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. The introduction of the FEMA Severe Repetitive Loss Program (SRL) as a new source of funding offered the State and its residents additional opportunities to initiate mitigation actions that may have been fiscally prohibitive 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:

> ***"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 Plan 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 should be noted that this 2002 Plan Vision Statement, which was carried through to the 2008 New York State Standard Multi-Hazard Mitigation Plan, was both more quantifiable and broad. It also expanded the multi-hazard emphasis by adding "human-caused hazards."

During the 2011 plan update process, Planning Committee Members reviewed the Vision Statement and concurred that it should be revised to reflect a more proactive leadership and support role on the part of New York State and its relationship to local governments and institutions.

> ***"To demonstrate by example how hazard mitigation benefits the citizens of the State of New York and their communities by eliminating or reducing risks and adverse impacts from hazards, and to encourage and actively support the hazard mitigation activities of local governments, businesses, institutions and non-profit organizations."***

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 State and Local governments, residents and businesses. After an analysis of the hazards that impact the State, the following goals were developed to guide the State and its agencies in the development and selection of appropriate mitigation activities. Pursuing 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 in, all of whom were afforded several opportunities for suggesting revisions of or additions through meetings, survey tools, and through the review of plan drafts at various stages of development. The majority of goals were determined to remain 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 Hazard Mitigation Coordinators (LHMC).

- Develop and deliver mitigation training to LHMCs.

- 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 in Emmitsburg.

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

- Reinvigorate the existing network of Local Hazard Mitigation Coordinators (LHMC) to serve as catalysts for Local hazard mitigation programs, training, and awareness efforts, developing local plans, and implementing mitigation measures.

- Maintain active hazard mitigation committees and subcommittees under the Disaster Preparedness Commission (DPC) 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 in New York State.

- 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 the costs of response, disaster assistance, recovery and administration.

- Ensure safe and appropriate development in hazardous locations throughout the State by encouraging and supporting Local jurisdiction hazard mitigation initiatives, including planning and land use regulation.

- Promote and encourage the development of coordinated, County-wide hazard mitigation plans.

- Strategically and objectively allocate community planning grants from the Hazard Mitigation Grant Program (HMGP) and the Pre-Disaster Mitigation Program (PDM), as well as any other funding sources that might be available.

- Provide technical assistance to Local communities with respect to the development and effective 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 Flood Mitigation Assistance (FMA), Repetitive Flood Claims (RFC) and Severe Repetitive Loss (SRL) Programs.

Objectives

- Conduct education/awareness programs outlining project identification and selection criteria under the FMA, RFC and SRL programs.

- Provide technical assistance to communities with respect to the project identification and effective implementation under the FMA, RFC and SRL programs.

- Review and comment on FMA, RFC and SRL program project applications and allocate project grants in accordance with the guidelines and criteria for those programs.

- Support NYS Department of Environmental Conservation (DEC) in Flood-related activities, including the goals and objectives in the State Flood Mitigation Plan.

- Participate in the U.S. Army Corps of Engineers (USACE) Silver Jackets program to ensure a workable interagency approach to planning and implementing measures to reduce the risks associated with floods among FEMA, USACE, DEC, the NYS Department of State's Division of Coastal Resources, the New York State Canal Corporation, and NYSOEM.

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

Objectives

- Work with FEMA and NYSOEM's Recovery Staff in the Joint Field Office (JFO) after disaster declarations to promote, identify and implement appropriate and feasible 406 mitigation assistance with eligible Local jurisdictions.

- 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 steps to reduce losses through improved constructions, techniques, and materials.

- Educate consumers 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 New York State.

Objectives

- Conduct earthquake vulnerability analyses for every County in New York State.
- Promote State and Local earthquake mitigation activities.
- Promote State and Local seismic building codes.
- Participate in the conducting 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 governments 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 and provide technical assistance to consumers related to techniques for selecting competent tree care professionals.
- Promote State and Local urban forestry mitigation activities.
- Support State and Local tree maintenance programs.
- Secure funding for State, County, and Local government 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 tree care professionals regarding techniques for repair and replacement of storm damaged trees

- Work with utility companies to develop 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 SOEM 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, recommending improvements where necessary.

C. Administration

Goal 1: Ensure adequate administrative support to enable SOEM 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 timeframe that positively impacts productivity and the ability to meet program goals

- Reorganize the hazard mitigation section of the SOEM 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 to manage mitigation matters in both the pre- and post- disaster phases of any hazard. The preferred methodology is to initiate mitigation actions before a disaster impacts the State, and in general this pre-disaster approach is the cornerstone of the State's 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 empowers the Disaster Preparedness Commission (DPC) 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 Home Rule determines and sets limits on the involvement any State agency may have within the boundaries of a Local jurisdiction. Please refer to **Section 2** for further detail about the agencies, policies and programs that 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 with SOEM 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 damage from a disaster. Each agency is required to have in place a Continuity of Operations Plan (COOP) for each facility to assure that essential services and functions can continue. 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 that will assure that 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 that could enhance the goals and objectives presented in this section of the plan. Having recognized this, efforts are underway to secure appropriate approvals to strengthen the areas of weakness and to secure appropriate staffing.

As the activities of Local jurisdictions are considered under this evaluation, it is important to note that the State's capabilities are sometimes diminished by a Local jurisdiction's inability to fully engage in pre-disaster planning activities, regardless of the cause. 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 their programs and funding sources remain user friendly, and that bureaucratic requirements do not serve as deterrents to smaller jurisdictions that may not have the resources to compete with their larger counterparts. Through training and technical assistance, much can be accomplished.

The State's capability to manage in a post-disaster phase is fairly strong when the information presented in Sections 2, 7, 10, and 11 is considered in total. Similar to FEMA's Emergency Support Function (ESF) #14 – Long-Term Community Recovery, New York State's Article 2-B provides a considerable and flexible 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, the submittal of the plan to the State DPC, the ability of the DPC to assist the municipality in preparing its recovery plan, and the provisions for adoption and revision of the recovery plan, as necessary.

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

The resources of SOEM's 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 SOEM to assure that all 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, so long as the Benefit-Cost ratios justify them, so that rebuilt facilities exceed the pre-disaster conditions and become bigger, better and stronger.

The SOEM Mitigation Section has developed a comprehensive set of policies and procedures that enable an efficient process from application through project completion for jurisdictions undertaking mitigation projects. Further information about NYSOEM's administration of the application process, including Benefit-Cost Analysis, can be found in Section 7.0 – Monitoring Progress of Mitigation Activities. The vast majority of funding flows from FEMA to the State, and the State is obligated to assure that the funds are appropriately used and accounted for at all times. SOEM has instituted several levels of accountability in order to assure this obligation is met.

The Plan Update for 2011 includes some new hazard management capabilities that were not in place in 2008 or 2005. NYSOEM continues to work with FEMA to promote the

development of all-hazards mitigation plans, which will enable jurisdictions in the State to take actions to avoid or reduce the impact of hazards. Jurisdictions will no longer be helpless while hazards like floods ravage their communities. We feel the upsurge of plans and projects---NYSOEM generally receives between 100 and 120 Letters of Intent (LOIs) for each grant cycle it announces---reflects the development of a positive and forward-thinking attitude that demonstrates the will to take action before a hazard impacts a community.

NYSOEM is participating in a collaborative effort with FEMA and the National Emergency Managers Association (NEMA) to form recommendations on a revised mitigation plan review process and framework. Our basic premises include: plans should be meaningful to our communities, and that occurs when they write the plans themselves; mitigation planning standards should allow for locally-written plans if the community so desires; and the process should be a cooperative Local-State-FEMA effort throughout.

4.2.2 -- Local Capability Assessment

The SOEM 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. Because New York State is a "Home-Rule" State, the primary impetus for mitigation activities must come from the Local level. The past three years have demonstrated that Local governments do realize the benefits of developing and adopting a Local Hazard Mitigation Plan, and through a variety of outreach methods, SOEM has been actively encouraging Local governments to incorporate mitigation into their daily activities. Unfortunately, budget constraints at all levels of government have slowed Local mitigation planning efforts in the last two years, with some communities expressing frustration with their inability to devote staff to develop plans that will in turn provide access to FEMA project grants. The issue of appropriate hazard mitigation planning standards and a more refined, strategy-focused process are being examined by FEMA and the National Emergency Management Association (NEMA) in 2010-2011, and New York is one of four states tapped to participate on the project team.

On a more positive note, SOEM awarded more than $535 million in FEMA mitigation grants to implement a variety of mitigation projects across the State between 1996 and 2009. As a result, support for mitigation policies and planning has increased in those areas with FEMA-approved mitigation plans and severe damage histories. **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. By working with Local communities throughout the planning process, SOEM has encouraged Local governments to review policies currently in place to determine their effectiveness for hazard mitigation. The concepts, goals and actions developed in a Local Hazard Mitigation Plan can and should be integrated and merged with existing planning and regulatory mechanisms. SOEM 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 and capital improvement plans to promote the consideration of mitigation priorities at all stages of Local planning process. SOEM staff provides technical assistance for incorporating these and other

planning. 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 jurisdiction's 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 that might authorize development in hazard-prone districts, or areas which rely on open space or wetlands to absorb flood waters. Political pressures and short-term fiscal considerations must be balanced by a consideration of the long-term safety and well-being of the citizens and the costs to society when critical infrastructure is damaged and must be repaired.

While improvement has been noted in terms of the Local capability to prevent or reduce the damage from hazards, much progress is still possible regarding the full integration and merging of mitigation goals and objectives into all municipal planning and code enforcement regulations, policies and procedures.

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, including NYS higher freeboard standards.
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 their Multi-Hazard Mitigation Plan development, Local communities identify programs and policies within their community that can contribute to mitigation activities. Additionally, Local communities identify methods to incorporate the Mitigation Plan into the routine activities, thereby ensuring the Mitigation Plan remains viable and it important goals and objectives can be achieved.

SOEM offers a variety of courses to assist Local officials in expanding their capabilities by facilitating learning and enhancing disaster preparedness. The SOEM Training Section offers courses developed by FEMA and the Emergency Management Institute (EMI) as well as those created by SOEM and our DPC partners in response to the specific needs identified by emergency management professionals in New York State. SOEM's Planning, Recovery and Mitigation Sections all augment the Training Section's efforts by providing training opportunities for Local officials endeavoring to expand their knowledge of mitigation and planning.

4.3 – Mitigation Projects, Actions and Activities

4.3.1 – Local Mitigation Projects

Due to New York State's large size, the great number of municipalities contained within it, and 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. Moreover, and consistent with the State's "Home-Rule" philosophy, the responsibility to implement appropriate mitigation measures generally rests with the municipality where the action is needed. However, the State has developed a recommended list of project types and non-structural mitigation measures based upon the hazards to which it is vulnerable. This list is further supported by a partial listing of FEMA-funded and State-administered projects, both complete and in-progress, that 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 governments and State agencies considering alternative mitigation measures to reduce or eliminate specific risks at infrastructure and facilities.

The recommended project types, by hazards, for the hazards faced by our State are included in **Table 4-2.**

The SOEM Mitigation Staff has developed a Mitigation Project Database to track the projects submitted to SOEM under the Hazard Mitigation Grant Program (HMGP), Pre-Disaster Mitigation (PDM), Flood Mitigation Assistance (FMA), Repetitive Flood Claims (RFC) and Severe Repetitive Loss (SRL) Programs. In cooperation with SOEM's Recovery and GIS staff, Section 406 mitigation associated with Public Assistance (PA) disaster recovery projects are also tracked. The various databases track 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 employ in their hazard mitigation plans. The local projects or mitigation actions are included only as a sample of types of high-priority, high-cost projects being considered as the State Plan is being updated. As mentioned above, each project will be extensively reviewed by the Mitigation Section 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 can be implemented 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. While the following list can be used by Local Jurisdictions to develop strategies to address specific hazards that impact their area, 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	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	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	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	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	1. Public Awareness 2. Planning & Zoning (i.e., urban-wildland interface set-back ordinances) 3. Open Space Preservation (especially along the urban-wildland interface) 4. Instituting periodic, proactive tree trimming and brush cutting programs to protect public infrastructure investments
Drought	1. Public Awareness 2. Drought Preparedness/Planning 3. Drought Resistant Vegetation

	4. Increase Water Conservation Standards 5. Retrofit/Upgrade Irrigation System
Earthquake	1. Public Awareness 2. Planning and Zoning 3. Strengthen/Upgrade/Enforce Building Codes 4. Retrofit/Upgrade Critical Facilities 5. Seismic Retrofit
Hail Storm	1. Building Codes 2. Public Awareness 3. Weather warning system improvements and modernization
Extreme Heat	1. Public Awareness 2. Identify location of vulnerable populations 3. Establish cooling centers 4. Issue advisories and warnings
Power Failure	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.

4.2.1 – State Activities of Note

As part of the Plan Update, NYSOEM convened key stakeholder agencies, authorities and organizations (see Section 4.3.2 below) to solicit current information about hazard mitigation activities. While a variety of actions and accomplishments are cited below, five activities or trends occurring within the last three years are worthy of special note.

Climate Change Initiatives

In 2007 the New York State Legislature created the Sea Level Rise Task Force (SLRTF) and charged it with "assessing the anticipated impacts of sea level rise, as well as providing recommendations related to actions the State may take to protect areas at risk of damage, adaptive measures and regulatory and/or statutory changes." The Department of Environmental Conservation (DEC) managed the process while the participation of the Department of State's Division of Coastal Resources, NYSOEM, and others. Not only does the report make recommendations, it analyzes the New York State legal, procedural and policy changes necessary for their implementation. The SLRTF report was cited in Scientific American www.scientificamerican.com/article.cfm?id=new-york-state-begins-planning&WT.mc_id=SA_WR_20101123. The SLRTF's enabling legislation and the interim report are available at www.dec.ny.gov/energy/45895.html and www.dec.ny.gov/energy/49907.html.

In 2009 Governor Paterson's Executive Order No. 24 directed the development of a State Climate Action Plan, set the goal of reducing the State's greenhouse gas emissions by 80 percent (compared to 1990 levels) by 2050, and established a Climate Action Council to determine how to meet the goal. State agencies then launched a process that brought together more than 100 technical experts and the broader public to develop the plan including strategies for meeting the Governor's emission reduction and clean energy goals.
In 2011, the Climate Action Council will further refine these preliminary ideas, finalize cost information and economic potentials, analyze the macroeconomic impacts of the policies,

and outline an implementation strategy. The report is online at http://nyclimatechange.us/. The New York State Climate Action Plan Interim Report Fact Sheet can be found at www.ny.gov/governor/more/ClimateActionPlanInterimReportFactSheet.pdf.

Greater Catskill Flood Remediation Program

On April 11, 2008, Governor David Paterson and Legislative leaders announced $15 million for the Greater Catskills Flood Remediation Program, which allowed eligible counties in the Southern Tier and Catskill regions to purchase one- or two-family homes damaged by floods since April 1, 2004 and deemed to be at future risk. In order to qualify for the program, the home must be the primary residence of the owner with a family income up to 150% of the Area Median Income, as defined by HUD. Homes purchased are condemned and the property dedicated for open space, recreational, wetlands, or flood mitigation purposes.

Funding is administered through the NYS Housing Trust Fund Corporation / NYS Homes and Community Renewal to Broome Chenango, Delaware, Herkimer, Montgomery, Orange, Otsego, Schoharie, Sullivan, Tioga, and Ulster counties.

Earthquake Hazards Reduction Assistance Grants

During FY2009 NYSOEM initiated the first phase of a multi-phase "Inventory of State Facilities" project with the goals of 1) preparing seismic inventories of critical structures; 2) increasing earthquake awareness and education; 3) enhancing State and local government COOP/COG planning efforts; and 4) continuing to fulfill commitments made in the NYS Standard Multi-hazard Mitigation Plan.

The focus of the first year effort was to convene stakeholders and subject matter experts to determine an effective strategy to implement the inventory process. Consultations have included meetings, video conferences and information solicitation from State agencies, FEMA, DHS Science and Technology, the Applied Technology Council, the Multidisciplinary Center for Earthquake Engineering Research (MCEER) at the University of Buffalo, structural engineers and individuals associated with the Rapid Visual Screening of Buildings for Potential Seismic Hazards (RVS) methodology and the Rapid Observation of Vulnerability Estimation of Risk tool (ROVER). Once the on-site inspections are complete, the State will be better positioned to assess risks from earthquake, flood and wind at the more than 17,000 structures in its inventory.

Vigilant Guard Earthquake Exercise

SOEM continued partnering efforts by working with planners for more than a year to provide GIS support to Vigilant Guard, an annual disaster-based training scenario that tests the National Guard's coordination with local, state and federal agencies. Staff developed a deterministic HAZUS model for a hypothetical 5.9 earthquake in the Buffalo-Niagara Region using information about the area's lacustrine soils and the location of police stations, fire stations and schools. The model produced projections for casualties, debris and facility functionality that was used to provide injects to make the exercise more real for the participants. The exercise began on October 30 and involved more than 1300 National Guard troops and hundreds of civilian emergency response professionals.

4.3.2 – State Actions and Activities

Mitigation Actions and Activities included in this section were developed through a collaborative effort of New York State agencies and organizations. For the current plan update, several meetings of the plan group were held, both collectively and with individual agencies, to ensure that information gathered for the Plan was accurate and up-to-date. Mitigation activities cited in the 2008 NYS Hazard Mitigation Plan were extensively reviewed and in some cases it was deemed appropriate to combine activities with 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 provide guidance and prompt those involved with identifying and developing mitigation measures for specific information that would satisfy 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 increased collaboration among stakeholders via scheduled meetings and conferences.

(3) Involved Agency/Agencies – list the agency or agencies that would likely be involved in implementing 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 have a shared responsibility 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 the 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 STAPLEE 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 that provides a systematic approach to help identify the opportunities and challenges associated with 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 or 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 all agencies 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. Also, for most State agencies, many of the goals, objectives, and activities are related to ongoing concerns and ongoing programs implemented throughout the State and will be recurring.

- 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, 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 the opportunities and challenges associated with 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
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.	All State Agencies, Local/Regional Planning Agencies, Local Emergency Management Agencies and elected leadership	m	Operating budget	l	h	o	Progress continues to be made on outreach to local communities regarding planning issues. Statewide conference efforts and collaboration have been hampered due to extreme budgetary constraints. NYS Dept. of State, Division of Coastal Resources and the NYSOEM, are 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. See further description below under MH1.
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 NYSOEM web site mitigation page.	NYSOEM & appropriate NY and federal agencies including: DOS, DEC, SED, FEMA, USACE, NRCS, HUD, NOAA, etc.	m	Operating budget	l	h	s	Progress continues to be made on this activity by FEMA, NYSOEM, and DOS. DOS's Division of Coastal Resources , over the last three years, has awarded$54 million in Environmental Protection Fund grants aimed at planning and implementation of projects in coastal areas The NYSOEM, with funding assistance from FEMA has been able to award approximately another $42million in mitigation projects to communities since the end of 2007 See further description below under MH2.
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).	SOEM, State Agency Liaisons	m	Operating budget	l	h	o	There has been continued progress with coordination efforts. See further description below under MH3.
MH 4. Increase collaboration among local-State technical	SOEM, State	tbd	Tbd	l	h	o/l	The state continues to make progress

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
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	Agencies						with collaboration efforts. Partnering with the NYS GIS Clearing House has significantly expanded so all NYS agencies, various NGO's and many municipalities across the State to share and access GIS data. Efforts to extend and improve on satellite imagery and LiDAR data continues. New products on sea level rise/flood inundation have been developed by NY NGO's and are being used However extreme budgetary constraints have and will continue to limit our ability to fully meet needs. See further description below under MH4.
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, and public service news release.	SOEM, OTDA	m	Operating Budget	l	h	o	The state has made continued progress; and will make every effort further improvement, within the current budgetary constraint.
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.	NYSOEM & 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. The Division of Coastal resources recently completed material on watershed planning to be used in public outreach. See further description below under MH6.
MH 7. General Hazard Awareness - continue and advance hazard awareness initiatives, consider accomplishing initiatives via Schools and Curriculum Development.	Education Department, American Red Cross, SOEM, OTDA	tbd	tbd	l	h	l	School health curriculum programs continue to stress the importance of personal preparedness. OTDA maintains an intranet site for use by its employees & local district offices that provides Disaster Preparedness, Health & Safety, and Continuity of Operations resources.

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
							OTDA also participates in various venues promoting preparedness throughout the year (ex. Preparedness Month outreach, etc.) See further description of activities below under MH7.
MH 8. Develop Web based resources – Support Local jurisdiction planning efforts by providing comprehensive resources for mitigation plan development	SOEM	m	Operating budget	l	h	o	Current NYS Hazard Mitigation Plan has incorporated extensive web links that will bring planners to various hazard information and hazard mitigation sites, including: the NOAA National Climate Data Center, various State and federal agency sites, etc. See further description below under MH8.
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.	SOEM, All State Agencies	m	Operating budget FEMA grants	l	h	o	Progress continues to be made toward developing a process to gather state facility data. See further description below under MH9.
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	SOEM County Mitigation Coordinators	m	Operating Budget	l	h	o	Continued progress. SOEM will continue to provide assistance and training to local municipalities to the extent that budget constraints will allow. See further description below under MH10.
MH 11. Natural Hazard Analysis data and mapping Enhance existing statewide hazard analysis data and mapping and 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	SOEM NYS Geological Services DEC OGS	tbd	Operating budgets FEMA Grants	l	h	o	Continued progress. SOEM will continue to make efforts to develop additional GIS hazard mapping products and make those available thru the NYS GIS Clearinghouse.

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
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							See further description below under MH11
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, SOEM, All State Agencies	tbd	Operating budget	l	h	o	Effort is ongoing in order to provide back-up and redundancy to the NY Alert
MH 13. NY-Alert System - Encourage utilization of NY-Alert at the statewide and local level.	SOEM (Lead) All State and Local Agencies	s	Operating Budget	l	h	o	See further description below under MH13
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	SOEM	s	NYS EAS funds	l	h	o	Effort is ongoing in order to provide back-up and redundancy to the NY Alert.
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	SOEM DOS, DEC Local Mitigation Coordinators	tbd	tbd	l	h	o	Limited progress to date has been made on this item. 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.	SOEM, Agency Department Heads	m	Operating budget	l	h	o	SOEM continues to work with State Agency Liaisons to identify mitigation opportunities See further description below under MH16.
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 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	SOEM OGS, All State Agencies	tbd	NY State Operating Budget- Federal Grant funds	l	h	o	Continued progress has been made; however, information is still not readily available See further description below under MH 9.

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
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 SOEM	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 SOEM All State Agencies	m	State operating budget & Federal Mitigation Funds	l	h	l	Continued progress has been made. Facility managers will continue to mitigate for the effects of natural hazards. See further description below under MH 9.
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: SOEM, DEC, FEMA	tbd	Operating budget	l	h	o	All code and fire officials receive 24 hours of in-service training annually. A 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.	SOEM, All State Agencies	m	SEMO operating budget and Federal grant funding	l	h	o	Activity completed. See further description below under MH 21..
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	Continued 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.
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	DOS	m	NYS agency operating budget	l	h	o	Continued progress. The Division of Coastal Resources provides guidance and technical assistance to municipalities

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
educational and awareness media the loss reduction benefits including hazard mitigation activity in local development regulations							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 NYSDEC SOEM	s	Environmental Protection Fund & federal grant funding	m	h	o	NYS Parks, DEC, & SOEM continue to pursue 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 NYS.
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.	SOEM	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 and Public Security	tbd	Operating Budget	l	h	o	Continued progress has been made. NYS has procedures in place that require all State agencies to annually perform an Internal Controls audit. This will primarily analyze risks from faulty or poor operating procedures or administrative controls. However, several agencies have also incorporated a review of risks from natural/man-made disasters. The internal controls review is a self-review process and calls for the development of a Corrective Action Plan when an agency perceives it have

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
							Identified a problem. Greater effort is needed to encourage more state agencies to incorporate mitigation activities in their day-to-day operations
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.	SOEM	tbd	tbd	l	h	o/l	Continued progress. NYS CS will continue to make progress on this initiative.
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.	DOS SOEM	m	Operating Budget	l	h	o	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 2007- 2011, several communities have developed LWRPs.
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.	Educational Services Unit of the Division of Code Enforcement and Administration DOS	m	Operating Budget	l	h	o	On-going program with continued progress. All code and fire officials receive 24 hours of in service training annually.
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.	DOS SOEM, DEC	tbd	Operating Budget	l	h	o	On-going program with continued progress. DOS has implemented a specialized 6-hour CEDAR course for code officials

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 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.	SOEM, DEC DOS, CS, FEMA	tbd	Operating Budget	l	m	o	Good Progress. All agencies will continue to improve on this activity
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.	DOS SOEM	m	Operating Budget	l	m	o	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 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, SOEM, DEC	Tbd	FEMA: HMGP, FMA, and PDM HUD	l	h	o	On-going program efforts with continued progress Project funding sources, such as Severe Repetitive Loss Program (SRL) and Repetitive Flood Claims Program (RFC). See further description below under MH 34.
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	SOEM	m/s	Operating budget State/Federal funding sources	l	h	o	On-going program efforts with continued progress. See further description below under MH 34.
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	DOT routinely incorporates hazard mitigation activities into its engineering and operations management activities. See on-going efforts described in Section 2.3.9
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	On-going program efforts with continued progress.

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 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	The State continues to refine COOPs. Efforts are state-specific focuses consistent with baseline practices stemming from HSPD-20/NSPD-51, NFPA 1600, and other standards, such as FFIEC, ICOR, and BS-25777/BS-25999.
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	See description below under MH39.
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	DOT inspects nearly 10,000 bridges per year (both state and non-state) – all bridges are inspected at least once every two years
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	Efforts are continuing in this program area.

MH 1. Statewide Mitigation Collaboration
To increase its mitigation audience, SOEM has begun using e-mail notifications of grant opportunities, conferences, the release of studies and other information of interest to the public. In the past this information was mailed to County Emergency Managers and Mitigation Coordinators. E-mailing has allowed us to add State Agency Liaisons, County Planners and Grants Writers, Regional Planning Organizations, Metropolitan Planning Organizations (FHWA-mandated groups that study transportation issues on a regional basis), and 52 Soil and Water Conservation Districts. There are also now collaborative agreements with the Depts. of Conservation (DEC) and State (DOS), both the Division of Coastal Resources and Local Government Services, as well as the New York Conference of Mayors to have grant information placed on their websites as space permits.

SOEM makes its webpage available to disseminate conference information on behalf of other agencies, notably the Dept. of Conservation. SOEM has also begun discussions with the DOS and DEC to see how our mitigation planning can be integrated or dovetailed with their resiliency planning, and how our mutual applicants might take advantage of each agency's programs.

Since May 2010 SOEM has participated in a new Silver Jackets initiative promoted by the U.S. Army Corps of Engineers (USACE). The Silver Jackets program provides a formal and consistent strategy for an interagency approach to planning and implementing measures to reduce the risks associated with flooding and other natural hazards. In New York the Team consists of the USACE (New York and Buffalo Districts), FEMA Region II, SOEM, DEC, DOS and the NYS Canal Corporation. The program's primary goals are to:

- Create or supplement a mechanism to collaboratively address risk management issues, prioritize those issues, and implement solutions;
- Increase and improve risk communication;
- Leverage information and resources, including providing access to such national programs as FEMA's Map Modernization program and RiskMAP programs and USACE's Levee Inventory and Assessment Initiative;
- Provide focused, coordinated hazard mitigation assistance in implementing high-priority actions such as those identified by state mitigation plans;
- Identify gaps among the various agency programs and/or barriers to implementation, such as conflicting agency policies or authorities, and provide recommendations for addressing these issues.

MH 2. Summarize Potential Funding Sources for Mitigation Activities
In addition to the measures noted in MH 1 above, SOEM participates in the SHMOnet listserv, which allows all SHMOs in states, territories and the District of Columbia to share ideas and learn best practices from each other. For example, in October 2010 topics related to funding included the taxability of acquisition/elevation funds provided to property owner and the possibility of an MOU with HUD to fund acquisitions at 100% (no non-federal cost share) and/or throughout the year, regardless of grant cycles.

MH 3. Improve Coordination with Key State Partners
The merger of SOEM with the Offices of Counter Terrorism (OCT), Cyber Security (OCS), Fire Prevention and Control (OFPC) and Interoperable and Emergency Communications (OIEC) to create the Division of Homeland Security and Emergency Services in July 2010 led to immediate enhanced communications among partner agencies to address natural, manmade and technological hazards. OFPC had already volunteered to assist SOEM with the Rapid Visual Assessment initiative to analyze the risk of damage from Earthquake at State facilities.

In 2008, the state designated a coordinator to implement the Automated Critical Asset Management System (ACAMS) as a primary database for compiling information about critical infrastructure and key resources. One of the essential features of ACAMS is that private sector owners and operators are contacted, visited and become responsible for inputting and maintaining data about their facilities in the system. This information then becomes accessible, under confidential protection, to local first responders, which facilitates planning and coordination for the response to natural and man-made hazards. In addition, ACAMS allows attachment of key documents to the asset profile, and operators are asked to upload their emergency response plans into the system. The state has visited dozens of sites, and will continue this outreach going forward to the extent possible.

MH 4. Increase collaboration among local-State technical resources
SOEM continued partnering efforts by working with planners for more than a year to provide GIS support to Vigilant Guard, an annual disaster-based training scenario that tests the National Guard's coordination with local, state and federal agencies. Staff developed a deterministic HAZUS model for a hypothetical 5.9 earthquake in the Buffalo-Niagara Region using information about the area's lacustrine soils and the location of police stations, fire stations and schools. The model produced projections for casualties, debris and facility functionality that was used to provide injects to make the exercise more real for the participants. The exercise began on October 30 and involved more than 1300 National Guard troops along with hundreds of civilian emergency response professionals.

The "Landslide Susceptibility – A Pilot Study of Schenectady County, NY" exercise discussed in Section 3.J Landslide Hazard Profile (pg. 3-381) involved collaboration among the USGS, the NYSGS, the NYSDOT, the NYSOCC and the Schenectady County Economic Development and Planning Department. Consistent with the State's goal that the State Mitigation Plan should serve as a template for local jurisdictions undertaking mitigation planning, the Schenectady landslide pilot study provides a model for local jurisdictions to follow in assessing their own risks from landslide.

Also, the State's proposals funded under FEMA's Earthquake Hazards Reduction State Assistance Program involve a collaboration among SOEM, OCT and OFPC to conduct Rapid Visual Assessments to analyze the risk of damage from Earthquake at State facilities. The group will identify a State agency or agencies to conduct initial testing to develop a methodology and hopes to expand the data gathering to include information about risks from water and wind.

MH 6. Public Education Hazard Awareness Program – 2
The State used the Agency Kick-off meeting formalizing the State Hazard Mitigation Plan Update effort as an opportunity for networking and education about activities that might be considered mitigation. The State also used the letter we send for the tri-ennial reporting process (whereby applicants who undertook acquisition projects must document every 3 years that the parcels remain as open space) as an opportunity to provide information about the acquisition process and other eligible mitigation grant activities to local elected officials, many of whom were not in their positions when the projects occurred. As part of the State Plan Update process the State also conducted a survey to educate the public about the State plan and local mitigation planning and solicit input as to what existing sections are most useful and what additions or format changes should be considered.

MH 7. General Hazard Awareness
SOEM's Mitigation Section has been asked to partner with the New York State Historic Preservation Office (SHPO) and the Division for Historic Preservation in a 2011 conference for emergency management and cultural resource institutions with the goal of having each group understand the needs and responsibilities of the other and support the special planning necessary to protect and avoid and reduce damage to cultural artifacts and institutions.

MH 8. Develop Web based resources
The State's commitment to provide the State Hazard Mitigation Plan online with active links to State and Federal agency web sites allows users to view the most current data about past events and updated hazard profiles helps to achieve this goal.

MH 9. General Data Gather
This is an ongoing activity whose pace and robustness will be impacted by fiscal constraints. Nonetheless, the State is committed to updating hazard profiles and risk assessments as new events occur, and to maximizing interagency collaboration to assess earthquake, wind and water risks at State facilities using FEMA's Earthquake Hazards Reduction State Assistance Program and other funding streams.

During 2009, the New York State Emergency Management Office (SEMO) initiated the first phase of a multi-phase "Inventory of State Facilities" project with the goals of: 1) preparing seismic inventories of critical structures; 2) increasing earthquake awareness and education; 3) enhancing State and local government COOP/COG planning efforts; and 4) continue to fulfill commitments made in the New York State Standard Multi-Hazard Mitigation Plan
.
The focus of the first year effort has been to convene stakeholders and subject matter experts to determine an effective strategy to implement the inventory process in New York State. Consultations have included holding

meetings, video conferences and information solicitation from New York State agencies, FEMA, DHS Science and Technology, Applied Technology Council, MCEER, structural engineers and individuals associated with the Rapid Visual Screening of Buildings for Potential Seismic Hazards (RVS) methodology and the Rapid Observation of Vulnerability Estimation of Risk tool (ROVER).

Issues that have been addressed during the first phase have included: who or what organization would be the most appropriate to collect the data; what data should be collected; what data currently exists and what are the data gaps; can existing data and building photographs supplant the need for on-site inspections; what tools and techniques should be used to collect data; what are the training needs and training opportunities available; what are the potential problems and issues; what should the priorities be; and importantly, consideration as to how grant monies could be leveraged to support what could be a very costly effort given the 17,000 state-owned buildings that are geographically dispersed throughout the state.

The principal element that emerged from the first year effort that will be implemented in the second phase effort (2010) is to integrate the RVS methodology with the NYS Office of Fire Prevention and Control (OFPC) state building inspection program. This is a promising prospect with far reaching potentials and implications. The OFPC inspection program includes 50 full-time inspectors who currently inspect 17,000 state-owned buildings for fire code compliance. The integration of RVS to this process and will set in place seismic screening as a standard operating procedure of state building inspections.

During the second phase of the "Inventory of State Facilities" project two RVS software tools will be field evaluated for suitability and synthesis to the existing inspection program: 1) the smart phone based ROVER and 2) DHS Science and technology's "Integrated Rapid Visual Screening – (IRVS)" which is currently expanding from solely a risk screening for terrorism to include wind, flood and seismic hazards. The experienced gained from using ROVER and IRVS during this second phase of the project will be used to scope a future system that will unify data collection on a single device for an "all hazards" building inspection, including incorporating data points relative to fire code compliance, seismic, wind, flooding and terrorism.

While scoping a future phase "all hazards" building inspection system, work will begin in phase 2 to create a master NYS state owned buildings database by merging information from the various separately maintained state agency building databases including data collected by OFPC inspections. This data will be formatted for GIS including efforts to improve the spatial accuracy of building locations by comparing property records and aerial orthoimagery when a precise GPS coordinates are not available. In addition the master NYS database will be integrated into HAZUS with preliminary loss estimations generated in support of New York State Standard Multi-Hazard Mitigation Plan risk assessment requirements.

MH 10. Mitigation Planning and Project Resources

SOEM is reevaluating its grant administration procedures to ensure better projects and applications. Information about benefit-cost analyses (BCAs) from several locations was collected into a single document explaining the BCA concept and process, giving examples of damages, losses and activities that can be considered, and walking applicants through a worksheet that captures those costs. This BCA handout is a stand-alone document used on our web page and as a handout. It was also incorporated into the State's revamped Hazard Mitigation Grant Program (HMGP) application, which now includes discrete sections on overall program objectives and ranking criteria, planning proposals and project development.

SOEM has also implemented changes to improve relationships with its subapplicants. Rather than rely on letters and checklists, applicants now receive a listing of issues and questions 1-2 days in advance of a telephone call or meeting to discuss the project and program requirements. SOEM also follows the call with a short note or minutes to memorialize the points covered and provide recommendations to make the proposal more competitive, asking that the applicant confirm the understandings. Each step of the process includes direct contact through calls, meetings or site visits, and each of these points offers an opportunity for information to be shared, for alternatives to be considered, and for program specifics to be clarified. Planning and project applicants are now contacted monthly to discuss their progress in meeting FEMA grant benchmarks or requirements.

SOEM also conducted training sessions in each of its five regions as part of HMGP-1857 (declared 9/1/09). These were useful as settings for applicants to hear each other's problems, solutions and answers, and may be continued and/or augmented with webinars or other economical venues that can be used to disseminate program information.

MH 11. Natural Hazard Analysis data and mapping
The State's commitment to provide the State Hazard Mitigation Plan online with active links to State and Federal agency web sites allows users to view the most current data about past events and updated hazard profiles helps to achieve this goal.

MH 13. NY-Alert System
NY-Alert is a web-based portal that allows State agencies, county and local governments, emergency service agencies and institutions of higher learning to provide emergency alerting information and private notifications to a defined audience (e.g., local, county, regional or statewide). Subscribers can receive emergency information about a wide variety of events like road closures, weather events, and campus emergencies. Information can be received by e-mail, landline or cell phone, SMS (Simple Message Service) text message, fax, pager, and on the web through RSS (Really Simple Syndicate) Reader or by visiting the NY-Alert website at www.nyalert.gov. As of November 2010, 6.3 million individuals had subscribed to the system, and local emergency officials are able to send reverse 911 notifications about natural hazards like severe weather, marine warnings, and earthquake to 2.79 million subscribers. Since its inception NY-Alert's reverse 911 function has been activated nearly 10,000 times for natural hazards like flash floods, tornadoes, thunderstorms and one possible dam breach.

MH 16. NYS Agency Mitigation Liaison
The Kick-off meeting for the State Plan Update was useful for networking and discussing possible agency collaborations. SOEM will explore possible informal semi-annual meetings, annual plan update meetings, and webinars to promote goals in cost-effective manner.

MH 17. Damage loss estimation for NYS government critical facilities
SOEM and Office of Fire Prevention and Control (OFPC) will use FEMA's Earthquake Hazards Reduction State Assistance Program to begin the process as OFPC inspects state facilities throughout the year; wind and water will be added and will allow the State to conduct more detailed loss assessments than were available previously.

MH 21. Natural Hazard Events Database
The Natural Hazards database activity will be eliminated from future State Plans. Rather than create another date source that requires constant updating to be useful, SOEM has instead developed the online version of the State Plan with active links to take the reader right to the section of the existing (e.g., NOAA) database they need for the most current information.

MH 23. Local development ordinances to reduce exposure to hazards
SOEM has suggested to Region II that as part of FEMA's review of the current mitigation planning process the agency consider extending the life of mitigation plans if communities incorporate them into existing planning and zoning regulations. That way mitigation is considered from the start, at the earliest time in the project planning phases when the fullest range of possible alternatives remains available.

MH 34. Repetitive Loss Properties
The DHCR manages and oversees the implementation of the Greater Catskills Flood Remediation Program. In 2008-09 the NYS Housing Trust Fund Corporation (HTFC) was provided $15 million in order to offer grants to homeowners in eligible counties in the Southern Tier and Catskill regions in order to purchase and demolish eligible homes that have been damaged by floods since April 1, 2004, and are determined to be at future risk. Homes purchased would be condemned and property will be dedicated for open space, recreational, wetlands, or flood mitigation purposes.

MH 39. Bridge Safety Assurance
DOT is under taking a proactive effort to identify bridges that are vulnerable to failure due to causes other than condition. DOT has identified six (6) major failure modes or vulnerabilities: hydraulics (scour), collision, overloads, concrete detail deficiencies, steel detail deficiencies, and earthquakes. DOT is developing a program to assess a bridge's relative vulnerability to one or more of the six (6) modes of failure. Almost all bridges have been assessed for Hydraulics. Nearly all State-owned bridges assessed for Steel, Overload, and Collision. The assessment for Concrete and Earthquake has begun for State bridges.

4.3.2.2 – Flood Hazard

All of New York State is at risk from flooding. The causes are all directly or indirectly weather- related, and although nothing can be done to eliminate flooding, there is much that can be done in Local communities and at the State level to reduce the damage and personal suffering caused by floods. Communities can exacerbate the damage that floods cause by taking the wrong actions or no action at all. To mitigate the damaging effects of floods, and to reduce the time 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 make a good photo opportunity, real and meaningful protection of a community's residents and infrastructure must be planned for, and be in place, well before the first drop falls. A well-reasoned and comprehensive Hazard Mitigation Plan that has the support of all 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/SOEM 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 program dates from 2008
F 3. Coastal Zone Management - Continue implementation of the **CEHA, CMP,** and **LWRP** programs to preserve natural protective features and protect property from flood and erosion hazard.	DEC DOS SOEM	s	Operating budget Federal Grants	l	h	o	(See description in item F3 below)
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 awareness through the Community Assistance Visits (CAVs) program.	DEC, NFIP participating communities	s	Operating budget Federal Grants	l	h	o	(See description in item F4 below)
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 SOEM DOS	m	Operating budget, Federal Grants	l	h	o	(See description in item F5 below)
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 & Dam Owner	s	Operating budget	l	h	o	(See description in item F6 below)
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, SOEM, USACE DOS, SWCD	m	Operating budget	m	h	o	(See description in item F7 below)

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 8. Flood Mitigation Planning and Projects – Continue to encourage local jurisdictions to engage in flood mitigation or/and floodplain management planning and project activities to develop and implement comprehensive mitigation programs. Promote the benefits of such activities via the county mitigation coordinators program.	SOEM DEC DOS	m/s	Operating budget Federal Grants	l	h	o	(See description in item F8 below)
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**, i**ntegration into "comprehensive planning" training-DOS.	DOS, DEC	tbd	Operating Budget Federal Grants	l	h	o	(See description in item F9 below)
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 item F10 below)
F 11. Acquisition of Land - Continue to purchase land & explore enhancement options that may prevent development encroachment into hazardous areas.	NYS Parks	s	Operating budget State Env. Protection Fund	m	h	o	(See description in item F11 below)
F 12. Community Rating System (CRS) - National Flood Insurance Program (NFIP) 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 and accessibility of data via the NYS (SOEM/DEC/DOS) web site. For instance; DOS technical planning assistance for LWRP and Comprehensive planning.	DEC, SOEM, FEMA DOS, FEMA, SWCD	tbd	Operating budget Federal Grants	l	h	o	(See description in item F12 below)
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	SOEM DOS	m/s	Operating budget for daily support State/Federal mitigation programs, FMA and SRL	m	h	o	(See description in item F13 below)
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	SOEM	tbd	SEMO DEC USACE	l	h	l	(See description in item F14 below)

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
USACE CRREL & ice jam database on the SOEM mitigation page to promote better understand of ice jam location, frequency, and vulnerability and mitigation alternatives.							
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 & and make available to communities and encourage outreach and education for those property owners about mitigation options and funding potential. Consider canvas letter to County mitigation coordinators & RFLP communities.	FEMA, USACE, SOEM, DEC DOS (DOS integration into Comprehensive Planning and LWRP assistance curriculum)	tbd	Operating Budget FEMA grants: HMGP, FMA, SRL, and PDM USACE HUD	m	h	o	(See description in item F15 below)
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.	SOEM, 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. Flood Mapping – Continue the current flood map modernization initiative including maintaining the ***"State mapping advisory committee"*** 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 SOEM FEMA	s	Federal Grants	l	h	o	(See description in item F16 below)
F 18. 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	Program is ongoing and NYSDOT plans to continue this design practice.
F. 19 Ensure reliable operation of state maintained structural flood control projects. Continue efforts of enhance existing structural project performance and continue efforts to partner with the USACE and local municipalities on the development of new flood control facilities.	NYSDEC, USACE, Local Municipalities	s	Operating & Capital Budget	?	h	o	(See description in item F19 below)

Flood Mitigation Activities Status

F1. Coastal Zone Management

NYS continues to actively promote, develop and administer these programs. As an example, under the Coastal Erosion Hazard Area (CEHA) program, NYS Dept. of Environmental Conservation (DEC) has taken action to rescind delegated authorities from Local governments when they fail to restrict inappropriate development within the CEHA Zone. The Dept. of State (DOS), in cooperation with the U.S. Dept. of Commerce - NOAA, facilitated amending the NYS Executive Law Article 42, Waterfront Revitalization of Coastal Area and Inland Waterways and the Coastal Management Program so municipalities can create and implement a portion of a Local Waterfront Revitalization Plan (LWRP). 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's 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.

F2. Floodplain Management & Mitigation Projects

NYS continues its cooperative agreement with FEMA Region II by administering the NFIP and CRS programs in the 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 situations where communities are not following NFIP requirements. These lapses are brought to the attention of Local officials and, if necessary, to FEMA for potential enforcement action.

F3. 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. DOS promotes the NFIP through review and approval of training for local code enforcement officials, including NFIP requirements and program updates.

F4. Dam Safety Program

NYSDEC continues to manage, promote and enforce this program and recently enhanced the number of staff dedicated to the Dam Safety Program. In 2009, the DEC has also promulgated regulations that require a dam owner to have a safety program when a dam poses a threat of personal injury, substantial economic damage, or substantial environmental damage. The regulations require emergency action planning, inspection and maintenance, engineering review, record-keeping, financial security, and other provisions. These regulations better align New York's dam safety program with FEMA's "Model State Dam Safety Program."

F5. Stream Maintenance

The Stream Maintenance Program relies on Local initiative to develop a long-term maintenance plan that meets environmental requirements along with a Local financial commitment. Given shrinking Local budgets and competing demands, the idea of preventive stream maintenance may be difficult for local governments to recognize as a first priority. However, there are examples of successes around the State as exist in the communities along the Sauquoit Creek (near Utica, Oneida County). The NYSDEC was successful in encouraging Local communities to form a Sauquoit Creek Basin Commission (SCBC), which has a primary responsibility to maintain the stream at various historically problematic road crossings and bridges. The SCBC 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. DOS has had excellent success with its watershed planning program by providing Local communities with technical and financial assistance to prepare and implement watershed management plans that can focus on stream corridor restoration. By establishing priorities for protecting and restoring overall ecosystem functions, these plans have both socio-economic and environmental benefits. For more information see http://www.nyswaterfronts.com/watershed_home.asp. New York's Coastal Non-point Pollution Control Program, approved by NOAA and EPA in 2006, contains a strategy to improve in-stream and riparian habitat and water quality as part of the maintenance and operation of existing modified streams. For more information please see http://coastalmanagement.noaa.gov/nonpoint/pro_approve.html#NewYork.
The

F6. 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 USACE and other partners to develop optimal storm damage reduction through the Fire Island to Montauk Point (FIMP) Reformulation Study. The DOS also advocates planning for resilient land use, restoration of natural processes, and conservation of natural protective features such as marshes, beaches and dunes for storm damage reduction.

F7. Stormwater Management

The NYSDEC has established a permitting program to address stormwater runoff and protect the Waters of New York. Under Stormwater Phase II regulations, permit coverage is required for stormwater discharges from Municipal Separate Storm Sewer Systems (MS4s) in urbanized areas and for construction activities disturbing one or more acres. The Department is implementing these two general permits under the State Pollutant Discharge Elimination System (SPDES) and has issued coverage for discharges from about 500 MS4s and more than 13,000 construction activities since the inception of the program. Currently, the operators of construction activities must obtain permit coverage under the GP-0-10-001 and prepare a Stormwater Pollution Prevention Plan that meet the technical standards defined in the New

York Standards and Specifications for Erosion and Sediment Control and the New York State Stormwater Management Design Manual. The regulated MS4 communities are required to prepare and implement a Stormwater Management Plan that addresses stormwater discharges by 6 Minimum Control Measures (MCMs). As a part of this plan regulated MS4s are required to implement the requirements of the construction permit within their municipal boundaries. The NYSDEC has made a major effort of reaching out, training and educating the regulated communities and sponsoring statewide and regional training sessions. The DOS also promotes educational programs that address stormwater issues by assisting Local governments with Local Watershed Revitalization Plans and Watershed Management Plans.

F8. Floodplain Management

NYS continues its cooperative agreement with FEMA Region II by administering the NFIP and CRS programs in the 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 communities that are not following NFIP requirements. These lapses are brought to the attention of Local officials and, if necessary, to FEMA for potential enforcement action.

F9. Acquisition of Land

The NYSDEC and the NYS Office of Parks, Recreation and Historic Preservation (OPRHP) 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 Environmental Quality Bond Act (EQBA) or Environmental Protection Funds. Because many of these properties have waterfronts on lakes, rivers, and ocean shorelines, their outright purchase or the acquisition of development rights has provided additional public lands for recreational enjoyment while preventing these properties from being developed along potential flood hazard areas.

F10. 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. NYSDEC recently worked with FEMA to deliver FEMA's four day intensive CRS workshop in New York State. The workshop was attended by over 30 state and community officials. NYS routinely advises communities about the benefits of joining the CRS program, which offers discounted flood insurance in communities that take additional actions to reduce flood risk.

F11. Reduction of Repetitive loss Properties

Programs and educational efforts are ongoing and several elevations and acquisitions have been completed. 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: Findings and Recommendations. The report found that while most South Shore communities indicate they have plans that adequately address coastal hazards, a number of communities still experience repetitive losses. The report also found that additional opportunities exist to reduce losses through better documentation of damages and preparation of post-storm redevelopment plans.

F12. 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.

F13. Repetitive Flood Loss Properties

Good progress has been made in identifying repetitive loss properties and funding has enabled some 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 2011 Plan update as well as via web based links.

F14. 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 has developed more cost-effective and higher quality data, tools, and processes that will benefit all the citizens of the State. NYSDEC has worked to develop modernized flood maps in Schoharie, Cayuga, Onondaga, Cortland, Greene, Ulster, Dutchess, Putnam and Schenectady Counties and continues to work in Albany, Rockland, Jefferson and Rensselaer Counties.

F15. Flood Damage Reduction Projects

NYSDEC continues to operate, maintain, repair, replace and rehabilitate flood control project that protect life and property from flooding in over 100 communities across the state. NYSDEC continues to partner with the USACE and local municipalities for the development of flood damage reduction projects.

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.	SOEM, USGS, NYSGS and all county emergency management, CSICC	tbd	tbd Possible sources: NSF, USGS FEMA	l	h	o/l	Limited progress. State financial crisis precluded hiring expert to validate certain data that would have allowed us to expand the 2008 Schenectady Co. pilot to a State wide 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	Ongoing program with continued progress.
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	Limited progress, see LS1 above.
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 SOEM	m	State Budget	l	h	s	Limited progress, see LS1 above.
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.	SOEM NYSGS	s	NYSGS NYSEMO	l	h	s	Limited progress, see LS1 above.
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	Limited progress, see LS1 above.

4.3.2.4 – Wildfire Hazard

Table 4-6 describes existing mitigation programs and future initiatives that should be undertaken by State and Local governments, as well as the private sector and citizens. 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 SOEM	m	Operating Budget	l	h	l	OFPC continues to manage state fire mobilization & mutual aid plan to support operations during major emergencies
WF 4. Firefighting 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 communication and cooperation between agencies with wildfire mandates. Interagency cooperation is critical in bringing a multi-jurisdictional incident to a successful conclusion promptly	DEC SOME	tbd	Operating Budget Grant funding	l	h	l	Continued progress has been made. During disasters, the EOC is activated and allows local jurisdictions the ability to interact on the DLAN

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
							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 SOEM	tbd	Operating Budget Grant funding	l	h	l	This is a continual project. Preliminary GIS reports from fire occurrence data are indicating communities at risk.
WF7. Wildfire Management Plan Draft – draft of a comprehensive plan to mitigate wildfires across the State – outlines plans for training, firefighting, fuel management, and prevention education.	DEC	m	Operating Budget	1	h	o	This project will be completed as staff becomes available.
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	1	h	o	This is a continual project.

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	Ongoing activity, continued progress
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	Ongoing activity, continued progress
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	Ongoing activity, continued progress
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	Ongoing activity, continued progress
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	Ongoing activity, continued progress
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	Ongoing activity, continued progress
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	Ongoing activity, continued progress

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 1000 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	Ongoing activity, continued progress
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	Ongoing activity, continued progress
E5. Awareness - Continue to enhance awareness of seismic related issues to the public and government.	tbd	m	tbd	l	h	o	Ongoing activity, continued progress
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	Ongoing activity, continued progress
E7. Preparedness - Encourage the use of earthquake exercising and scenarios to be better prepared for earthquake events.	tbd	m	tbd	l	h	o	Ongoing activity, continued progress. (See further description in E7 below(

E7. SOEM continued partnering efforts by working with planners for more than a year to provide GIS support to Vigilant Guard, an annual disaster-based training scenario that tests the National Guard's coordination with Local, State and Federal agencies. Staff developed a deterministic HAZUS model for a hypothetical 5.9 earthquake in the Buffalo-Niagara Region using information about the area's lacustrine soils and the location of police stations, fire stations and schools. The model produced projections for casualties, debris and facility functionality that was used to provide injects to make the exercise more real for the participants. The exercise began on October 30 and involved more than 1300 National Guard troops along with hundreds of civilian emergency response professionals.