low, m-medium, h-high)	Priority h-high, l-low	Timeframe (o-ongoing, s-short, l-long term)	Status
Coordination database and available hazard maps. Data sets should include other information such as building attributes, positional accuracy, natural hazard loss estimation which may be valuable to the hazard mitigation initiative.							
MH 18. Increase awareness of vulnerable NYS OGS government facilities Conduct hazard vulnerability awareness campaign to educate NYS OGS government facility managers. Facilitate natural hazard awareness discussion during the annual NYS OGS government facility manager conference.	OGS SEMO	m	Operating Budget	l	h	o	Good progress has been made. Facility managers will continue to mitigate against the effects of natural hazards.
MH 19. Promote hardening of NYS Government and State critical facilities to increase resistance to natural hazards - Protect critical government facilities– prioritize structural and non-structural retrofits based on hazard vulnerability analysis.	OGS SEMO All State Agencies	m	State operating budget & Federal Mitigation Funds	l	h	l	Good Progress.
MH 20. Building Codes - Public education – promote building techniques to resist natural hazards. Continue and enhance public education programs about construction methods to reduce the risk of natural hazard damage such as wind, flood, and seismic. Promote via distribution and availability of the hazard preparedness circular - “Protecting Home and Family Project” or other informative brochure at conferences, training workshops and agency & local web pages.	Lead: DOS Support: NYSEMO, DEC, FEMA	tbd	Operating budget	l	h	o	All code and fire officials receive 24 hours of in-service training annually. A new 4-hour course was developed which addresses seismic considerations and wind-borne debris during major storms.
MH 21. Natural Hazard Events Database - Develop a natural hazard data base system to assist State and Local officials with risk assessment, mitigation, and other planning initiatives. Heighten awareness of natural hazard exposure by developing a comprehensive data base.	SEMO, All State Agencies	m	SEMO operating budget and Federal grant funding	l	h	o	Poor progress. SEMO will continue to implement this activity.
MH 22. Promote land-use practices that will reduce risk from natural hazard – Continue promoting comprehensive and cost-effective recommendations for local land-use plans and ordinances that reduce loss from natural hazards. Provide technical assistance and training material for State and Local officials to improve understanding of potential land-use policies and ordinances to mitigate hazards.	DOS	m	NYS agency operating budget	l	h	o	Good Progress. DOS requires that all Local Waterfront Revitalization Programs include a section dedicated to inventory, assessment, and planning to manage coastal areas. The Division of Coastal resources routinely provides technical assistance to local governments concerning proposed storm damage reduction projects.

Table 4-3

Multi-Hazard - Mitigation Strategy

Description of Activity	Agency	Est. Cost (m-marginal s-significant)	Potential Funding Source	Negative Impact (l-low, m-medium, h-high)	Priority h-high, l-low	Timeframe (o-ongoing, s-short, l-long term)	Status
MH 23. Local development ordinances to reduce exposure to hazards - Increase participation level of communities that include hazard mitigation into local development ordinances. Promote through educational and awareness media the loss reduction benefits including hazard mitigation activity in local development regulations	DOS	m	NYS agency operating budget	l	h	o	Good Progress. The Division of Coastal Resources provides guidance and technical assistance to municipalities considering adoption of local laws implementing Coastal Erosion Hazard Areas Act.
MH 24. Acquisition of Land - Continue to purchase land & explore enhancement options such as identifying alternate funding sources. Land acquisition resulting in open space or some sort of development prevention in a hazard area is a fundamental form of hazard mitigation.	NYS Parks	s	Operating budget state & federal grant funding	m	h	o	NYS Parks is actively pursuing properties as well as funding for acquisitions to reduce the vulnerability of structures in hazard prone areas as well as the preservation and addition of open-space in the State of New York.
MH 25. Advance Statewide Hazard Mitigation through Programmatic and Regulatory Initiatives - Continue NYS Disaster Preparedness Commission (DPC) efforts to guide and advance statewide hazard mitigation initiatives. The Disaster Preparedness Commission (DPC) is the Governor's policy management group for the state's emergency management program. Encourage state agencies to incorporate mitigation activities in day-to-day operations.	All state agencies	m	NYS Operating Budget	l	h	o	Fair Progress. More emphasis is needed to encourage state agencies to incorporate mitigation activities in their day-to-day operations
MH 26. Promote Hazard Mitigation Activity to Maintain Continuity of Business - Collaborate with the business community to promote communication and coordination in preparedness and response activities. Continue participation on the Business Continuity Subcommittee of the Contingency Planning Exchange (CPE), a group of disaster recovery and business continuity planners.	SEMO	m	Operating Budget	l	h	o	No progress. Activity needs to be initiated
MH 27. Promote hazard mitigation activity to protect state agency information technology infrastructure - Continue awareness and training activity to promote cyber security readiness and response.	NYS Offices of Cyber Security & Critical Infrastructure Coordination and Public Security	tbd	Operating Budget	l	h	o	Good Progress. NYS CSCIC will continue to make progress on this initiative
MH 28. Evaluate Effectiveness of Mitigation Projects - Explore feasibility to develop a statewide intranet computer system or other procedure to facilitate efficient and effective tracking and evaluation of mitigation project benefits.	SEMO	tbd	tbd	l	h	o/l	Fair Progress. More resources are needed to accomplish this activity

Table 4-3

Multi-Hazard - Mitigation Strategy

Description of Activity	Agency	Est. Cost (m-marginal s-significant)	Potential Funding Source	Negative Impact (l-low, m-medium, h-high)	Priority h-high, l-low	Timeframe (o-ongoing, s-short, l-long term)	Status
<p>MH 29. Promote the hazard mitigation potential of existing planning initiatives and mechanisms including Local Waterfront Revitalization Plans (LWRP) – Promote, provide technical assistance and the availability of funding sources for the development of Local Water Front Revitalization Plans including incorporation of flood mitigation considerations.</p>	<p>DOS SEMO</p>	<p>m</p>	<p>Operating Budget</p>	<p>l</p>	<p>h</p>	<p>o</p>	<p>Good progress. Local ordinances addressing coastal hazard risks are a routine requirement of LWRP’s. Enhanced State freeboard provision under New York State Codes, Rules and Regulations, Part 502, Floodplain Management are incorporated into agreements with the Division for funding from the Environmental Protection Grants. Between 2004- 2007, several communities have developed LWRPs.</p>
<p>MH 30. Building Codes – Increase effectiveness to mitigation impacts of natural hazards through comprehensive training and certification. Conduct NYS uniform fire prevention & building code enforcement training program and continuing education to enhance effectiveness of code enforcement. Enhance building code enforcement through continued Code Enforcement Official training programs and promotion of the codes at all levels; in particular, the building and developers industry.</p>	<p>Educational Services Unit of the Division of Code Enforcement and Administration DOS</p>	<p>m</p>	<p>Operating Budget</p>	<p>l</p>	<p>h</p>	<p>o</p>	<p>Good Progress. All code and fire officials receive 24 hours of in service training annually</p>
<p>MH 31. Building Damage Assessment, Post disaster - Continue enhancement of the Code Enforcement Disaster Assistance Response (CEDAR) program network for timely & accurate data in support of response and recovery efforts. Promote the mitigation benefits of the CEDAR disaster response team via agency training and local jurisdiction awareness.</p>	<p>DOS SEMO, DEC</p>	<p>tbd</p>	<p>Operating Budget</p>	<p>l</p>	<p>h</p>	<p>o</p>	<p>Good Progress. DOS has implemented a specialized 6-hour CEDAR course for code officials</p>
<p>MH 32. Hazard Mitigation support via GIS mapping capabilities - Continue enhancement of GIS mapping capabilities to support current mitigation programs. Explore the possibilities and benefits of a SEMO or State agency/local officials GIS intranet program.</p>	<p>SEMO, DEC DOS, CSCIC, FEMA</p>	<p>tbd</p>	<p>Operating Budget</p>	<p>l</p>	<p>m</p>	<p>o</p>	<p>Good Progress. All agencies will continue to improve on this activity</p>
<p>MH 33. Critical facility protection – local communities - Continue to promote hardening of existing and future critical facilities in local communities. Educate local planning staff through the “comprehensive” (master plan) technical assistance program of DOS. Encourage communities to include in “Capital development plans.</p>	<p>DOS SEMO</p>	<p>m</p>	<p>Operating Budget</p>	<p>l</p>	<p>m</p>	<p>o</p>	<p>Good Progress. Protection of critical facilities is included in development of Local Waterfront Revitalization Plans, for facilities in coastal areas. The Division of Coastal Resources works with municipalities on comprehensive planning and appropriate land-use, and</p>

Table 4-3

Multi-Hazard - Mitigation Strategy

Description of Activity	Agency	Est. Cost (m-marginal s-significant)	Potential Funding Source	Negative Impact (l-low, m-medium, h-high)	Priority h-high, l-low	Timeframe (o-ongoing, s-short, l-long term)	Status
							locating facilities in non-hazardous areas.
MH 34. Repetitive Loss Properties - Identify & Mitigate Repetitive Loss Properties. Continue and enhance the comprehensive loss reduction efforts to target repetitive loss properties for mitigation including acquisition and appropriate retrofit of structures.	FEMA, SEMO, DEC	Tbd	FEMA: HMGP, FMA, and PDM HUD	l	h	o	Good Progress. New project funding sources, such as Severe Repetitive Loss Program (SRL) and Repetitive Flood Claims Program (RFC)
MH 35. Address and explore loss reduction options for defined repetitive loss properties - Assist communities to identify repetitive loss locations and support search for potential funding to mitigate future loss	SEMO	m/s	Operating budget State/Federal funding sources	l	h	o	Good Progress has been made through the use of GIS database and mapping.
MH 36. NYS highway infrastructure - Design, construct, and maintain State highway infrastructure according to agency standards (based on national standards) Continue to follow agency policies and procedures; regularly review and adopt appropriate changes; conduct training.	DOT NYSTA NYS Bridge Authority MTA	m	NYS FHWA Operating Budget	l	h	o	Good Progress. Activity is ongoing
MH 37. Crisis Counseling- NYS Office of Mental Health (OMH) has trained and certified over 1,000 state & local crisis counselors. OMH also sends professional staff to the FEMA Emergency Management Institute where they receive crisis counseling, program training and certification in crisis management	OMH	m	Operating Budget	l	h	o	Newly inserted activity
MH 38. - Continuity of Operations- Continue to enhance and verify information in Agency COOP Plans. This includes mission critical personnel, facilities, systems, equipment, documentation, and files.	All state agencies	m	Operating Budget	l	h	o	Newly inserted activity

Table 4-3 Multi-Hazard - Mitigation Strategy

Description of Activity	Agency	Est. Cost (m-marginal s-significant)	Potential Funding Source	Negative Impact (l-low, m-medium, h-high)	Priority h-high, l-low	Timeframe (o-ongoing, s-short, l-long term)	Status
MH 39. - Bridge Safety Assurance – DOT is developing a program to assess a bridge’s relative vulnerability to the different modes of failure (scour, overloads, steel detail deficiencies, collision, concrete detail deficiencies & earthquakes).	DOT	m	Operating Budget	l	h	o	Newly inserted activity
MH 40. Bridge Inspections- Continue to inspect approximately 10,000 bridges per year for faults. All bridges are inspected at least once every two years. Underwater inspections of substructures are undertaken in a 5- year intervals. The department also has proactive flagging program which identifies and notifies bridge owners of structural defects.	DOT	s	Operating Budget	l	h	o	Newly inserted activity
MH 41. Search and rescue- Increase Urban Search & Rescue capabilities through additional urban search and rescue teams as well as an evaluation of local capabilities.	DOS- Office of Fire Prevention and Control	m	Operating Budget	l	h	l	Newly Inserted activity

4.3.2.2 – Flood Hazard

All of New York State is at risk from flooding. The causes are all weather related, directly or indirectly. Although nothing can be done to eliminate the source of flooding, there is much that can be done in communities and at the State level to reduce the damage caused by floods. Action of the wrong kind, or inaction, by communities can exacerbate the damage that floods cause. To mitigate the damaging effects of floods, and to reduce the amount of time that it takes to recover from them, a community must prepare well in advance of the event. While filling sandbags as the rain comes down may look good in the news, real protection of a community’s residents and buildings must be planned for, and be in place, long before the first drop falls. A Hazard Mitigation Plan that is well thought out, and backed by all of the stake holders in a community, will guarantee less damage, less financial impact, fewer deaths and injuries and a shorter recovery time.

Reasonably good information is available for the “great” floods that have caused serious loss of life or major property damage. However, equivalent information frequently is not available for the multitude of smaller flood events that occur each year but that do not prompt Federal response.

Interpretation of flood loss data is difficult, and estimates are not necessarily comparable due to differences in reporting flood losses and in adjusting dollar amounts to reflect changes in monetary values, as well as other problems in coordinating data sources (e.g., Federal versus non-Federal outlays).

Table 4-4 below details strategies to mitigate against the flood hazard, whether flash flooding, coastal, ice jam flooding or fluvial flooding.

Table 4-4 Flood Hazard - Mitigation Strategy

Description of Activity	Agency	Est. Cost (m-marginal/ s-significant)	Potential Funding Source	Negative Impact (l-low, m-medium, h-high)	Priority (h-high, (l-low)	Timeframe (o-ongoing, s-short, l-long term)	Status
F 1. NYS Bridge Flood Watch Program - Ensure operability of State highway infrastructure. Monitor pre-identified scour-susceptible bridges when NWS issues a flood warning	DOT, NYSTA,	m	Operating Budget, NYS Tolls	l	h	o	Program is ongoing and NYSDOT plans to continue the Bridge Watch Program
F 2. Mitigation (flood) Program Administration - Use Flood Mitigation Assistance (FMA), Hazard Mitigation Grant Program (HMGP), Pre-Disaster Mitigation Competitive grant program (PDMC) and Severe Repetitive Loss Program (SRL) to support implementation of flood hazard mitigation planning activity and projects where feasible & cost effective.	FEMA/SEMO USACE, NRCS, & DEC	s	Operating budget Federal Grants	l	h	o	Program is ongoing. Excellent utilization for projects and planning over the past three years. SRL new for 2008
F 3. Coastal Zone Management - Continue implementation of the CEHA, CMP, and LWRP programs to preserve natural resources and protect property from flood and erosion hazard.	DEC & DOS SEMO	s	Operating budget Federal Grants	l	h	o	(See Description in section Below) A
F 4. Floodplain Management and flood mitigation Programs – Continue administration of the National Flood Insurance Program NFIP and CRS programs including providing recurring training, encouraging and providing technical assistance for planning initiatives and general	DEC, NFIP participating communities	s	Operating budget Federal	l	h	o	(See Description in section below) B

Table 4-4 Flood Hazard - Mitigation Strategy

Description of Activity	Agency	Est. Cost (m-marginal/ s-significant)	Potential Funding Source	Negative Impact (l-low, m-medium, h-high)	Priority (h-high, l-low)	Timeframe (o-ongoing, s-short, l-long term)	Status
awareness through the Community Assistance Visits (CAVs) program.			Grants				
F 5. National Flood Insurance Program (NFIP) - Continue to improve awareness of and promote participation in the NFIP program including the Community Rating System and insuring structures located in floodplains and flood prone area. Most floodplain and flood hazard management officials agree that the number of NFIP insured structures in the floodplain represents only ~30% of the total, leaving a large number of property owners not protected from financial loss.	DEC SEMO DOS	m	Operating budget, Federal Grants	l	h	o	(See Description in section Below) C
F 6. Dam Safety Program - Continue to administer the Dam Safety Program including; safety inspection of dams; technical review of inserted dam construction or modification; monitoring of remedial work for compliance with dam safety criteria; and emergency preparedness.	DEC and Owner of Dam.	s	Operating budget Federal Grants	l	h	o	(See Description in section Below) D
F 7. Stream Maintenance - Flood Protection for your community in New York State - Continue promotion and enhance awareness of the “Routine Stream Maintenance” program in NYS. Improve awareness by ensuring comprehensive integration into State agency technical assistance & training programs for local governments and increasing visibility and accessibility and promoting the benefits of the stream maintenance program.	NYS DEC, SEMO, USACE DOS, SWCD	m	Operating budget	m	h	o	(See Description in section Below) E
F 8. Flood Mitigation Planning and Projects – Continue to encourage local jurisdiction to engage in flood mitigation or/and floodplain management planning and projects activity to develop and implement comprehensive mitigation programs. Promote the benefits of such activities via the county mitigations coordinators program.	SEMO DEC DOS	m/s	Operating budget Federal Grants	l	h	o	(See Description in section Below) F
F 9. Storm water Management - Continue and enhance promotion and awareness of storm water management regulations including; improve availability of model storm water regulations, enhance training of code enforcement officials, improve awareness of planning/zoning, integration into “comprehensive planning” training-DOS.	DOS, DEC	tbd	Operating Budget Federal Grants	l	h	o	(See Description in section Below) G
F 10. Floodplain Management – Continue the DEC NFIP community assistance visits (CAV’s) program to promote effective management of floodplains. perform 90 CAV’s per year in order to achieve the goal to visit each community in NYS within a 5 year period. Additionally, continue general advancement of training programs for floodplain managers/coordinators and general awareness of public officials & planning & zoning boards by meeting the goal of DEC to provide about 12 full NFIP floodplain management workshops per year.	DEC	s	Operating budget Federal Grants	l	h	o	(See Description in section Below) H

Table 4-4 Flood Hazard - Mitigation Strategy

Description of Activity	Agency	Est. Cost (m-marginal/ s-significant)	Potential Funding Source	Negative Impact (l-low, m-medium, h-high)	Priority (h-high, l-low)	Timeframe (o-ongoing, s-short, l-long term)	Status
<p>F 11. Acquisition of Land - Continue to purchase land & explore enhancement options that may prevent development encroachment into hazardous areas.</p>	NYS Parks	s	Operating budget State & Federal Grants	m	h	o	(See Description in section Below) I
<p>F 12. Community Rating System (CRS) - National Flood Insurance Program (NFIP) reduce flood loss by administration and promotion. Continue and enhance promoting the NFIP Community Rating System (CRS) Improve awareness by ensuring comprehensive integration into State agency technical assistance & training program curriculum for local governments and increasing visibility program and accessibility of data via the NYS (SEMO/DEC/DOS) web site. For instance; DOS technical planning assistance for LWRP and Comprehensive planning.</p>	DEC, SEMO, FEMA DOS, FEMA, SWCD	tbd	Operating budget Federal Grants	l	h	o	(See Description in section Below) J
<p>F 13. Address and explore loss reduction options for defined repetitive loss properties - Assist communities to identify repetitive loss locations and support search for potential funding to mitigate future loss</p>	SEMO	m/s	Operating budget for daily support State/Federal mitigation programs, FMA and SRL	m	h	o	(See Description in section Below) K
<p>F 14. Improve Understanding of Ice Jam Flooding Hazard - Explore GIS mapping potential of the ice jam data base developed by US Army Corps of Engineers, Engineering Research and Development Center, Cold Region Research and Engineering Laboratory (CRREL) - Explore use of database. Include link to USACE CRREL & ice jam data base on the SEMO mitigation page to promote better understand of ice jam location, frequency, and vulnerability and mitigation alternatives.</p>	SEMO	tbd	SEMO DEC USACE	l	h	l	(See Description in section Below) L
<p>F 15. Repetitive Flood Loss Properties - Identify & Mitigate Repetitive Flood Loss Properties (RFLP's) and Severe Repetitive Loss Properties (SRL). Continue and enhance the comprehensive loss reduction efforts to target RFLP for mitigation including acquisition, elevation, relocation, and flood proofing structures. Promote existence of RFLP list & make available to communities and encourage outreach and educate those property owners about mitigation options and funding potential. Consider canvas letter to County mitigation</p>	FEMA, USACE, SEMO, DEC DOS (DOS integration into "Comprehensiv	tbd	Operating Budget FEMA grants: HMGP, FMA, SRL, and PDM	m	h	o	(See Description in section Below) M

Table 4-4 Flood Hazard - Mitigation Strategy

Description of Activity	Agency	Est. Cost (m-marginal/ s-significant)	Potential Funding Source	Negative Impact (l-low, m-medium, h-high)	Priority (h-high, l-low)	Timeframe (o-ongoing, s-short, l-long term)	Status
coordinators & RFLP communities.	e” and LWRP planning assistance curriculum)		USACE HUD				
F 16. Flood loss estimation for NYS government critical facilities - Analyze individual NY State critical facilities to determine potential loss from flood. Conduct detailed loss assessment using NYS OGS fixed asset database, NYS Cyber Security Critical Infrastructure Coordination database, and available flood hazard maps including Q3 and similar maps.	SEMO, DEC OGS Appropriate NYS Agency	tbd	NY State Operating Budget- Federal Grant funds	l	h	o	Efforts to create better data sets are ongoing. Progress has been delayed due to the lack of some information, such as, first floor elevation and latitude/longitude for spacial accuracy.
F 17. Perform Research on Flood Hazards and Mitigation Response Programs and Policy - Increase knowledge of the flood hazard and the appropriateness issues, both programmatic & regulatory, of mitigation response. Support the study and incorporate the findings into programmatic flood mitigation initiatives as appropriate	Nelson A. Rockefeller College of Public Affairs and Policy; potential support by SEMO and DEC	s	National Science Foundation (NSF)	l	h	o	No progress has been reported on this activity.
F 18. Flood Mapping – Continue the current flood map modernization initiative including maintaining the “ <i>State mapping advisory committee</i> ” to foster the following; help make recommendations on priorities, review map product utility and how to improve, and identify cooperators (i.e. ACE, NRCS...etc.). Ensure mapping is updated periodically to provide best available technology and maximize usefulness to identify high hazard areas and vulnerable population and properties.	DEC SEMO FEMA	s	Federal Grants	l	h	o	(See Description in section Below) N
F 19. Hydraulics - Design new bridges to accommodate a 50-year flood. Stream channels are lined with heavy stone to mitigate against bank erosion. At stream crossings, newly designed bridges are founded on sound rock to prevent scour on bridge substructure elements.	DOT	s	Operating Budget	l	h	o	Newly inserted activity

Sources: NYS Mitigation Plan Development Group, NYS 409 Hazard Mitigation Plan, FEMA, Idaho and Washington State Multi-Hazard Mitigation Plans

Flood Mitigation Activities Status

A. Coastal Zone Management

NYS continues to actively manage, promote, and enforce these programs. As an example, under the CEHA program, NYSDEC has taken action to rescind delegated authorities from local governments when these local governments have failed to restrict inappropriate development within the Coastal Erosion Hazard Zone areas. The DOS, in cooperation with the US Dept. of Commerce - NOAA, the NYS Executive Law Article 42, Waterfront Revitalization of Coastal Area and Inland Waterways and the Coastal Management Program were amended so municipalities can create and implement a portion of a Local Waterfront Revitalization Plan. The benefit of this change is that Local governments can prepare and implement plans based on specific subjects such as flooding or coastal hazards. The DOS' federal consistency review process continues to advocate non-structural measures to reduce hazard risks and protect the natural protective features such as beaches, dunes and bluffs.

B. Floodplain Management & Mitigation Projects

NYS continues its cooperative agreement with FEMA Region II and continues to administer the NFIP and CRS programs in New York State. The NYSDEC, Division of Water provides recurring and specialized training for elected officials and Local floodplain coordinators, conducts numerous Community Assessment Visits (CAVs) and Community Assistance Contacts (CACs), and identifies situation where communities are not following NFIP requirements bringing this to the attention of Local officials and if necessary to FEMA for potential enforcement action

C. NFIP

NYSDEC has worked with Local floodplain coordinators, Local and County planners, and various Local, State, and Federal government representatives to establish a State Floodplain Managers Association to better promote awareness of flooding issues and the goals of the NFIP.

D. Dam Safety Program

NYSDEC continues to manage, promote and enforce this program. DEC has recently enhanced the number of staff dedicated to the Dam Safety Program. The DEC has also promulgated regulations which require a dam owner to have a safety program when a dam poses a threat of personal injuries, substantial financial damage, or substantial environmental damage. DEC is currently developing those regulations. The regulations authorize DEC to require emergency action plans, inspection, maintenance, and record-keeping plans, financial security, and other provisions which it deems necessary.

E. Stream Maintenance

This program has had limited success to-date. The program still relies on Local initiative to develop a long term maintenance plan that meets environmental requirements along with a Local financial commitment. One area of the State where we have had success, are the

communities along the Sauquoit Creek (near Utica, NY). The NYSDEC was successful in encouraging the Local communities to form a Sauquoit Creek Basin Commission. One of the primary responsibilities of the Commission was to focus on maintaining the stream at various historically problematic road crossings and bridges. The Commission developed a long term maintenance plan that established where, how, and when woody debris and gravel would be removed to reduce the likelihood of bridges and culverts becoming blocked and either “blowing-out” or clogging and back-flooding communities along the creek. NYSDEC worked with the Commission, reviewed the long term plan and issued renewable permits to allow the necessary periodic removal of debris and gravel from the stream. The DOS also promotes maintenance and restoration of stream corridor functions through watershed planning efforts. Between 2004 and 2007, 12 watershed plans were completed and 11 new plans were initiated. The DOS also developed a booklet on stream restoration and protection guidelines titled: Ecologically-based Stream Restoration in New York’s Coastal Watersheds.

F. Flood Mitigation Planning & Projects

Flood mitigation planning and projects have increased and program is ongoing. All counties have mitigation coordinators designated. The DOS continued to negotiate with the USACOE and other partners to develop optimal storm damage reduction through the Fire Island to Montauk Point Reformulation Study. The DOS also advocated restoration of natural processes and employment of natural measures along with other storm damage reduction measures in COE/NYS sponsored project studies for Asharoken, Bayville, Long Beach Island, Mattituck Inlet, Montauk Harbor, Montauk Point, and Staten Island.

G. Stormwater Management

The NYSDEC has expanded its permitting program to include a program to control stormwater runoff and protect waterways. Under Stormwater Phase II regulations, permits will be required for stormwater discharges from Municipal Separate Storm Sewer Systems (MS4s) in urbanized areas and for construction activities disturbing one or more acres. To implement the law, the Department has developed two general permits, one for MS4s in urbanized areas and one for construction activities. The permits are part of the State Pollutant Discharge Elimination System (SPDES). Operators of regulated MS4s and operators of construction activities must obtain permit coverage under either an individual SPDES permit or one of the general permits, no later than March 10, 2003 or prior to commencement of construction. The State has made a major effort of reaching out and training, educating the regulated communities; providing both a series of technical manuals as well as sponsoring statewide and regional training sessions. The DOS also advocates storm water management through Local Watershed Revitalization Plans and through Watershed Management Plans. The DOS completed a multimedia project in 2006 on stream corridor management which included guidance on storm water management, and avoidance of flood hazards.

H. Floodplain Management

NYS continues its cooperative agreement with FEMA Region II and continues to administer the NFIP and CRS programs in New York State. The NYSDEC, Division of Water provides recurring and specialized training for elected officials and local floodplain coordinators, conducts numerous Community Assessment Visits (CAVs) and Community Assistance

Contacts (CACs), and identifies situation where communities are not following NFIP requirements bringing this to the attention of local officials and if necessary to FEMA for potential enforcement action

I. Acquisition of Land

The NYSDEC and the NYS Office of Parks, Recreation and Historic Preservation continue to actively identify and acquire unique properties across NYS. In the past 12 years, over 1 million acres of unique and sensitive lands have been obtained with Bond Act or Environmental Protection Funds. Many of these properties have water fronts on our lakes, rivers, and ocean shorelines. Either the outright purchase or the acquisition of development rights not only have provided additional public lands for recreational enjoyment, but in many cases have prevented these properties from being developed along potential flood hazard areas.

J. Community Rating System (CRS) - National Flood Insurance Program (NFIP)

NYS continues its cooperative agreement with FEMA Region II and continues to administer the NFIP and CRS programs in New York State. The NYSDEC, Division of Water provides recurring and specialized training for elected officials and local floodplain coordinators, conducts numerous Community Assessment Visits (CAVs) and Community Assistance Contacts (CACs), and identifies situation where communities are not following NFIP requirements bringing this to the attention of local officials and if necessary to FEMA for potential enforcement action.

K. Reduction of Repetitive loss Properties

Programs and educational efforts are ongoing. Numerous projects have been completed such as elevations and acquisitions. The DOS advocated removal and relocation of a home in the Town of Southold to reduce damage exposure and improve coastal processes. In 2006, the Town acquired the property.

In 2005, with the assistance of the South Shore Estuary Reserve Office, the DOS completed and distributed a report on the results of a survey of local government officials on awareness of chronic flood and erosion risks. The report is titled: Bay Flooding and Erosion in the Long Island South Shore Estuary Reserve: Finds and Recommendations. The report found that most south shore communities have adequate plans to address coastal hazards. However, there are a number of communities that are still experiencing repetitive losses and that additional opportunities exist to reduce these repetitive losses through better documentation of damages and better attention to post-storm redevelopment plans.

L. Ice Jam flooding

This objective has been accomplished and a GIS map of Ice Jam occurrences across the State over the last 125 years of records has been incorporated into the 2008 update of the Statewide Hazard Mitigation Plan. The Plan also includes a detailed listing of the specific communities that have been impacted by ice jams over the last 5 years, updated from the CREEL data base on ice jams in NYS.

M. Repetitive Flood Loss Properties

Good progress has been made in identifying repetitive loss properties and funding has enabled many mitigation projects to be completed. Data has been gathered to identify all repetitive loss properties in NYS and this information will be shared with municipalities in the 2008 Plan update as well as via web based links.

N. Flood Mapping

In April 2000, FEMA and NYSDEC signed a Memorandum of Agreement, establishing New York State as a full flood hazard mapping partner in the development and dissemination of flood data. New York's efforts have pushed the envelope of flood mapping, utilizing the latest technologies in automated Hydrology and Hydraulics and remote sensing applications. NYSDEC was the first partner to explore the use of laser altimeter technology, a.k.a. *LiDAR*, in developing elevation models, and paved the way for using LiDAR in flood hazard mapping across the nation. New flood hazard data produced by NYS are being developed as interactive, multi-hazard digital maps. Linkages are built into the mapping database that allow access to engineering backup material, such as hydrologic and hydraulic models, flood profiles, data tables, digital elevation models, and structure-specific data, such as digital elevation certificates and even digital photographs of bridges and culverts. By creating a synergy with other state and federal programs, NYSFMP will continue to develop more cost-effective and higher quality data, tools, and processes that will benefit all the citizens of the State. In Schoharie County, the NYSDEC worked with local Emergency Management officials to develop a reverse 911 flood evacuation system based on tools from the digital flood maps that were produced as part of the Statewide map modernization program. This system has been used several times and has been credited with saving lives in Schoharie County.

4.3.2.3 – Landslide Hazard

Table 4-5 describes existing mitigation programs on landslides that State and Local governments undertake. These programs and initiatives are intended to minimize the impact of landslides in New York State.

Table 4-5 Landslide-Hazard - Mitigation Strategy

Description of Activity	Agency	Est. Cost (m-marginal/ s-significant)	Potential Funding Source	Negative Impact (l-low, m-medium, h-high)	Priority (h-high, l-low)	Timeframe (o-ongoing, s-short, l-long term)	Status
LS 1. Landslide Hazard Data & Susceptibility Mapping - Continue and enhance efforts to promote awareness of landslide hazard via improved and more accessible mapping. Increase scale of landslide hazard mapping to 1:24,000 or higher via latest digital topography. Create and gather GIS layers of several instability factors such as Soil Type, Slope, Hydrology, Road Network and Drainage Network. The identified Sources are Natural Resources Conservation Services' Soil Survey, the State Digital Elevation Model., etc.	NYSEMO, USGS, NYSGS and all county emergency management, CSICC	tbd	tbd Possible sources: NSF, USGS FEMA	l	h	o/l	Fair progress. Currently working on furthering this action through a pilot program.
LS 2. Slope Stability – Continue to undertake slope stabilization and landslide projects to fix loss of ground and prevent future movements which could undermine or bury highway infrastructure. DOT also stabilizes rock slopes to mitigate against the effects of rock slope failures and rockfalls on motorists	NYSDOT	S	Operating Budget	l	h	o	Newly Inserted activity
LS 3. Appoint lead agency to analyze, record and monitor landslides in NYS: The DPC will appoint an agency as the lead agency to record and analyze soil and slope data relative to the landslide hazard. This lead agency shall serve as a clearing house for data relative to the causative factors and the history of landslides.	DPC	m	N/A	l	h	s	Newly Inserted activity
LS 4. Assure that Human Resource Assets are in place: Investigate the personnel required to establish an appropriate workforce needed to perform the ongoing analysis of landslides in NYS and request positions in budget submissions. Potential positions may include: Engineering Geologist, Surficial Geologist, GIS Specialist	NYSGS SEMO	m	State Budget	l	h	s	Newly Inserted activity
LS 5. Public Awareness: Conduct activities such as professional presentations, media releases, distribution of pamphlets, and involvement with educational institutions to educate the public about landslides and the associated hazards.	NYSEMO NYSGS	s	NYSGS NYSEMO	l	h	s	Newly Inserted activity
LS 6. Establish a working relationship with critical agencies: Develop a Memorandum of Understanding between NYSDOT, NYSGS and USGS to collect subsurface data, samples and exchange the analytical data in order to better develop data sets relating to the landslide hazard.	NYSDOT NYSGS USGS	s	Agency Budget	l	h	s	Newly Inserted activity

4.3.2.4 – Wildfire Hazard

Table 4-6 describes existing mitigation programs and future initiatives that State and Local governments, as well as the private sector and citizens should undertake. These programs and initiatives are intended to both reduce the occurrence and minimize the impact of wildfires in New York State. Knowing that new funding is limited, the initiatives presented were selected as being realistic and attainable. Ultimately, however, implementation of many of these measures will depend upon agency and private sector priorities and budgets which are beyond the control of this Plan.

Table 4-6 Wildfire Hazard - Mitigation Strategy

Description of Activity	Agency	Est. Cost (m-marginal/ s-significant)	Potential Funding Source	Negative Impact (l-low, m-medium, h-high)	Priority (h-high, l-low)	Timeframe (o-ongoing, s-short, l-long term)	Status
WF 1. Forest Fire Safety Awareness and Public Education – Continue Public education and public awareness as key areas in a wildfire prevention program. “Smokey the Bear” and the State Forest Rangers deliver a powerful message to both children and adults regarding forest fire safety and the risks associated with wildfires. Increase the use of Public Service Announcements, offering a Wildfire Survival Program and developing a pamphlet on the use and benefit of such a program	DEC	m	Operating Budget	l	h	o	Status Update Pending
WF 2. Awareness & Enforcement of existing laws that contribute to wildfire prevention – Continue enforcement & efforts to increase awareness of wildfire prevention laws. Current laws and regulations such as the Environmental Conservation Law and the New York State Uniform Fire Prevention and Building Code that further aid wild land fire prevention efforts.	DEC DOS	m	Operating Budget	l	h	o	Status Update Pending
WF 3. Mutual Aid – Continue promotion and implementation of mutual aid agreements and the New York State Fire Mobilization and Mutual Aid Plan. Local fire departments along with the State’s Forest Ranger Force are the primary wildfire suppression force in New York State. Mutual aid enhances firefighting capabilities by providing additional resources when needed.	DEC DOS SEMO	m	Operating Budget	l	h	l	OFPC continues to manage state fire mobilization & mutual aid plan to support operations during major emergencies
WF 4. Fire fighting Activities – Continue to prioritize firefighter training and suppression equipment, explore new training courses in incident command, wildland/urban interface and specialized wildfire behavior courses	DEC-Forest Rangers DOS-Fire Prevention and Control	tbd	Operating Budget Grant funding	l	h	l	The Office of Fire Prevention and Control provides training and Assistance to fire departments to better prepare for responses to fire emergencies.
WF 5. Incident Management - Implement programs to increase	DEC	tbd	Operating	l	h	l	Fair progress has been

Table 4-6 Wildfire Hazard - Mitigation Strategy

Description of Activity	Agency	Est. Cost (m- marginal/ s-significant)	Potential Funding Source	Negative Impact (l-low, m-medium, h-high)	Priority (h-high, l-low)	Timeframe (o-ongoing, s-short, l-long term)	Status
communication and cooperation between agencies with wildfire mandates. Interagency cooperation is critical in bringing a multi-jurisdictional incident to a successful conclusion promptly	SEMO		Budget Grant funding				made. During disasters, the EOC is activated and allows local jurisdictions the ability to interact on the DLAN system.
WF 6. Wildfire investigations and reporting – continue and improved the process to determine where prevention and enforcement efforts should be concentrated. Aerial detection flights will be provided in sites of high concern during periods of high fire potential.	DEC SEMO	tbd	Operating Budget Grant funding	l	h	l	Status Update Pending
WF 7. Tree Maintenance and Inspection (particularly pruning) – continue to promote tree maintenance and provide technical assistance to communities.	DEC NYS Parks	m	Operating Budget - Federal Farm Bill – Urban & Community Forestry Assistance	l	h	o	The agencies have implemented an active hazardous tree inspection program where hazardous trees which have the potential to cause damage are identified, assessed and if necessary removed. Inspection programs are on-going with reports submitted every 6 months
WF 8. State Urban Forestry Program – Continue to provide technical information to Local officials whose responsibilities include management of tree resources.	DEC	m	Operating Budget	l	h	o	Status Update Pending
WF 9. New York ReLeaf Workshop – continue program workshops – the workshop stresses the need for a comprehensive tree maintenance programs involving tree planting and maintenance under a developed master plan. Technical information includes choosing a “safe” tree, proper planting and tree care/maintenance.	DEC	m	Operating Budget Potential Federal funding (Farm Bill)	l	h	o	Status Update Pending
WF 10. 2007 Wildfire Management Plan Draft – draft of a comprehensive plan to mitigate wildfires across the State – outlines plans for training, fire fighting, fuel management, and prevention education.	DEC	m	Operating Budget	l	h	o	Newly Inserted Activity
WF 11. Northeastern Forest Fire Prevention Compact – Continue to coordinate with the international network of northeastern states and Canadian provinces to share in the task of mitigating wildfires	DEC	m	Operating Budget	l	h	o	Newly Inserted Activity

4.3.2.5 – Winter Storm Hazard

Table 4-7 describes existing mitigation programs on winter storm that State and Local governments undertake. These programs and initiatives are intended to minimize the impact of winter storms in New York State.

Table 4-7 Winter Storm Hazard - Mitigation Strategy

Description of Activity	Agency	Est. Cost (m-marginal/ s-significant)	Potential Funding Source	Negative Impact (l-low, m-medium, h-high)	Priority (h-high, l-low)	Timeframe (o-ongoing, s-short, l-long term)	Status
WS 1. Snow and ice control on NYS highway infrastructure - Maintain operability of State highway infrastructure. Continue to follow agency policies and procedures; regularly review and adopt changes; evaluate new equipment; conduct operator training	DOT NYSTA NYS Bridge Authority	m	Operating Budget	l	h	o	Newly inserted Activity
WS 2. Thruway Winter Maintenance - Throughout the winter months, special shifts are assigned to control snow and ice 24 hours a day, seven days a week.	Thruway Authority	m	Toll fees	l	h	o	Newly inserted Activity
WS 3. DEC Urban and Community Forestry, Forest Management - DEC foresters serve private forest owners by advising on management activities including Care and Pruning of Damaged Trees in community and Ice Storm Damage to Forests.	DEC	m	NYS	l	h	o	Newly inserted Activity
WS 4. Training & Education – Continue to run “Snow Schools” to train all employees in policies and procedures related to the removal of snow and ice on its highways. Hands-on instruction is provided on how to install snow removing equipment on vehicles. The program is extended to local municipalities and its contractors.	DOT	m	Operating Budget	l	h	o	Newly inserted Activity
WS 5. Guideline Development – Continue to revise Snow and Ice Control Guidelines to reflect current plowing procedures, after-storm cleanups, and other necessary material so municipalities can have the most current information on snow and ice control.	DOT	m	Operating Budget	l	h	o	Newly inserted Activity
WS 6. Best Practices – Continue to coordinate with other agencies to discuss policies, procedures, best practices, and lessons learned in the area of snow and ice control.	DOT Thruway Authority	m	Operating Budget	l	h	o	Newly Inserted Activity
WS 7. Snow Fences/ Shelter Belts – Continue to explore & implement new designs of snow fences and shelter belts to reduce the amount of snow on pavement	DOT	m	Operating Budget	l	h	o	Newly Inserted Activity

4.3.2.6 – Earthquake Hazard

Table 4-8 describes existing mitigation programs on earthquakes that State and Local governments undertake. These programs and initiatives are intended to minimize the impact of earthquakes in New York State.

Table 4- 8 Earthquake Hazard – Mitigation Strategy

Description of Activity	Agency	Est. Cost (m- marginal/ s-significant)	Potential Funding Source	Negative Impact (l-low, m-medium, h-high)	Priority (h-high, l-low)	Timeframe (o-ongoing, s-short, l-long term)	Status
E 1. Seismic Study & Retrofit – NYS Bridge Authority has conducted seismic retrofit studies to its bridges. In January of 2004, seismic rehabilitation work was completed on the Kingston-Rhinecliff Bridge. The remaining bridges will be retrofitted based on studies and funding available.	NYS Bridge Authority	m	Operating Budget	l	h	o	Newly inserted Activity
E2. Seismic Design Specification – Continue to design new bridges with a minimal average return of 500 years to seismic design specifications. Designs compensate for foundation soils and structure support due to seismic vibrations. Bridge rehabilitation projects also include seismic evaluation of existing structures and corrective actions are undertaken.	DOT	s	Operating Budget	l	h	o	Newly Inserted activity
E3. Post-Seismic Inspection – Develop post seismic inspection guidelines to better mitigate damages and loss during high magnitude earthquakes within NYS	DOT	s	Operating Budget	l	h	o	Newly inserted activity
E4. Post-Seismic Building Inspections - Continue to coordinate with professional organizations such as SEAoNY to increase the effectiveness of post-seismic capabilities.	tbd	m	tbd	l	h	o	Newly Inserted Activity
E5. Awareness - Continue to enhance awareness of seismic related issues to the public and government.	tbd	m	tbd	l	h	o	Newly Inserted Activity
E6. HAZUS Modeling - Continue to Promote and enhance HAZUS modeling capabilities. Ensure that training and awareness of the software is provided statewide.	tbd	m	tbd	l	h	o	Newly Inserted Activity
E7. Preparedness - Encourage the use of earthquake exercising and scenarios to be better prepared for earthquake events.	tbd	m	tbd	l	h	o	Newly Inserted Activity

4.3.2.7 - Terrorism Hazard

Due to the sensitive nature of the infrastructure in New York State and the vulnerabilities that are being addressed, specific information on terrorism will not be included in this Plan. The State has performed a vulnerability assessment and has developed a strategy to address it based upon the resources available.

In addition to the risk assessment, the State has developed security-related protocol regarding the sharing of sensitive information. Information deemed sensitive will be restricted to individuals who need the information to adequately perform their duties. As part of this protocol, the information will not be made available in the public format of the Mitigation Plan.

4.3.2.8 – Local Hazard Mitigation Activities

This section outlines specific Local projects which have been selected from approved Local Hazard Mitigation Plans. The planning taskforce undertook an effort to review approved Local Hazard Mitigation Plans and attempted to identify significant mitigation activities and compared them to the State’s mitigation activities. The process of reviewing Local plans required numerous hours of effort and processing of information. It was found that most communities identify a need to strengthen public awareness, planning and zoning, and maintenance activities.

The items below were extracted from Local plans on the basis of their significance in analyzing and mitigating the effects of each natural hazard. This activity took place over a period of two months while other plan update objectives were being pursued. The following **Tables (4-9 to 4-15)** are separated by each hazard which was outlined in **Table 4-2, Prioritized Project Types by Natural Hazards**. These projects are in compliance with the priorities outlined in **Table 4-2** and are a sample of mitigation activities Local municipalities can undertake to mitigate for future losses in the event of a natural hazard emergency. The selected projects are also in accordance with the mitigation activities which have been outlined in **Tables 4-3 through 4-8**. The State plan activities column reflects codes which refer to State Plan mitigation activities listed in the above tables. These codes demonstrate how Local plans are linked to mitigation activities in the State Plan.

Table 4- 9 Flood Hazard – Local Mitigation Activities

Description of Activity	Municipality	Est. Cost (m-marginal/ s-significant)	Potential Funding Source	Negative Impact (l-low, m-medium, h-high)	Priority (h-high, l-low)	Timeframe (o-ongoing, s-short, l-long term)	State Plan Activities
Stream bank Stabilization -Major stream bank stabilization project along the West the of Delaware river, particularly near the Octagon Farm	Delaware County	s	State funding Source	l	m	5-yrs	F 2, F 8, F 9
Drainage Improvements - Obtain funding and implement storm water/drainage improvements including: Long Hill Road, Sleepy Hollow Road, Quinn Lane Culvert, Elm Road, Scarborough Road, Tulip Road, South State Road, Old Briarcliff Road, Scarborough Station Road, Hall Road, and Holly Place	Village of Briarcliff Manor	s	Capital Improvement Plan, HMGP, PDM, FMA	l	h	o	F 2, F 8, F 9
Flood Control & Drainage Improvement - Continue to work with FEMA and the NYSDEC to solve the downtown flooding problem with the Chenango River and Dike. Short term solutions include acquiring a portable pump and/or upsizing the present pump. The long term solution is to address underground pipeline itself.	Broome County	m-s	HMGP, PDM, FMA	l	m	l	F 2, F 8, F 9
Flood Prevention- Obtain funding and implement a flood-prevention program for the Pocantico River	Village of Briarcliff Manor	s	Capital Improvement Plan, HMGP, PDM, FMA	l	h	o	F 2, F 8, F 9
Flood Control- Develop ordinances for sediment and erosion control, stormwater control, and stream buffer implementation	Tompkins County	\$3,000	Tompkins County	l	h	1-yr	F 2, F 8, F 9
Training and Outreach- Implement training and public outreach to residents, code officials, and contractors on floodplain management and flood mitigation as well as flood response planning and training	Tompkins County	\$2,000/ town	Tompkins County	l	l	1-yr	F 17
Acquisition and Relocation – retrofit, acquire and/or relocate structures in flood-prone areas	Town of Clay	Tbd	FMA, HMGP, State, Local	l	m	o	F 11, MH 24
Repetitive flood Loss- Identify repetitive loss properties and develop mitigation strategies & options such as flood-proofing, buy-outs, relocating and/or transfer of development rights for repetitive flood prone areas	Wayne County	115,000	State, FEMA, Local	m	h	3-yrs	F 13, F 15, MH 24

Table 4-10 Winter Storm- Local Mitigation Activities

Description of Activity	Municipality	Est. Cost (m- marginal/ s- significant)	Potential Funding Source	Negative Impact (l-low, m-medium, h-high)	Priority (h-high, l-low)	Timeframe (o-ongoing, s-short, l-long term)	State Plan Activities
Public Awareness- Increase public awareness of storm mitigation activities, including storm warnings and advisories	Tompkins County, Town of Clay	\$2,000/ jurisdiction	State, Local funding	l	l	o	MH 1, MH 5, MH 6, MH 7, MH 13
Roadway Safety – Minimize the disruption and cost of storm events on roadways by purchasing additional snow & ice removal equipment	Tompkins County	\$100,000	Existing local funds	l	h	o	WS 1, WS 2, WS 4
Mapping- Identify, map and publicize locations that have the highest incidence of ice and snow storms, particularly with respect to loss of critical services (water, sewer, gas, and electric).	Tompkins County, Town of Clay	m	State, Local	l	h	o	MH 11
Weather Monitoring & Response - Enhance weather monitoring capabilities to attain earlier ice storm warnings and effective means to disseminate warnings to all vulnerable communities.	Town of Clay	tbd	tbd	l	h	o	MH 12, MH 13

Table 4-11 Landslide Hazard – Local Mitigation Activities

Description of Activity	Municipality	Est. Cost (m- marginal/ s- significant)	Potential Funding Source	Negative Impact (l-low, m-medium, h-high)	Priority (h-high, l-low)	Timeframe (o-ongoing, s-short, l-long term)	State Plan Activities
Slope Stabilization – Conduct and implement slope stabilizations at the following locations: Pattersonville/ Rynex Corners Rd at Sand Sea Kill, Kelley Station Rd at D&H Railway, Broadway adjacent Former SI Building	Schenectady County	tbd	PDM	l	m	o	MH 10, LS 1, LS 6
Public Awareness – Provide information to property owners and tenants living near areas of historical landslide incidences to educate them about preventative measures and signs of potential landslides to watch for	Schenectady County	m	State, Local	l	h	o	MH 1, MH 5, MH 6, MH 7, LS 1, LS 2, LS 6
Mapping- Identify, map and publicize locations that have the highest incidence and susceptibility to landslides, particularly with respect areas which fall in a specific threshold for landslide hazard	Schenectady County	tbd	State, Local	l	h	o	MH 11, , LS 1, LS 2

Table 4-12 Earthquake Hazard – Local Mitigation Activities

Description of Activity	Municipality	Est. Cost (m- marginal/ s- significant)	Potential Funding Source	Negative Impact (l-low, m-medium, h-high)	Priority (h-high, l-low)	Timeframe (o-ongoing, s-short, l-long term)	State Plan Activities
Code Enforcement - Provide training and investigate increasing Code Enforcement Officer or Building staff at municipalities to ensure NYS Building Code compliance to protect from earthquake damages to new construction in Clinton County	Clinton County	m	Local	l	h	o	MH 20, MH 22, MH 23
Education – Improve code enforcement education to Code Officers and/or Planning & Building Depts.	Clinton County	m	local	l	h	o	MH 10, MH 15, MH 20
Seismic Retrofitting - Investigate retrofitting older structures at risk of earthquake damage, given the high number of aged structures in the County.	Clinton County	tbd	State, Local	l	h	o	E 1, E 2
Hardening Critical Facilities - Investigate the structural safety of Champlain Valley Physician's Hospital (CVPH) as most of this regional critical care facility was built in 1925.	Clinton County	s	State, Local	l	h	l	E 1, MH 33
Building Codes - Ensuring that all local codes are in compliance with NYS Building code, making sure that new development can sustain seismic shakes.	Delaware County	m	State, Local	l	h	o	MH 20, MH 22, MH 23

Table 4-13 Wildfire Hazard – Local Mitigation Activities

Description of Activity	Municipality	Est. Cost (m-marginal/ s-significant)	Potential Funding Source	Negative Impact (l-low, m-medium, h-high)	Priority (h-high, l-low)	Timeframe (o-ongoing, s-short, l-long term)	State Plan Activities
Wildfire Suppression – Installing dry fire hydrants throughout the county to ensure adequate facilities are located in fire prone areas	Clinton County	m	PDM, HMGP	l	l	o	WF 4
Education – Work with agencies such as the New York State Department of Environmental Conservation to educate community residents, elected officials and municipal staff through a program similar to their “Fire-Wise Communities” program, to encourage defensible spaces and minimize flammable vegetation and building materials.	Clinton County	m	State, Local	l	h	o	WF 1, WF 2
Enforcement- Encourage review of local zoning ordinances and site plans by fire fighting companies to ensure fire-fighting capacity exists at the local level to support development	Broome County	tbd	State, Local	l	h	o	WF 2, WF 7
Mutual aid - Encourage shared services at the local level for fire fighting and emergency services.	Broome County	m	State, Local	l	h	l	WF 3

Table 4-14 Severe Windstorms Hazard – Local Mitigation Activities

Description of Activity	Municipality	Est. Cost (m-marginal/ s-significant)	Potential Funding Source	Negative Impact (l-low, m-medium, h-high)	Priority (h-high, l-low)	Timeframe (o-ongoing, s-short, l-long term)	State Plan Activities
Building Codes – Review and ensure that local building codes address wind resistant design and construction	Town of Oyster Bay	m	PDM, HMGP	l	l	o	MH 20, MH 30
Utilities- Look into burying utilities to cut down on outages such as telephone and electric	Clinton County, Delaware County	s	State, Local, Federal	l	h	l	MH 10
Tree Pruning – Ensuring that trees within the county are pruned or removed if they pose a risk to utility or property in an area	Broome County, Tompkins, Delaware	tbd	State, Local, Federal	l	h	o	WS 3
Building Codes - Investigate increasing Code Enforcement of Building Staff at the municipal level to ensure design wind speeds are met in the County.	Clinton County	tbd	State, Local	l	h	l	MH 20, MH 30
Hardening Critical Facilities – Retrofitting and designing critical facilities with wind-resistant design and construction	Tompkins County	tbd	Federal, State, Local	l	l	l	MH 33

Table 4- 15 Drought Hazard- Local Mitigation Activities

Description of Activity	Municipality	Est. Cost (m-marginal/ s-significant)	Potential Funding Source	Negative Impact (l-low, m-medium, h-high)	Priority (h-high, l-low)	Timeframe (o-ongoing, s-short, l-long term)	State Plan Activities
Education - Publish and distribute pamphlets on water conservation techniques and agricultural drought management strategies	Delaware county	m	Local , NYC DEP	m	l	1-yr	MH 1, MH 7
Education- Provide information to plant wholesalers, retailers, and nurseries regarding appropriate landscaping techniques, drought resistant and indigenous plant species, water conservation techniques and alternatives to large expansive lawns	Delaware County	tbd	State, Local, Federal	l	h	1-yr	MH 1, MH 7
Monitoring- Increase monitoring of precipitation and ground/surface water supplies	Delaware County	s	NYCDEP, Delaware county	l	h	o	MH 11
Planning- Evaluate worst-case scenarios within Delaware County for possible further action	Delaware County	tbd	State, Local	l	h	3-yrs	MH 10

