

Section 2.0 – State Coordination Efforts & Capabilities

The following requirement(s) are met throughout this section:

- §201.4(c)(1): *[The State plan **must** include a] description of the planning process used to develop the plan, including how it was prepared, who was involved in the process, and how other agencies participated.*
- §201.4(b): *The [State] mitigation planning process **should** include coordination with other State agencies, appropriate Federal agencies, interested groups, and [The State mitigation planning process **should**] be integrated to the extent possible with other ongoing State planning efforts as well as other FEMA mitigation programs and initiatives.*

2.1 – Multi-Hazard Mitigation Planning Process

2.1.1 – The Plan Update Process

The foundation of the plan update effort was the 2008 FEMA-approved NYS Multi-Hazard Mitigation Plan document. It was determined that the update process would focus on the assessment of the current status of mitigation actions across the State, and also provide stakeholders with opportunities to submit information which would bring the plan up to date with existing policies, practices, and programs.

The New York State Division of Homeland Security and Emergency Services, Office of Emergency Management, (NYSOEM), served as the lead agency responsible for the update of the Plan. A Plan Update Team was convened by the Chief of Mitigation Programs and charged with the responsibility of updating the Plan, consistent with the requirements for the Standard State Hazard Mitigation Plan update, which was published by FEMA in November 2006. These requirements are based on the Disaster Mitigation Act of 2000 (P.L. 106-390). The Plan Update Team held several preliminary internal meetings, starting on December 9, 2009, in preparation for the Plan update process. Specific issues were identified for review and updating in the plan and ideas were exchanged on how to best gather information from agencies and organizations. The Team identified a wide range of State and Regional agencies with a direct stake in the hazard mitigation and disaster recovery processes and invited them to actively and directly participate in the plan update.

The initial Plan Update Kick-off meeting was held with all relevant State and Regional agencies on April 14, 2010. All participants were sent packets in advance of the meeting and were asked to review and come prepared to make any necessary changes to the vision, goal and objective

statements made in the previous Plan. They were also asked to review and update individual agency progress assessment reports on previous Plan goals and objectives, and to begin to develop and identify additional hazard mitigation goals and objectives that their Agencies would strive to meet over the next three year Plan cycle. A listing of the participants and a summary of this meeting can be found in **Section 2 Table 2-1 Planning Participants** and **Section 2 Table 2-2 Summary of Plan Development Collaboration**.

The Plan Update Team also worked with personnel from other sections of NYSOEM, representatives of member agencies of the New York State Disaster Preparedness Commission (DPC), as well as other State, Local, and Regional agencies. A summary of all collaborative contacts can be found in **Section 2 Table 2-2 Summary of Plan Development Collaboration**.

In addition, the existing 2008 approved Plan was posted on the NYSOEM website and comments from the Public and Local Jurisdictions were sought as the plan update was undertaken. NYSOEM conducted a User's Survey via an on-line service known as Zoomerang. The survey document and a summary of the results can be found in **Table 2.3**. Subsequent drafts of the plan will also be posted on the NYSOEM website and public comment will be invited.

The first draft of the NYS Hazard Mitigation Plan was produced and mailed to all appropriate departments and personnel, with the request to provide review and comment.

From these comments, the Plan Update Team developed a list of recommendations intended to keep the planning effort alive, to assure that appropriate staffing resources are allocated for updates, and to assist all agencies in focusing on the mitigation activities outlined in the plan.

The DPC member agencies and the other State agencies consulted are responsible for the management or programming of a vast array of the built environment in the State as well as the administration of a myriad of policies and programs that are designed to protect the natural environment and wellbeing of the population. In the language of DMA 2000, these agencies are thus responsible for the various asset classes the mitigation plan is required to address.

The Disaster Preparedness Commission (DPC) is authorized by **the New York State Consolidated Laws, Executive Law, Article 2-B titled "State and Local: Natural and Man-made Disaster Preparedness."** This Law establishes the policy of the State with respect to disaster preparedness, prevention, response, and recovery. The policy emphasizes Local level authority and responsibility to ensure development of effective and current plans and programs for protection from natural and technological disasters. The provisions of NYS Law Article 2-B are similar to the provisions of Federal laws such as the Robert T. Stafford Disaster Relief and Emergency Assistance Act, as amended, and the Disaster Mitigation Act 2000.

Applicable to this NYS Hazard Mitigation Plan Section 2.1 is **Section 21 of the NYS Law Article 2-B, titled "Disaster Preparedness Commission Established; Meetings, Powers, and**

Duties.” This section is applicable primarily because the DPC constitutes an existing framework employed for the benefit of various elements in emergency management including the mitigation planning process which is specifically required as outlined in Part 201.4 “Standard Mitigation Plan”, (b) “Planning Process.” The DPC is comprised of the commissioners or directors of thirty-two (32) State agencies, the New York Chapter of the American Red Cross, and Commissioner Joseph Bruno of the New York City Office of Emergency Management. Article 2-B, Section 21 establishes membership to the DPC as outlined in the following excerpt:

consisting of the Commissioners of Transportation, Health, Division of Criminal Justice Services, Education, Social Services, Economic Development, Agriculture and Markets, Housing and Community Renewal, General Services, Labor, Environmental Conservation, Mental Health, Parks, Recreation and Historic Preservation, Correctional Services and Children and Family Services, the President of the NYS Energy Research and Development Authority, the Superintendents of State Police, Insurance, Banking, the Secretary of State, the State Fire Administrator, the Chair of the Public Service Commission, the Adjutant General, the Directors of the Offices within the Division of Homeland Security and Emergency Services, the Office for Technology, and the Office of Victim Services, the Chairs of the Thruway Authority, the Metropolitan Transportation Authority, the Port Authority of New York and New Jersey, the chief professional officer of the state coordinating chapter of the American Red Cross and three additional members, to be appointed by the Governor, two of whom shall be chief executives.

Article 2-B Section 21 also establishes meeting requirements and most importantly the “powers and responsibilities” of the Commission (DPC), including the following:

.....The Commission, on call of the chairperson, shall meet at least twice each year and at such other times as may be necessary. The agenda and meeting place of all regular meetings shall be made available to the public in advance of such meetings and all such meetings shall be open to the public. The commission shall establish quorum requirements and other rules and procedures regarding conduct of its meetings and other affairs. Commissioner of the Division of Homeland Security and Emergency Services shall serve as chair of the Commission

3. The Commission shall have the following powers and responsibilities:

a. study all aspects of man-made or natural disaster prevention, response and recovery;

b. request and obtain from any state or local officer or agency any information necessary to the Commission for the exercise of its responsibilities;

c. as appropriate, revise a state comprehensive emergency management plan. The Commission shall report all revisions to such plan by March thirty-first of each year to the Governor, the legislature and the Chief Judge of the State, unless a current version of the plan is available to the public on the website of the Division of Homeland Security and Emergency Services. In preparing such plans, the Commission shall consult with federal and local officials, emergency service organizations including both volunteer and commercial emergency response organizations, and the public as it deems appropriate .

d. prepare, keep current and distribute to chief executives and others an inventory of programs directly relevant to prevention, minimization of damage, readiness, operations during disasters, and recovery following disasters;

e. direct state disaster operations and coordinate state disaster operations with local disaster operations following the declaration of a state disaster emergency;

f. unless it deems it unnecessary, create, following the declaration of a state disaster emergency, a temporary organization in the disaster area to provide for integration and coordination of efforts among the various federal, state, municipal, and private agencies involved. The Commission, upon a finding that a municipality is unable to manage local disaster operations, may, with the approval of the governor, direct the temporary organization to assume direction of the local disaster operations of such municipality, for a specified period of time, and in such cases such temporary organization shall assume direction of such local disaster operations, subject to the supervision of the Commission. In such event, such temporary organization may utilize such municipality's local resources, provided, however, that the state shall not be liable for any expenses incurred in using such municipality's resources.

g. assist in the coordination of federal recovery efforts and coordinate recovery assistance by state and private agencies.

h. provide for periodic briefings, drills, exercises or other means to assure that all state personnel with direct responsibilities in the event of a disaster are fully familiar with response and recovery plans and the manner in which they shall carry out their responsibilities, and coordinate with federal, local or other state personnel. Such activities may take place on a regional or county basis, and local and federal participation shall be invited and encouraged.

i. submit to the Governor and the legislature by March thirty-first of each year an annual report which shall include but need not be limited to:

(1) a summary of Commission and state agency activities for the year and plans for the ensuing year with respect to the duties and responsibilities of the commission;

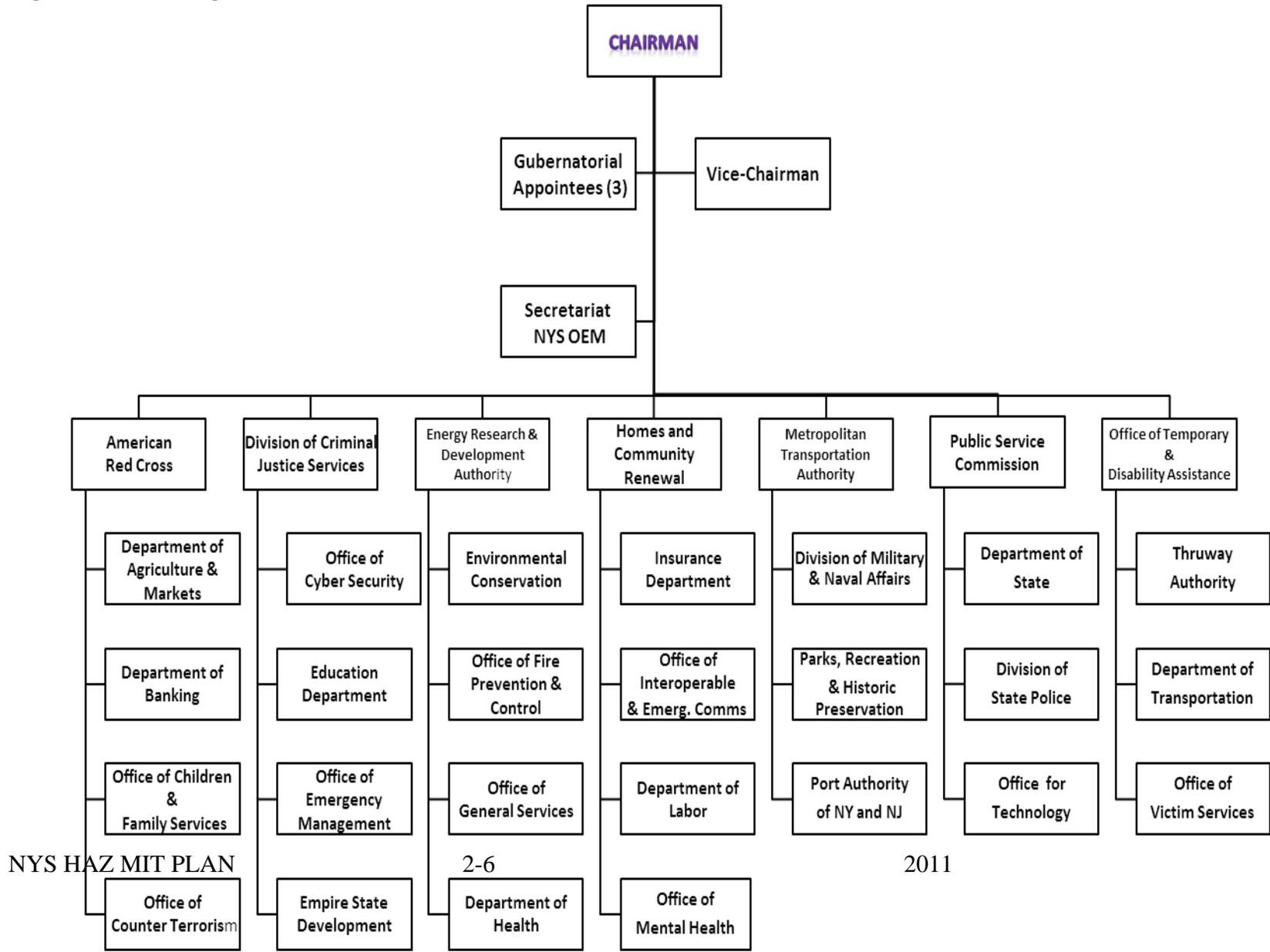
(2) recommendations on ways to improve state and local capability to prevent, prepare for, respond to and recover from disasters;

(3) the status of the state and local plans for disaster preparedness and response, including the name of any locality which has failed or refused to develop and implement its own disaster preparedness plan and program.

Article 2-B also includes provisions for planning activity, and pre- and post-disaster hazard management; in particular, several sections are pertinent to the DMA 2000 planning requirements and other criteria. These include Article 2-B Sections 22 & 23 State/Local Disaster Preparedness Plans, and Sections 28-a Post Disaster Recovery Planning.

Figure 2-1 presents the DPC organizational chart which identifies the member agencies. Among the responsibilities of the DPC are the preparation of State emergency response and recovery plans; disaster prevention plans; directing State disaster operations and coordinating those with Local government operations; and coordinating with Federal agencies, with other State agencies and private organizations for response and recovery

Figure 2-1 DPC Organization Chart



2.1.2 – Information Gathering Process

The initial Plan Update “kick-off” meet was held with all relevant State and Regional agencies on April 14, 2010. All participants were sent packets in advance of the meeting and were asked to review and come prepared to make necessary changes to the vision, goal and objective statements made in the previous Plan. They were also asked to review and update individual agency progress assessment reports on previous Plan goals and objectives, and to begin to develop and identify additional hazard mitigation goals and objectives that their Agencies would strive to meet over the next three year Plan cycle. A listing of the participants and a summary of this meeting can be found in **Table 2-1 Planning Participants**.

The Plan Update Team also worked with personnel from other sections of NYSOEM, representatives of member agencies of the New York State Disaster Preparedness Commission (DPC), as well as other State, Local, and Regional agencies. A summary of all collaborative contacts can be found in **Table 2-2 Summary of Plan Development Collaboration**.

In addition, the existing 2008 approved Plan was posted on the NYSOEM website and comments from the Public and Local Jurisdictions were sought as the plan update was undertaken. A User’s Survey was also conducted via an on-line survey service known as Zoomerang. The survey document and a summary of the results can be found in **Table 2.3 Summary of 2010 User Survey Results**. Subsequent drafts of the plan will also be posted on the NYSOEM website and public comment invited.

As described previously, the information gathering portion of the planning process was a labor intensive and time-consuming effort. The Plan Update Team conducted extensive research into the State agencies, Regional authorities and other stake holders in order to gather information about various State agencies or entities. In addition, each stakeholder was given a questionnaire designed to solicit feedback on the effectiveness of the current plan and to have the agencies make recommendations about the items which should be included in the updated plan. The focus of these efforts was the Vulnerability/Hazard Profile and the Mitigation Strategy Sections of the plan. The following chart provides a detailed list of the plan participants that provided feedback and information for the update of the NYS plan.

Table 2-1

Planning Participants
State Agencies
• NYS Agriculture and Markets (NYSDAM)
• NYS Banking Department
• NYS Bridge Authority
• NYS Canal Corporation
• NYS Office of Cyber Security (OCS)

• NYS Department of Environmental Conservation (DEC)
• NYS Department of Housing and Community Renewal (DHCR)
• New York State Department of Health (DOH)
• New York Department of State (DOS)
• NYS Department of Transportation (DOT)
• NYS Division of Criminal Justice Services (DCJS)
• NYS Division of Military & Naval Affairs (DMNA)
• NYS Education Department / NYS Geological Survey
• NYS Office of Emergency Management (NYSOEM)
• NYS Empire State Development Corporation (EDC)
• NYS Energy Research and Development Authority (NYSERDA)
• State of New York Metropolitan Transportation Agency (MTA)
• NYS Office of General Services (OGS)
• NYS Office of Homeland Security (OHS)
• NYS Office of Mental Health (OMH)
• NYS Office of Parks, Recreation and Historic Preservation (OPRHP)
• NYS Office for Technology (OFT)
• NYS Office of Temporary & Disability Assistance (OTDA)
• NYS Police (NYSP)
• NYS Public Service Commission (PSC)
• NYS Thruway Authority
• Port Authority of NY and NJ (PANYNJ)
• NYS Office of Fire Prevention (OFPC)
• NYS Department of Labor (DOL)
• State University of NY (SUNY Central)
Local Municipalities, Local departments, and Non-Governmental Organizations
• American Red Cross (ARC)
• Delaware River Basin Commission (DRBC)
• Genesee Finger Lakes Regional Planning Council (G/FLRPC)
• Hudson River-Black River Regulating District
• NYC Department of Environmental Protection (DEP)
• NYS Emergency Management Association (NYSEMA)
• Susquehanna River Basin Commission (SRBC)
Federal Agencies
• Federal Emergency Management Agency (FEMA)
• U.S. Army Corps of Engineers (USACE)
• U.S. Geological Survey (USGS)

Table 2-2

Summary of Plan Development Collaboration		
Date	Action	Participants/Topic
4/29/2008	Hazard Mitigation Committee Meeting	Attendees: NYSOEM: Bob Olazagasti, Fred Nuffer, Dan O'Brien, John Fishbein, CSCIC: Tim Ruhren, DOS: Barry Pendergrass, DOT: Rob Limoges, DEC: Bill Nechamen, OGS: Rad Anderson Topic: Organized the Committee to have a forum on plan development focused on improving the 2008 NYS Haz Mit Plan. Reviewed and discussed the current plan format and options for improving the document and expanding its use.
6/17/2008	Hazard Mitigation Committee Meeting	Attendees: NYSOEM: Fred Nuffer, Dan O'Brien, Rick Lord, John Fishbein, DOS: Barry Pendergrass, DOT: Rob Limoges, DEC: Bill Nechamen, OGS: Rad Anderson, CSCIC: Tim Ruhren, NYSEMA: Peter Alberti Topic: Distributed copies of the NYS Plan asked members to review after the meeting and look for any fatal flaws and provide feedback. Also discussed opportunities for distribution of the plan and target audiences.
11/30/2009	NYSOEM Plan Update Meeting	Attendees: NYSOEM: Greg Brunelle, Dan O'Brien, Fred Nuffer, Rick Lord, John Fishbein Topics: Discussed the current status of the State's COOP/COG initiative and if there is any chance for collaboration with the NYS Haz Mit Plan. Determined that individuals would develop a process to collect, organize and evaluate certain data.
12/9/2009	NYSOEM Plan Update Meeting	Attendees: Fred Nuffer, Dan O'Brien, John Fishbein Topic: Individually reviewed the 2008 State Plan and documented where revisions were and were not necessary. Had the meeting to look at our individual assessments and discuss which data should be kept, revised, and/or archived.
12/9/2009	NYSOEM Plan Update Meeting	Attendees: Fred Nuffer, Rick Lord, John Fishbein Topic: Discussed resources available for the update process, provided a brief description on how the update process is envisioned, and discussed the option of a survey of end users to see how the plan could be improved.

1/4/2010	Telephone Conf.	Participants; Angela M. Christie and Dr. Kate White (Cold Regions Research and Engineering Laboratory) and Fred Nuffer Topic: Request for updated information from CRREL data base on NYS ice jams since 2007.
4/14/2010	HMP Update Kick-off Meeting	Attendees: Fred Nuffer, Rick Lord, Dan O'Brien, John Fishbein, and 32 additional representatives from various State Agencies, Authorities, Regional Planning entities and other partnering organizations, including: MTA, NYSOTDA, STERPDB, PAOEM, NYSEMA, CNYRPDB, NYSDOL, NYS Bridge Authority, NYS OFPL, NYS Education Depart., Chemung Co., NYSDHCR, NYSOHS, NYS Troopers, NYS Ag.&Markets, DRBC, NYSDEC, NYSDMNA, NYS OPRHP, NYS DOT, NYSERDA, NYSDOS, NYSCSCIC, NYSBD, NYSPSC, NYSDCJS, NYS Thruway, American Red Cross. Topic: Establish schedule; update Vision/goal and objectives statement, update status of previously planned mitigation actions, identify opportunities for additional/new planned mitigation actions
6/2/2010	NYSOEM Plan Update Meeting	Attendees: Fred Nuffer, Rick Lord, Dan O'Brien, John Fishbein Topic: Discussed risk assessment updates, finalization of the Visions, Goals and Objectives, Discussed Earthquake to Multi Hazard Facility review program.
6/16/2010	NYSOEM Plan Update Meeting	Attendees: Fred Nuffer, John Fishbein Topic: Discussed plan update section responsibilities, Flood Profile nearly complete, hazard profile update assignments discussed. Section review of information and responsibility. Formatting discussion with a new approach for new vs. old mitigation actions and table style.
6/30/2010	NYSOEM Plan Update Meeting	Attendees: Fred Nuffer, Rick Lord, John Fishbein Topic: Will let FEMA know of our intention to move the plan to an electronic linkable document. Large portions of maps will be moved out of a hard copy format. We need IT help to support the web based version. The update process is currently behind schedule. Agency commitments are due in July, responses thus far have been limited, and we will be following up with them on an individual basis.
7/13/2010	NYSOEM Plan Update Meeting	Attendees: Fred Nuffer, Rick Lord, John Fishbein Topic: The update process is behind schedule and the internal draft deadline is coming into question. Fred has been making progress on his designated sections. The sections assigned to others have been delayed. Additionally there are sections awaiting the specified review criteria on the internal drive. There is a discussion of bringing on additional help and Rick will pursue this option.

TABLE 2.3
SUMMARY OF 2010 USER SURVEY RESULTS

In the Spring of 2010 the New York State Office of Emergency Management (NYSOEM) designed a survey tool to measure the usefulness and usability of the 2008 NYS Multi-Hazard Mitigation Plan (the Plan). This tool was placed on a commercial survey web site and a link was created on the NYSOEM home page. (Please see the inset box below and click on the underlined phrase for a link to the survey and the questions users were asked.) In addition, a wide list of potential users, including NYSOEM Regional Directors, State Agency Liaisons, County Emergency Managers, County Mitigation Coordinators, County Planners, Regional Planning Organizations, Metropolitan Planning Organizations, and Soil and Water Conservation Districts were notified directly that the NYSOEM was seeking their comment and input on the usefulness of the Plan and ideas on how the Plan could be improved. This is a summary of the results and a brief analysis of those results from the survey.

Results and Analysis	#	%
1. Total number of survey responses received through November 19, 2010	24	100
2. Of the total responses, the number of local government respondents.	12	50
3. Of the total responses, the number of State Agency respondents.	9	38
4. Of the total responses, the number of private consultant respondents.	2	8
5. Of the total responses, the number of institution respondents.	1	4
6. Number of respondents who were previously aware of the State Multi-hazard Mitigation Plan (the Plan).	16	67
7. The number of local government respondents that had occasion to review or use the Plan. (once or more than once)	8	67
8. The number of State Agency respondents that had occasion to review or use the Plan. (once or more than once)	4	44
9. Which hazard profiles did respondents find most valuable (rating of 3 or better – 19 respondents)		
Flooding	9	47
Winter Storm	9	47

	Earthquake	5	26
	Hurricane	6	32
	Hail Storm	9	47
	Landslide	5	26
	Tornado	8	42
	Drought	7	37
	Subsidence	2	11
	Wildfire	4	21
	Extreme Heat	1	5
10. Why were these hazard profiles judged to be useful?			
RESPONSE: Many local government respondents found the ability to compare occurrences in other communities useful in developing their own local Hazard Mitigation Plans.			
11. What area in the State Hazard Mitigation Plan should be improved/expanded upon?			
RESPONSE: A number of respondents suggested that more detail information on how to use HAZUS be incorporated into the update.			

The number of responses to the survey was limited, so it is inappropriate to make broad, sweeping conclusions about the information that was received. How the survey tool was worded or the SOEM's method of soliciting input may have contributed to the low response numbers.

However, the lack of response may also be a gauge as to how often the Plan is really referenced and used as a decision-making tool. While having a FEMA-approved Plan is a requirement (whether it's the State Plan or a local plan) in order to remain eligible for the full suite of FEMA disaster funding, having Plans that are not meaningful to communities and agencies doesn't move New York State forward toward its overall mitigation goals. FEMA, NYSOEM, and our local partners must seek ways to integrate Mitigation Planning into the broader State and local planning processes, rather than as an add-on or a separate process.

Hazard Mitigation Plan Update

The next update to the [New York State Standard Multi-Hazard Mitigation Plan](#) must be submitted for approval to the Federal Emergency Management Agency (FEMA) by November 2010. Your comments and suggestions for improving the plan are important to us. Please visit SEMO's [Hazard Mitigation Plan Update Survey](#) and answer questions online.

Addressing Data Deficiencies

During the course of Plan development every effort was made to use the best readily available data. Unfortunately, the information that is needed or desirable for certain analyses may not exist, and in some cases the data that is available remains deficient from the standpoint of accuracy and completeness. NYSOEM and its partner agencies have been working to fill the gaps in data and will continue to address these issues during the next planning periods.

The information used to calculate development trends was the U.S. Census Bureau's 2009 Population Estimates, which provide population change rates by municipality and are an indicator of where development has occurred.

The Plan development included integration of the National Flood Insurance Program (NFIP) information into GIS, in addition to an analysis of the numbers, type and value of real property within a 100-year floodplain. This information is summarized in this Plan by municipality and is displayed in map and spreadsheet format. This analysis was limited to 976 communities in 35 counties due to the absence of digital floodplain maps and real property parcel data on a Statewide basis. It is hoped that this analysis will be expanded to additional municipalities as more data becomes available through FEMA's Flood Map Modernization Program and the New York State Office of Real Property System.

A major data deficiency is the limited consistent information New York State maintains on its own building assets needed for risk assessment. Currently, the primary database of state buildings is the NYS Office of General Service (OGS) Fixed Asset Inventory, which contains over 17,000 structure records. While this database contains useful information such as building value and square footage, the information may not be consistent or updated, or it may lack basic structural information needed to make general assessments of vulnerability to earthquakes, wind and flooding. In addition, refining the accuracy of the geographic coordinates will enable better GIS screening of these structures with regard to proximity to floodplains, the presence of soils that amplify earthquake shaking, and other hazardous areas.

During 2009 the New York State Office of Emergency Management (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) continue to fulfill commitments made in the 2008 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 meetings, video conferences and information solicitation from New York State agencies (OGS and the Offices of Counter Terrorism and Cyber Security), FEMA, DHS Science and Technology, the Applied Technology Council, the Multidisciplinary Center for

Earthquake Engineering Research (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 addressed during the first phase include: what is the universe of information the involved agencies would need for their own planning purposes; what data currently exists and what are the data gaps; what data should be collected; can existing data and building photographs supplant the need for on-site inspections; who or what organization would be the most appropriate to collect the data; 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 how can grant monies be leveraged to support the effort given the 17,000+ state-owned structures that are geographically dispersed throughout the State.

The principal element that emerged from the first year planning (FY 2009) is the integration of the RVS methodology with the NYS Office of Fire Prevention and Control (OFPC) ongoing state building inspection program to be implemented in FY 2010. This is a promising prospect with far-reaching potential and implications for data gathering: the OFPC inspection program includes 50 full-time inspectors who currently inspect 17,000 State-owned structures and all public and private colleges for fire code compliance. The plan is to integrate RVS seismic screening as a standard operating procedure of the existing State facility 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 a risk screening for terrorism to include wind, flood and seismic hazards. The experience gained from using ROVER and IRVS during this second phase of the project will be used to scope a future system to 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 inspection system, work will begin in phase 2 to create a master NYS-owned structures database by merging information from the various current and separately maintained agency databases and the new 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 precise GPS coordinates are not available. The master NYS database will be integrated into HAZUS with preliminary loss estimations generated in support of the State Plan's risk assessment requirements.

2.1.3 – Review and Integration of Existing Plans and Documents

Every effort was made to review and incorporate pertinent information into the current Plan from previous State mitigation planning efforts and other mitigation-related plans. Plans that were reviewed as part of the planning process are listed below.

- *FEMA Plan Development Toolkit:*
http://www.fema.gov/about/regions/regionii/toolkit_risk.shtm
- *FEMA Multi-Hazard Mitigation Planning Guidance under the Disaster Mitigation Act of 2000*
- *FEMA FY 2010 and 2011 Hazard Mitigation Assistance (HMA) Unified Guidance*
- *FEMA Urban Fuel Load Reduction in Portland OR February 2006*
- *FEMA Understanding Your Risks how-to-guide*
- *FEMA Developing the Mitigation Plan how-to-guide*
- *FEMA Bringing the Plan to Life how-to-guide*
- *FEMA Guidance on Benefit-Cost Analysis of Hazard Mitigation Projects*
- *State of California Governor's Office of Emergency Services Hazard Mitigation Web Portal, <http://hazardmitigation.oes.ca.gov/>*
- *The State of Florida Hazard Mitigation Plan*
- *2007 DEC Wildfire Management Plan (Draft)*
- *Public Entity Risk Institute (PERI): All About Presidential Disaster Declarations*
<http://peripresdecusa.org/mainframe.htm>

Other plans reviewed for relevance to the current plan include:

- *Earthquake Risk and Mitigation in the New York, New Jersey, and Connecticut Region, 1999-2003.* Published by the New York City Area Consortium for Earthquake Loss Mitigation
- *The New York State Hazard Mitigation Grant Program (HMGP) Administrative Plan (Admin Plan)*
- *The New York State Comprehensive Emergency Management Plan (CEMP)*
- *Local Hazard Mitigation Plans, especially FEMA-Approved Multiple Hazard Mitigation Plans.* With the requirement that the State plan incorporates local planning conditions, these plans were reviewed for consistency with the basic assumptions of the State Plan with regard to hazards and risk. Many local hazard mitigation plans were reviewed, but the following were most specifically useful in the completion of the 2010 State Plan Update: Albany, Suffolk and Rockland Counties, and New York City (5 boroughs).

- *Local Waterfront Revitalization Plans (LWRPs): Available LWRPs, in particular, the coastal policies that communities are required to adhere to and the proposed waterfront development strategies were reviewed and relevance to the State Plan assessed and incorporated, as appropriate.* Please see **Table 2-5** at the end of Section 2.3.2 for a list of current approved LWRPs
- *Coastal Zone Management Plan (CZMP) “New York State Coastal Management Program Policies (CMP)”:* The NYS Coastal Management Program of the Division of Coastal Resources, NYS Department of State, was reviewed and found to include policies that reflect the State’s hazard mitigation philosophy and initiatives, including community resiliency. In particular, the Program includes policies that control development and address flooding and erosion hazards. The mitigation benefits of the CMP program and policies will be promoted through its integration into this State Hazard Mitigation Plan.
- *State-wide Outdoor Comprehensive Recreation Plan (SCORP): Developed by the NYS Office of Parks Recreation and Historic Preservation (OPRHP), this plan is prepared periodically to provide statewide policy direction and to fulfill the agency’s recreation and preservation mandate. The SCORP process has evolved well beyond its original purpose of satisfying eligibility requirements for continued funding under the Land and Water Conservation Fund (LWCF). This Plan leads to mitigation through programs and initiatives such as *The Conserving Open Space Plan* and the Hudson River Valley Greenway. Open Space Protection is one way the Statewide Comprehensive Outdoor Recreation Plan complements State mitigation objectives.*
- *Governor’s Coastal Erosion Task Force – Final Report, Volume Two, Long-Term Strategy:* This report recommends long-term approaches to cope with problems in the Long Island region related to coastal flooding and erosion from the Nor’easter of December 1992 and other similar storms.
- *New York State Department of Health 2008 Pandemic Influenza Plan, drafted in June 2008:* This comprehensive plan for the prevention, detection and response to a pandemic flu outbreak has been updated based on comments received from the 2006 Plan. It can be viewed at <http://www.nyhealth.gov/diseases/communicable/influenza/pandemic/plan/>.
- *Climate Change Adaptation in NYC: Building a Risk Management Response:* This is a comprehensive report with recommendations and was produced as part of the PlaNYC by the NYC Panel on Climate Change and printed in the NY Academy of Sciences.
- *NYS Legislative Sea Level Rise Task Force Draft Report:* This is a comprehensive draft report (final due out 12/31/10) with recommendations concerning sea level rise adaptation strategies for coastal areas in New York State, including NYC Harbor, Long

Island Atlantic coast, Great South Bay, Peconic Bay, Long Island Sound and Hudson River estuary up to the Federal Dam in Troy, NY.

2.2 – Integration with State Planning Efforts

- *§201.4(b) The mitigation planning process should include coordination with other State agencies, appropriate Federal agencies, interested groups, and be integrated to the extent possible with other ongoing State planning efforts as well as other FEMA mitigation program initiatives*

2.2.1 – Incorporation of Mitigation into Other State Planning Efforts

The State's hazard mitigation efforts fall under a wide variety of programs and constitute many initiatives at the Local, Regional, State, and Federal levels, some well-coordinated and others more loosely coordinated. The State Hazard Mitigation Plan acts as an umbrella document that identifies the various risks and assesses the mitigation actions that are being implemented to reduce these risks. Through the Plan, efforts of dissimilar groups with similar objectives may be coordinated. The following sections describe some of these efforts.

2.3 – State Agencies

While the following sections describe in detail only a few State agencies that perform mitigation activities on a routine basis, it is important to remember that many State agencies contribute to statewide mitigation efforts. The State has a substantial role in ensuring mitigation measures of various types are implemented at the Local level, and that role can be divided into three broad functional levels of application:

- **Indirect Influence**: Activities which will be carried out exclusively by the private sector or Local government. These may be promoted or encouraged by State efforts such as vulnerability reports, education activity, and similar indirect means.
- **Direct Influence**: Activities which will generally be carried out by private interests or Local government, but are directly influenced by State activity. These could be Local assistance funding, standard setting, preparation of model statutes, codes and all similar activities where State authority encourages or enables Local actions that support mitigation.
- **Implementation**: Activities carried out by the State directly as program functions of the State agencies and authorities. These would include such things as State-conducted training, State regulatory programs, design and construction of State facilities, and the creation of new or amended (State) law.

State agencies will give thought and consideration to the impacts on disaster prevention and mitigation, which may be included in, or result from, any and all actions of the agency. Agency attention to disaster prevention and mitigation activities is a highly desirable goal for all State agencies, which include such considerations in their actions wherever they are reasonable and compatible with their program purposes and goals. Actions that would have a negative impact on the prevention or mitigation of disasters will be avoided or modified to preclude the negative impact. A survey of State agencies has identified activities that State agencies conduct that contribute to disaster prevention/mitigation and indicates they may be conducted by direction of law, rule, or agency discretion, as part of agency budgets, or as normal functions of the individual agency's rules, programs, or projects. Agencies will continue to perform the activities identified and described. Additions to agency activity listings should occur as the relationship of various State programs to disaster prevention/mitigation is more fully realized, as programs develop and, most particularly, as State programs are added or amended under the influence of increased State interest in comprehensive emergency management and mitigation as a life-saving and cost-saving philosophy.

Compliance/Enforcement Programs

Disasters can be prevented or mitigated by the regulatory functions of State agencies. For example: the inspection of food prevents consumption of unwholesome food; the inspection of buildings, bridges, and dams prevents potential collapse, breach or death, or provides warning. State regulatory oversight is a key element in preventing and mitigating disasters.

Education/Public Awareness

State agencies provide information to the public that allows them to take actions to reduce the effects of disasters. Examples include the use of webpages, Facebook, Twitter and YouTube to provide emergency information. Experience has shown that a well-informed public contributes significantly in many ways and can be relied upon to play a major role in disaster prevention/mitigation. Awareness activities can result in private individuals and/or agencies taking actions that reduce their impact from disasters.

Equipment and Supplies

State agencies have equipment and supplies that can be used to respond to disasters. The identification, acquisition, and deployment of such equipment are preventive and mitigative activities. Radio systems, emergency generators, monitoring equipment, sensors, detection equipment and vehicles are examples of activities that are frequently employed in the emergency services components of hazard mitigation.

Zoning/Land Use Programs

When the history of disasters in New York State is reviewed, it is apparent that they often occur repetitively in the same locations. Therefore, wise land use management can be used to help avoid or reduce the impact of disasters. Because New York is a home rule state and the regulation of land development has been delegated to Local governments, this Plan and other

mitigation efforts encourage municipalities to use land use regulatory authority to support mitigation efforts.

Monitor Potential Disasters

State agencies have the responsibility to monitor potential disaster conditions, to identify specific sites, and to anticipate situations that could develop into a disaster. A reporting and warning system, utilizing field staff, relays the information through State Agency Liaisons to NYSOEM, which then notifies the chair of the DPC. In times of increased threat, this reporting/warning system is expanded in order to provide the DPC with the best possible information.

Plans/Planning

Planning and the dissemination of plans allow all participants to operate based upon the same guidelines thus reducing confusion. In addition to State agencies preparing plans for response and mitigation covering their own activities, their plans can support and encourage the development of Local plans.

Prevention/Mitigation Projects

State agency projects, policies and programs that influence Local government activities will also prevent or reduce the effects of disasters. Facilities can be designed, constructed, and maintained to withstand the effects of severe weather and other hazards. Policies can be implemented, and emphasis can be adjusted, to influence and advocate prevention/mitigation activities at the State and Local level. State agency programs can be carried out that will have a direct effect on preventing or reducing disasters.

Resource Management

The management and mobilization of available resources can influence how severely disasters will affect a community. When allocating resources, State agencies should consider the impact on a communities' ability to cope with disasters. When Local resources are clearly unable to handle situations, mutual assistance, if properly planned for, will mitigate disaster effects.

Technical Assistance

Many State agencies have specialized capabilities (i.e. engineering, scientific) which can be provided for guidance and support to communities faced with disasters. Due to the cost of these services and capabilities, localities cannot always provide or achieve them independently. Providing State agency technical assistance to communities can prevent/mitigate disasters.

Training

Disaster plans require trained personnel to implement their policies and procedures. State agencies can provide this training for emergency workers, public officials, and employees.

Risk/Vulnerability Assessment

When the records of past disasters are compiled and studied, the evaluation may predict future vulnerability and frequency of such events. Some State agencies have a formalized program of reporting information relating to specific types of disasters. This information can be used to determine the threat or likelihood of disasters.

2.3.1 – NYS Division of Homeland Security & Emergency Services (DHSES) - NYS Office of Emergency Management (NYSOEM) www.dhSES.ny.gov

Mission: The mission of the New York State Office of Emergency Management (NYSOEM) is to protect the lives and property of the citizens of New York State from threats posed by natural or man-made events. To fulfill this mission, NYSOEM coordinates emergency management services with other federal and State agencies to support county and local governments and routinely assists local government, volunteer organizations, and private industry through a variety of emergency management programs. These programs involve hazard identification, loss prevention, planning, training, operational response to emergencies, technical support, and disaster recovery assistance.

During disasters, NYSOEM coordinates the emergency response of all State agencies to ensure that the most appropriate resources are dispatched to impacted areas. Since 1954, New York has received 53 federal emergency or disaster declarations, 35 of which occurred since 1995.

NYSOEM's legal foundations are in the Federal Civil Defense Act of 1950 and the New York State Defense Emergency Act of 1951. Article 2-B of the New York State Executive Law, enacted in 1978, created the New York State Disaster Preparedness Commission (DPC) and shifted emphasis from civil defense to all-hazards preparedness.

Administrative and program support are provided by NYSOEM to the DPC, which functions as the Governor's policy management group for the State's emergency management programs.

- [Training](#)
- [Exercises](#)
- [Planning](#)
- [Mitigation](#)
- [Stockpile](#)
- [Recovery](#)
- [SERC](#)
- [Emergency Alert System](#)
- [Radiological Preparedness](#)

2.3.2 - NYS Department of State (DOS) www.dos.state.ny.us

Mission: The Department of State (DOS) defends the public's safety, protects and develops a sustainable environment, strengthens local communities, and serves the business community.

Through the Office of Local Government Services, individuals can obtain information and assistance about programs and policies affecting their communities. From implementing the State's building code to developing waterfront redevelopment plans or training local government officials, much of the work of the DOS is done in partnership with local governments. The Office of Local Government consists of the Division of Coastal Resources and Waterfront Revitalization, the Division of Code Enforcement and Administration, the Division of Community Services, and the Office of Regional Affairs. Citizens, planners and elected officials can access important program information, publications, and training information online, 24 hours a day, seven days a week, and without charge.

The Division of Coastal Resources and Waterfront Revitalization nyswaterfronts.com/index.asp

The Division of Coastal Resources and Waterfront Revitalization (DCRWR) works with communities throughout New York State to help them make the most of what their waterfronts have to offer. The Division's website is designed to provide readily accessible information and share lessons learned and successful techniques. Videos and guidebooks are currently available to educate the public about waterfront revitalization, re-using abandoned buildings, watershed planning and making communities more resilient to coastal storms. The DCRWR encourages and provides assistance to Local governments for the development of Local Waterfront Revitalization Plans (LWRP). Please see **Table 2-5** at the end of Section 2.3.2 for a list of current approved LWRPs and **Table 2-6** for a list of Coastal water bodies and designated inland waterways.

The Division of Code Enforcement and Administration [Codes of New York State](#)

The New York State Uniform Fire Prevention and Building Code Act contains minimum standards that must be met for all construction that occurs within communities in New York State. The Code contains mitigation-related standards, which include the following:

- Flood-resistant construction;
- Earthquake- and wind-resistant construction;
- Protection from wind-borne debris in hurricane-prone regions;
- Structural design from severe structural loading conditions, such as roof snow loads.

The Division of Local Government (DLG) www.dos.state.ny.us/lgss

The Division of Local Government (DLG) provides training and technical assistance to local governments and community organizations throughout the State that helps local officials solve problems involving basic powers and duties, public works, municipal organization, planning, land use and regulatory controls, and community development. One of the goals of the Division is to serve as a one-stop-shop for New York local governments.

The Division of Community Services [DCS] www.dos.state.ny.us/dcs

The Division of Community Services [DCS] administers the Community Services Block Grant [CSBG] program in New York State. CSBG is a federal program created to ameliorate the causes of poverty in communities by providing federal anti-poverty funding to a statewide

network of community action agencies [CAAs], community action programs [CAPs], and migrant and seasonal farmworker organizations, as designated by federal laws. The New York State network is comprised of 52 CSBG grantees serving all 62 counties which provide a range of services to meet the needs of low-income New Yorkers. Funding is also provided to 4 Indian Tribes/Tribal organizations, for a total of 56 entities.

The CSBG program purposes are to provide assistance to states and local communities working through a network of CAAs and other neighborhood organizations for reduction of poverty, revitalization of low-income communities, and empowerment of low-income families and individuals in rural and urban areas to become fully self-sufficient.

Table 2-5
Local Waterfront Revitalization Plans in New York State
LWRP Status Totals (August, 2010) - Coastal Management Program, DOS

Number of Draft Plans Prepared Statewide	Approved Plans State Inland Area	Approved Plans Federal Coastal Area
190+	12	66
Counties with Approved Plans	Number of Plans - State	Number of Plans - Federal
Westchester		9
Niagara	1	5
Suffolk		8
Monroe	2	5
Wayne		1
Dutchess		4
Erie		6
Jefferson		4
Rensselaer		3
Ulster		4
Rockland		4
Broome	1	
Essex	2	2
Franklin	1	1
Saratoga	2	
Washington	1	
Oswego		1
St. Lawrence		3
Albany		2
Greene		1
Montgomery	1	
New York		1
Orange		1
Orleans		1
Sullivan	1	

Source: Coastal Management Program, NYS Department of State

Table 2-6 identifies those waterways and water bodies whose contiguity makes the Municipalities eligible for Environmental Protection Fund Grants for Local Waterfront Revitalization Programs and related projects.

**Table 2-6
List of Coastal Water Bodies and Designated Inland Waterways**

COASTAL WATER BODIES			
Arthur Kill Atlantic Ocean East River Harlem River Hudson River (south of federal dam at Troy)		Kill von Kull Lake Ontario Lake Erie Long Island Sound Niagara River St. Lawrence River	
DESIGNATED INLAND WATERWAYS			
Ausable River Big Tupper Lake Black Lake Black River Boquet River Canandaigua Lake Cayuga Lake Chautauqua Lake Chemung River Conesus Lake Cranberry Lake	Delaware River Genesee River Grasse River Great Sacandaga Lake Honeoye Lake Hudson River (north of federal dam at Troy) Indian Lake Indian River Keuka Lake	Lake Champlain Lake George Long Lake Mohawk River Oneida Lake Onondaga Lake Oswegatchie River Otisco Lake Otsego Lake Owasco Lake Raquette Lake Raquette River	Sacandaga Lake Salmon River Saranac River Saratoga Lake Schroon Lake Seneca Lake Skaneateles Lake State Canal System Susquehanna River Tioughnioga River Upper Saranac Lake

Source: NYS DOS Division of Coastal Resources. NOTE: Coastal water bodies and designated inland waterways are defined in Executive Law, Article 42, Section 911.

2.3.3 - NYS Division of Homeland Security & Emergency Services (DHSES) - Office of Fire Prevention & Control (OFPC): www.dos.state.ny.us/fire/firewww.html

The DHSES Office of Fire Prevention and Control (OFPC) trains over 40,000 career and volunteer firefighters and other emergency responders annually at the [NYS Academy of Fire Science](#) in Montour Falls and in satellite locations throughout the State. [Courses](#) include all aspects of fire suppression, fire prevention, arson investigation, technical rescue, instructor and

officer development, hazardous materials and emergency response to terrorism. OFPC also implements the [statewide minimum training standards](#) for firefighters.

OFPC provides routine and emergency assistance to localities involved in fire investigations, hazardous materials leaks and spills, technical rescues, management of large scale or complex incidents and in the development of mutual aid programs. The Office implements the State Fire Mobilization and Mutual Aid Plan and the [Emergency Services Revolving Loan Program](#).

OFPC conducts over 16,000 fire and life safety inspections annually in all college facilities statewide, state office buildings and other properties. OFPC also participates in the International Code Council (ICC) code development process and conducts fire safety education efforts through fire departments, fire service organizations, state and local agencies and community groups. OFPC collects, compiles and disseminates information relating to fire and arson prevention and control; operates the State [Information Management System](#), and is responsible for enforcing low ignition [cigarette standards](#).

OFPC is organized into six [Bureaus](#): [Academy of Fire Science](#), [Arson](#), [Fire Prevention](#), [Fire Services](#), [Hazardous Materials](#) and [Special Services](#). For information on OFPC's Executives, Chiefs, and Deputy Chiefs, please view the office's [Organizational Chart](#).

2.3.4 – NYS Department of Environmental Conservation (DEC):

www.dec.ny.gov/index.html

Mission: To conserve, improve and protect New York's natural resources and environment and to prevent, abate and control water, land and air pollution, in order to enhance the health, safety and welfare of the people of the State and their overall economic and social well-being.

To protect people against loss of life and property from flood and dam failure, DEC regulates and inspects dams, coordinates planning, development, operation and maintenance of structural flood protection works along coastlines and rivers, enforces the coastal erosion program, and provides floodplain management technical support to local governments and the public in communities across the state.

The NYSDEC has staff and manages programs that regulate human activities impacted by natural disaster events and are designed to help mitigate these events (see the partial list of program areas below). For additional information on the NYSDEC programs please go to the Department's main website at www.dec.ny.gov.

Dams & Flood Protection: www.dec.ny.gov/lands/311.html

To protect people against loss of life and property from flood and dam failure, DEC is entrusted with the regulatory authority over dams. DEC also provides technical support to local governments and owners of dams, and promotes floodplain management in communities across

the state. The Bureau of Flood Protection and Dam Safety cooperates with federal, State, regional, and local partners to protect lives and property from floods, coastal erosion and dam failures through floodplain management and both structural and non-structural means. It also provides support for information technology needs in the Division.

Dams

Dams are man-made barriers constructed across a channel to impound water. Dams are usually constructed with timber, rock, concrete, earth, steel or a combination of these materials. The Department conducts technical reviews of proposed dam construction or modification, performs periodic safety inspection of dams, and works with communities on emergency preparedness. To prevent costly failures, DEC oversees dam maintenance, operation and repair, and monitors remedial work for compliance with dam safety criteria.

- **NOTE: before developing your local hazard mitigation plan, it is recommended that you contact the Regional DEC Division of Water office to identify the most current status of emergency action plan development, inspections, maintenance status, etc. Figure 2-5 identifies the county location of the 384 high hazard dams within New York State.**

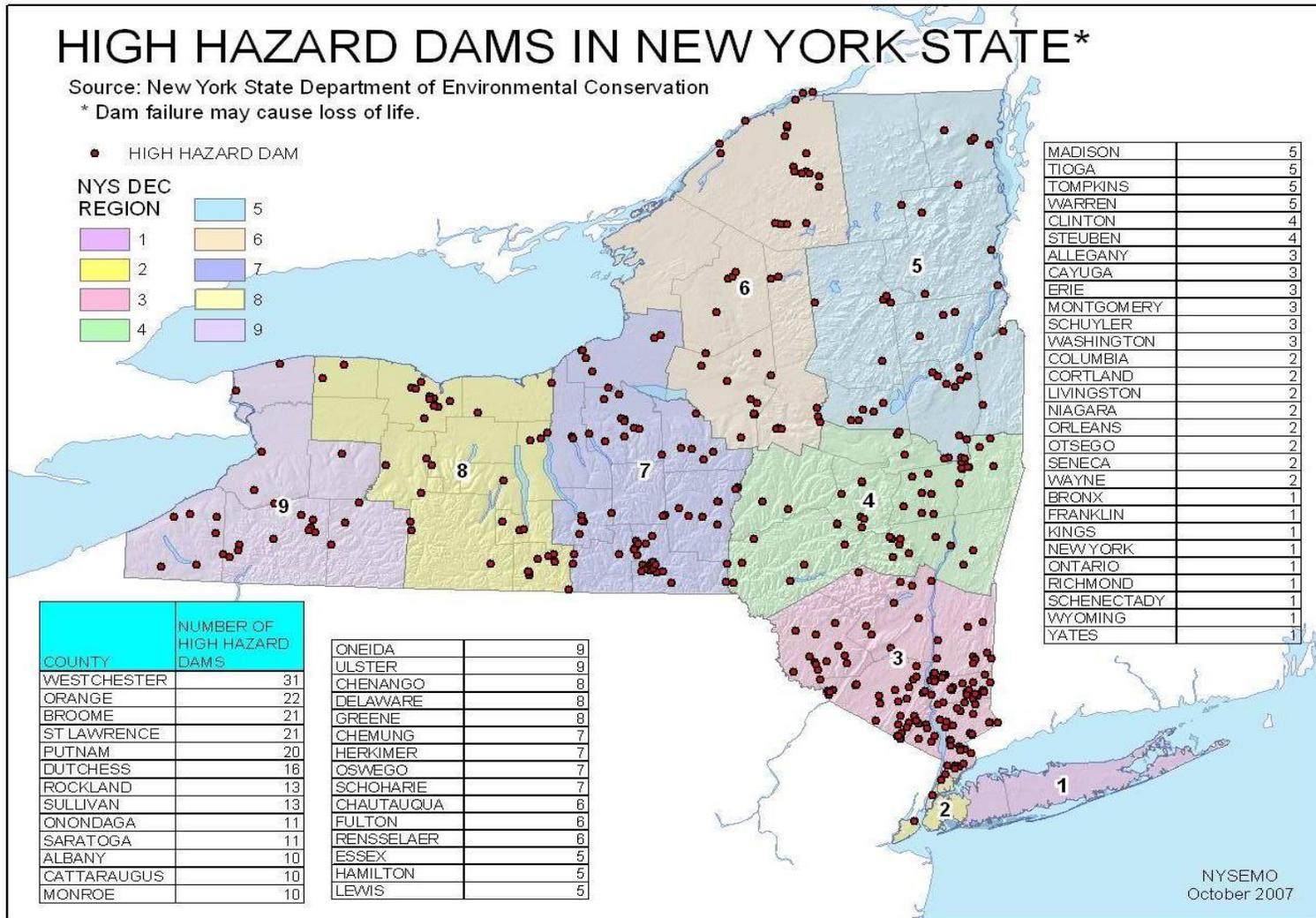
Flood Protection and Floodplain Management

The Department works with communities throughout the State in finding ways to reduce or protect against physical and property damage caused by flooding. The DEC works on structural flood control projects to prevent flood waters from damaging communities, but the Department also helps communities establish sustainable floodplain management programs to mitigate the potential for flooding. The DEC works with communities participating in the National Flood Insurance Program (NFIP) to administer local regulations and building standards for flood damage prevention.

Coastal Erosion

Coastal erosion is an endless redistribution process that moves sand along the coast continually changing beaches, dunes and bluffs. Human activities, such as construction, boating and recreation can accelerate the erosion of sandy beaches, dunes and bluffs. To mitigate the impacts of coastal erosion, the DEC works with many communities on the Great Lakes, Long Island Sound, the Atlantic Ocean and many larger rivers throughout the State to administer the Coastal Zone Management Act (CZMA).

Figure 2-2 High Hazard Dams in New York State



Environmental Permits: www.dec.ny.gov/permits/363.html

The Division of Environmental Permits administers the NYSDEC Permit Management System, which provides a framework for consistent implementation of the Uniform Procedures Act and the State Environmental Quality Review Act for more than a dozen of the agency's different major environmental permit program. The Permit Management System provides for integrated environmental analysis and problem-solving by an interdisciplinary team of Department experts in the review of applications for permits for construction activities affecting natural resources, i.e., wetlands, waterways, coastal areas and water supplies, and for operational activities discharging contaminants to air and water, and for the handling, transport and disposal of wastes.

Forest Protection and Fire Management: www.dec.ny.gov/lands/309.html

(See also Wildfire Mitigation at www.dec.ny.gov/regulations/42369.html.)

The following is a list of activities which the Division of Forest Protection, New York's Forest Ranger Force, will accomplish in order to mitigate wildfire throughout the State.

- Maintain 106 (full staffing) fully-trained and equipped NYS Forest Rangers who are nationally qualified as wildland firefighters, many who are qualified to advanced operational and management positions.
- Suppress 150-350 wildfires each year as conditions and incidents occur. When necessary, assist rural fire departments extinguish 7,500 fires per year. Rangers and fire departments will continue to respond to, control and extinguish wildfires to the best of their collective ability.
- Enforce New York's open burning and forest fire prevention laws and regulations as a basic and effective means of wildfire prevention in New York.
- Conduct 15 prescribed fires per year as a means of fuel reduction at critical wildland-urban interface locations.
- Conduct 100 fire prevention events each year to a total audience of approximately 100,000 people.
- Teach 100 wildfire and ICS courses to 3,000 firefighters each year.
- Provide 400 USFS grants of \$1,000 to rural fire departments to improve their wildfire fighting capabilities.
- Provide seasonal wildfire predictive services, fire danger ratings and firefighter safety bulletins in accordance to current weather conditions.
- Coordinate wildfire predictive services with all five National Weather Service offices that cover New York to improve public messaging and critical wildfire weather notifications.
- Maintain nationally-qualified Fire Behavior Specialists (FBAN) and fire danger rating expertise within the Division.
- Maintain a nationally-qualified Type 2 Incident Management Team (IMT) within the Forest Ranger ranks to manage major occurrences of wildfire.

- Maintain active membership in the Northeastern Forest Fire Protection Commission (the Compact) with the goal of coordinating the sharing of resources between the seven US states and five Canadian provinces that comprise the Compact.
- Develop or maintain cooperative agreements to support wildfire suppression and prevention with The Nature Conservancy (TNC), U.S. Forest Service, State Office of Emergency Management (SOEM), Division of Military and Naval Affairs (DMNA), State Police Aviation and National Park Service (NPS).
- Generate GIS-based statistical reports of wildfire activity as reported by forest rangers and fire departments to identify ecosystems and communities-at-risk (CAR) to potential destructive wildfires in the wildland-urban interface (WUI). Program activities and priorities will be modified to reflect assumptions identified by the statistics.
- Support the New York Wildfire and Incident Management Academy by providing instructors, management support and students.
- Manage wildfire equipment at a centralized location (Saratoga Fire Cache) and mobilize standard equipment in trailers that are identical in size and inventory. This allows rapid assignment of adequate equipment to fire scenes in a manner that is common to any incident.
- Continually train and use state police helicopters for all-risk incidents as a means of maintaining aviation skills necessary for wildfire containment.
- Support FireWise prevention and mitigation techniques in communities at risk as a means of teaching residents and community leaders how to prevent catastrophic loss of property or lives due to severe wildfire.

2.3.5 – NYS Office of Parks, Recreation, and Historic Preservation (OPRHP): www.nysparks.com

Mission: The mission of the Office of Parks, Recreation and Historic Preservation (OPRHP) is to provide safe and enjoyable recreational and interpretive opportunities for all New York State residents and visitors and to be responsible stewards of the State’s valuable natural, historic and cultural resources. Core legislated Agency program areas include:

Natural and Historic Resource Stewardship

OPRHP is required by statute to provide for the stewardship of the natural, ecological, historic, cultural and recreational resources within the State Park, Recreation and Historic Sites system.

Implementing the National Historic Preservation Act

OPRHP’s Historic Preservation Field Services Bureau serves as the State Historic Preservation Office (SHPO) and helps communities identify, evaluate, preserve, and revitalize their historic, archeological, and cultural resources. The SHPO administers programs authorized by the National Historic Preservation Act of 1966 and the parallel New York State Historic

Preservation Act of 1980, including: Statewide Historic Resources Survey; New York State and National Registers of Historic Places; Federal tax credit for rehabilitating of income-producing properties, Certified Local Government (CLG) Program, the State historic preservation grants program, environmental reviews for State and Federal agency undertakings, and a wide range of technical and design assistance. The SHPO also assists FEMA by expediting its effect findings for NYSOEM's Public Assistance (PA) projects.

Snowmobile Use and Operation

OPRHP is charged with controlling and supervising the use of snowmobiles within the State and promoting the safe and proper use of snowmobiles for recreation and commerce while minimizing detrimental effects on the environment.

Jurisdiction Over Navigable Waterways

OPRHP has jurisdiction over navigation on the navigable waters of the State where not otherwise regulated, including the placement of aids to navigation, inspection of motorized vessels carrying passengers for hire on "sole state waters," and the licensing of operators of commercial vessels.

The agency is also charged with implementing a comprehensive educational program designed to advance boating safety, including the training of youthful boat operators and an adult education program for the safe operation of vessels including personal watercraft and specialty prop-craft. OPRHP is also responsible for developing and conducting marine law enforcement training and administers grant programs with funds provided by collection of state vessel registration fees.

New York State Park Police

In addition to the core programs outlined above, OPRHP maintains its own police force that has jurisdiction throughout New York State.

Statewide/Regional Hazard Response

Each State Park Facility is responsible for developing and maintaining an Emergency Action Plan (EAP) to identify probable emergencies and corresponding response plans. Emergencies are coordinated locally at each facility with the oversight and coordination by each of the 11 State Park Regions, with overall monitoring and support for Regional or State-wide emergencies provided by the Albany Office. Additionally, OPRHP participates in the statewide emergency response and coordination efforts of the State Office of Emergency Management (SOEM), including the Transportation Infrastructure Group (TIG). The TIG is a collection of agencies established for their debris removal and road-clearing capabilities, and includes the Department of Transportation (DOT), the New York State Thruway Authority (NYSTA), the State Police, OPRHP, and other agencies as needed.

Finally, the Statewide Comprehensive Outdoor Recreation Plan (SCORP) compliments State mitigation objectives through its open space acquisition and protection components.

2.3.6 – NYS Bridge Authority (NYSBA): www.nysba.state.ny.us/Index.html

The New York State Bridge Authority is a public benefit corporation created in 1932 with a mission *“to maintain and operate the safe vehicle crossings over the Hudson River entrusted to its jurisdiction for the economic and social benefit of the people of the State of New York.”* The Authority is responsible for maintaining crossings at the Rip Van Winkle Bridge between Hudson and Catskill, the Mid-Hudson Bridge between Poughkeepsie and Highland, the Kingston-Rhinecliff Bridge, the dual Newburgh-Beacon spans; and the Bear Mountain Bridge.

The Authority believes its mandate imposes a responsibility to provide reliable, safe and convenient access across the river to all lawful traffic and to achieve that goal within the framework of a sound long-term financial policy. The elements of that policy are:

- A commitment to meet all obligations to the bondholders in the full letter and spirit of the Authority’s General Revenue Bond Resolution and the covenants made therein;
- A vigorous, integrated program of inspection, maintenance, repair and rehabilitation to insure the structural integrity of its facilities and the safety of its patrons;
- Control of expenditures to the extent consistent with prudent stewardship and responsible administration; and
- The lowest possible toll rates which enable the Authority to meet its obligations and responsibilities and provide for adequate financial reserves.

2.3.7 - NYS Department of Agriculture and Markets (AGMKT):

www.agmkt.state.ny.us

The mission of the New York State Department of Agriculture and Markets (AGMKT) is set forth in Section 16 of the Agriculture and Markets Law (AML), which provides that the Department shall have the power to execute and carry into effect the laws of New York State and the rules of the Department relative to agriculture, horticulture, farm, fruit and dairy products, aquaculture, and the production, transportation, storage, marketing and distribution of food, as well as the laws of the State relative to weights and measures. The Department carries out this mission through several Divisions.

Ag Protection & Development Services: www.agmkt.state.ny.us/AP/APHome.html

Protects and strengthens the viability of New York’s food and agricultural industry by overseeing numerous economic development and marketing responsibilities.

Animal Industry: www.agmkt.state.ny.us/AI/AIHome.html

Controls and eradicates infectious and contagious livestock and poultry diseases in New York State, and implements food safety measures at the production level.

Food Laboratory: www.agmkt.state.ny.us/FL/FLHome.html

Provides extensive and essential consumer protection services by testing foods for purity, wholesomeness and accurate labeling.

Food Safety & Inspection: www.agmkt.state.ny.us/FS/FSHome.html

Ensures a safe and properly labeled food supply and contributes to the orderly marketing of food and farm products in New York State.

Milk Control and Dairy Services: www.agmkt.state.ny.us/DI/DIHome.html

Regulates the State's dairy industry, protecting the public health and welfare while promoting an economic marketing environment that allows all segments of the dairy industry to prosper.

Plant Industry: www.agmkt.state.ny.us/PI/PIHome.html

Protects the State from the introduction of invasive plant species and enhances the marketability of New York agricultural products within the State and for export purposes.

Soil and Water Conservation Committee: www.agmkt.state.ny.us/SoilWater/index.html

Protects New York's water resources from nonpoint source of pollution through technical assistance, grant administration and programs and policies that guide and assist county Soil and Water Conservation Districts.

Weights & Measures Bureau: www.agmkt.state.ny.us/WM/WMHome.html

Assures measurement accuracy and uniformity in commerce throughout New York State in accordance with Article 16 of the Agriculture and Markets Law.

2.3.8 – NYS Homes and Community Renewal (NYSHCR): www.nyshcr.org

The New York State Homes and Community Renewal consists of all the State's major housing and community renewal agencies: Affordable Housing Corporation (AHC), Division of Housing and Community Renewal (DHCR), Housing Finance Agency (HFA), State of New York Mortgage Agency (SONYMA), the SONYMA Mortgage Insurance Fund (MIF), and the State of New York Municipal Bond Bank Agency (MBBA). HCR organizes these programs in a logical manner into four groups:

- **Finance and Development:** aligns all programs that fund the development of affordable housing, including Low Income Housing Tax Credit programs, tax exempt and taxable bond finance programs, single family loan and Capital awards programs.

- **Housing Preservation:** includes all the programs that maintain and enhance the state's portfolio of existing affordable housing. This includes the Office of Rent Administration, the Section 8 program, Asset Management and the Weatherization Assistance Program.
- **Community Renewal:** includes all the programs geared toward community and economic development, job creation and downtown revitalization, including the NYS Community Development Block Grant Program, NY Main Street program, Affordable Housing Corporation, Neighborhood Stabilization Program and the Neighborhood and Rural Preservation programs.
- **Professional Services:** includes all administrative and support services, including Communications, Legal Affairs, Administration, Fair Housing, Policy Development, and Accounting and Treasury. Includes in these functions are oversight and regulation of the State's public and publicly-assisted rental housing, including the rent regulation process for more than one million rent-regulated apartments in New York City and the counties of Albany, Erie, Nassau, Rockland, Schenectady, Rensselaer and Westchester subject to rent laws; and ongoing analysis of the long-term housing needs of the State and the development of appropriate policies.

Statewide/Regional Hazard Response

Through its housing funding programs, DHCR provides financial support to not-for-profit community-based housing corporations to perform housing and community renewal activities Statewide during times of disasters. These corporations, known as Preservation Companies, provide assistance including housing vacancy referral, housing repair programs, homebuyer counseling, and other support related to disaster relief.

DHCR is also a member of the Human Services Steering Committee which is responsible for the Human Services Annex of the NYS Comprehensive Emergency Management Plan (CEMP Volume 2) and charged with the tasks of preparing and responding to the needs of disaster victims, ranging from sheltering, food, water, and donations. DHCR leads the Long-Term Housing Task Force and is responsible for the corresponding section in the CEMP, which is currently being drafted.

The Greater Catskills Flood Remediation Program: nysdhcr.gov/Programs/FloodRemediation

The agency also manages and oversees the Greater Catskills Flood Remediation Program. In 2008-09 the NYS Housing Trust Fund Corporation (HTFC) was provided \$15 million to offer grants within eligible counties in the Southern Tier and Catskill regions to purchase and raze eligible homes that have been damaged by floods since April 1, 2004 and deemed to be at future risk. Homes purchased would be condemned and the property dedicated for open space, recreational, wetlands, or flood mitigation purposes.

2.3.9 – NYS Department of Transportation (DOT) www.nysdot.gov/about-dot

The Department of Transportation's (DOT) mission is to ensure our customers – those who live, work and travel in New York State – have a safe, efficient, balanced, and environmentally sound transportation system. DOT routinely incorporates hazard mitigation activities into its engineering and operations management activities. Some of these hazard mitigation activities are highlighted below.

Seismic:

- New bridges are designed for earthquakes with an average return interval of at least 1000 years.
- Designs provide any additional support needed to compensate for any tendency of the foundation soils (classified by type: sands, clays, silts, organic) to lose supporting strength due to seismic vibrations (liquefaction potential).
- Based on the foundation soil type, the additional loads transmitted to the bridge by the seismic vibrations passed through the soils can be determined and also accounted for in the design.
- Designs are based on USGS seismic zone maps (Zone A = least severe; Zone D = most severe). For non-critical bridges, most of New York is in Zone A while a portion is in Zone B. All Zone A bridges are analyzed and designed per the requirements of Zone B.
- Bridge rehabilitation projects include a seismic evaluation of the existing bridge.
- Retrofit actions include: connecting or splicing simple spans together to make them act continuously over piers to reduce the chance of a span falling from a pier during a seismic event; adding concrete shear blocks at bridge bearings to improve lateral resistance; replacing higher rocker-type bearings with lower bearings of a different type; strengthening concrete columns with external steel jackets or fiber reinforced polymer wrapping.

Hydraulics:

- New bridges are designed to accommodate a 50-year flood, i.e., a flood with a 2% chance of occurrence in any given year.
- Stream channels are lined with heavy stone to reduce bank erosion.
- New bridges at stream crossings are founded on sound rock where possible to prevent scour failure of substructure elements (abutments and piers). If excavating to rock is impractical, pile foundations are used to transmit bridge loads through erodible material to bedrock or far enough below calculated scour depths to maintain stability.

Bridge Inspection:

- Inspection is part of hazard mitigation.
- DOT inspects nearly 10,000 bridges per year, both state and non-state. All bridges are inspected at least once every two years as per federal and state mandates.
- Underwater inspections of substructures are done at a maximum interval of five (5) years
- DOT has a proactive training program for bridge inspection personnel (both State and consultant personnel) as part of the annual bridge inspectors' meeting.
- A proactive Flagging program is in place and bridge owners are notified of safety or structural problems (Red = imminent or potentially imminent failure of a critical primary structural component requiring action by bridge owner within a specified timeframe; Yellow = not an imminent hazard).
- All culverts with spans ranging from 5 to 20 feet are inspected at a 1 to 4 year interval depending on their condition

Bridge Safety Assurance

- Proactive effort to identify bridges that are vulnerable to failure due to causes other than condition.
- Almost all bridges have been assessed for hydraulic vulnerability.
- Flood watch program in place to monitor bridges during potential or actual flood events to ensure public safety. Bridges will be closed where unsafe conditions are anticipated.
- Post-flood inspections evaluate bridges that have been exposed to a flood event to ensure safety.
- Individual plans-of-action for scour critical bridges are prepared.
- Update load ratings of most bridges every two years.
- Have bridge vertical clearance and load posting policies.
- Developing post-seismic inspection guidelines to be better prepared in case of an earthquake of high magnitude affecting bridges in the New York State.
- A research project to mitigate number of bridge impacts is well underway.
- Assessed bridges for possible security vulnerability following 9/11 event.
- Have a pro-active training program to train load rating engineers conducting evaluation of bridges (both State and consultant personnel).

Overhead Sign Structures

- Sign structures are designed in accordance with the American Association of State Highway and Transportation Officials (AASHTO) wind maps. Design is for a 50-year wind storm.
- Wind loads are considered in the designs for sign pole and luminaire foundations based on the height and shape of the sign, and gust effects.
- Sign structures are inspected on a 4-year cycle to mitigate hazards associated with them.

Slope Stability Considerations During Design

Natural Slopes

- Examine terrain features relative to planned activity (avoid unsafe slopes when possible).
- Evaluate proximity of slope to existing structures (roads, bridges, houses, utilities).
- Determine the effect of adding (or removing) material loads atop the slope or near toe.
- Design treatments to strengthen the slope for new loads (walls, soil re-enforcement), or repair the slope with berms or flattening.
- Design treatments to transfer the load to deeper soils (piles, stone columns).

Embankment Slopes

- Evaluate strength of underlying soil deposits to support the embankment.
- Design treatment to lessen the amount of settlement that the embankment will cause in the underlying soil deposits.
- Specify engineered fills requiring high grade materials (sands, clays, silts, **no** organic).
- Determine safe side slope geometry for soil type used.
- Specify construction controls (proper lift thickness and compaction).

Cut Slopes

- Examine terrain features relative to planned activity (avoid unsafe slopes when possible).
- Evaluate proximity of slope to existing structures (roads, bridges, houses, utilities).
- Evaluate safe slope angle for the existing soil type present.
- Determine ground water flow characteristics.
- Determine safe side slope geometry for soil type present and groundwater regime.
- Specify construction controls (drainage ditch location and depth).
- Protect slope from erosion (planting, geotextile or protection stone).
- The Field Instrumentation Unit of the Geotechnical Engineering Bureau of the Office of Technical Services actively monitors approximately 100 sites Statewide. Many slopes are stable yet are slowly creeping downhill due to gradual erosion at the bottom or springs breaking out on the slope (during the Spring and Fall).
- Instrumentation is used to detect the magnitude of this creep movement, the rate of movement, and most importantly any acceleration in the rate of movement.
- Instrumentation is also used during construction to monitor sites where soft or weak foundation soils are being loaded by new embankment. The results determine when weak soils have gained enough strength to allow the contractor to safely increase the load (partial height embankment construction), and when major settling of the embankment is done so the road can be paved without experiencing any major settling in the future.

Geotechnical Considerations

- Landslide/ slope stability repair. Stabilizing slopes or repairing landslides are done to fix loss of ground and prevent future movements which could undermine or bury highways.

- Rock slope stability rockfall mitigation. Rock slope assessment, inspection, repair recommendations, and rock catchment systems are applied to prevent rock slope failures and rockfalls from impacting the traveling public.
- Dam safety assurance. Inspection to detect potential problems and repairs to prevent failures and subsequent downstream damages.
- Underground mine collapse. Detection, monitoring, and mitigation of the threat posed by underground mines to prevent a collapse that would undermine our highways.
- Culvert failures. Geophysical and direct sampling methods are used to detect and categorize the threat posed by failing culverts and other pipes. Grouting and other mitigation techniques are used to counter these threats.
- Bridge foundation scour. Analyses of soil and water conditions are done to evaluate the threat posed by riverine and tidal scour. Deep foundations, sheet piling, stone fill, and other countermeasures are used to prevent foundation failures.
- Wall inventory, assessment, and repair. Walls are assessed for potential problems and repair strategies developed. Certain wall types are inventoried and regularly assessed, primarily those that have buried structural elements that cannot be easily observed.

Project Design Considerations

- The Department has comprehensive policies and procedures in place so all projects consider all issues. The main guidance can be found in the Department's Project Development Manual and its Highway Design Manual. These manuals document the social, economic, environmental, and engineering requirements that project designs are to consider. The State design standards are based on/follow AASHTO standards.

2.3.10 – NYS Office of General Services (OGS): www.ogs.state.ny.us

The Office of General Services (OGS) manages and leases real property, designs and builds facilities, contracts for goods, services, and technology, and delivers a wide array of support services to State agencies. OGS provides government and non-profit agencies with innovative solutions, integrated service and best value in support of cost-effective operations and responsible public stewardship.

Hazard Mitigation Actions

To increase awareness of vulnerable NYS critical facilities, OGS completed a Comprehensive Emergency Management Plan (CEMP) in 2005, a Business Continuity Plan (BCP) in 2009, and a Pandemic Influenza Plan (PIP) in 2010. OGS has conducted several exercises and drills to test the effectiveness of the various plans. OGS has established the Security and Emergency Management Unit to administer the plans, security projects, and all aspects of the agency's emergency management programs. Other emergency management-related initiatives being undertaken by OGS include the implementation of a training program for select agencies and

their staff on Incident Command System/National Incident Management System (ICS/NIMS) and the promotion of new building designs and retrofitting to protect critical facilities.

OGS has also created several response programs to aid in the event of an emergency, most notably: the Emergency Standby Services Contract, which provides a myriad of goods and services such as water, food, generators, lighting equipment, engineering and design services and other emergency-related items; the Emergency Bid List, which provides information regarding contractors who are interested in bidding for emergency services work (construction, HVAC, electrical, plumbing, and other services) plus their geographical area; and the Food Distribution & Warehousing Program, which facilitates the distribution and accessibility of USDA-approved food commodities in emergency events.

2.3.11 – NYS Thruway Authority (NYSTA): www.thruway.ny.gov/index.shtml

The mission of the NYS Thruway Authority is to provide motorists in New York and beyond with a safe, well-maintained superhighway system -- the longest toll road in the United States. The Authority's efforts reflect a commitment to customer service, safety and the environment.

2.3.14 – NY Metropolitan Transit Authority (MTA): <http://mta.info/>

The MTA is a public-benefit corporation chartered by the New York State Legislature in 1965. Through its operating agencies, the MTA coordinates the planning and general policy direction of most of the public transportation serving the New York City metropolitan region, including portions of Connecticut and New Jersey. Its mission is to preserve and enhance the quality of life and economic health of the region it serves through the cost-efficient provision of safe, on-time, reliable and clean transportation services.

2.3.15 – Port Authority of New York & New Jersey (NY/NJ PA): www.panynj.gov/port-authority-ny-nj.html

The Port Authority of New York and New Jersey (PANYNJ) operates many of the busiest and most important transportation links in the New York metropolitan region, including: John F. Kennedy International, Newark Liberty International, LaGuardia, Stewart International and Teterboro Airports; AirTrain JFK and AirTrain Newark; the George Washington Bridge and Bus Station; the Lincoln and Holland Tunnels; the three bridges between Staten Island and New Jersey; the PATH (Port Authority Trans-Hudson) rapid-transit system; Port Newark; the Elizabeth-Port Authority Marine Terminal; the Howland Hook Marine Terminal on Staten Island; the Brooklyn Piers/Red Hook Container Terminal; and Port Authority Bus Terminal in Midtown Manhattan. The agency also owns the 16-acre World Trade Center site in Manhattan.

2.4 - Coordination with Other Agencies

- *§201.4(b) The mitigation planning process should include coordination with other State agencies, appropriate Federal agencies, interested groups, and be integrated to the extent possible with other ongoing State planning efforts as well as other FEMA mitigation program initiatives*
- *§201.4(c)(3)(i) The mitigation strategy shall include a description of State goals to the guide the selection of activities to mitigate and reduce potential losses.*

The NYSOEM Mitigation Section has been active in developing working partnerships with Federal, State, and Local agencies and organizations. The meetings of the DPC and the regular mitigation conferences and summits are one method NYSOEM uses to perform outreach to other agencies across the State and encourage the incorporation of mitigation into daily activities.

The current Comprehensive State Hazard Mitigation Program that exists in New York State began in earnest in 1995, when the DPC Member Agencies held a Hazard Mitigation Policy Summit. The Summit was organized by NYSOEM and was attended by representatives of Federal, State, and Local government, private organizations and professional associations. The goal of the 1995 Summit was to build upon past achievements and coordinate overall hazard mitigation efforts. Mitigation continues to play an important role in the DPC, which holds semi-annual meetings and has a yearly conference where statewide mitigation efforts are discussed. In addition to efforts by the DPC, NYSOEM sponsors a Long Island/New York City Conference held once a year at which statewide mitigation activities are discussed. The Mitigation Section of NYSOEM holds meetings with numerous jurisdictions and agencies to further the goals of hazard mitigation through hazard mitigation planning and the implementation of hazard mitigation projects, both before and after disasters.

In addition to NYSOEM's administration of new and expanded programs, the agency coordinates with and disseminates information about programs administered by other agencies (e.g. NFIP by DEC, Coastal Program and State Building Codes by DOS). NYSOEM will continue to work with the various agencies and organizations across the State to explore methods of integrating mitigation into the daily planning and project activities of those entities.

2.5 – Federal Agencies

The Federal role in prevention/mitigation has been primarily filled by FEMA in the form of financial, education, planning, and other advisory assistance programs and a flood insurance program. Many Federal regulatory programs such as transportation and environmental regulations have components that assist in disaster prevention or mitigation. Construction of

dams, levees, and other flood control works are also among the Federal functions that help to prevent or mitigate disasters.

The State will continue to work closely with the Federal government in all aspects of emergency management and will continue its general role of intermediary between Federal and Local governments and the private sector.

2.5.1 – Federal Emergency Management Agency (FEMA): www.fema.gov/

The National Flood Insurance Program (NFIP): www.fema.gov/hazard/flood/info.shtm

The National Flood Insurance Program (NFIP) is designed to help communities obtain information regarding flood hazard areas, to act to prevent flood disasters at the local level, and to provide low cost flood insurance for buildings (and their contents) that are located in flood prone areas. In exchange for eligibility to participate in the program, local communities are required to adopt a local floodplain management ordinance which regulates development within the floodplain by requiring appropriate flood proofing and elevation of the lowest finished floor to the level of the projected 100-year flood. Special regulations apply to coastal high hazard areas, which are defined as coastal areas subject to high velocity flood waters caused by tidal surges or hurricane wave wash. The major requirements are as follows:

- New construction or substantial improvements in Special Flood Hazard Areas (100-year floodplains) must have the lowest floor elevated to or above the 100-year (base flood) flood elevation. (New York State sets a higher standard: for 1 & 2 family residential structures, the requirement is 2 feet above base flood elevation.)
- No development is allowed within the regulatory floodway, which is a portion of the floodplain that carries high velocity riverine floodwaters, unless an engineering analysis proves that the development would not increase base flood elevations.
- New construction, or substantial improvements in coastal high hazard areas, must be:
 1. Located land ward of the mean high tide line;
 2. Elevated, with the lowest structural member of the lowest finished floor above the 100-year flood level, and with open space or breakaway walls under the that floor to permit waves to pass freely;
 3. Securely anchored.

State-owned and financed facilities are subject to special regulations to insure that public investment in flood hazard areas is carefully analyzed and appropriate steps are taken to reduce the risk of damage.

The National Flood Insurance Reform Act of 1994 set the framework for a more effective program. New compliance and mitigation elements, especially the Flood Mitigation Assistance (FMA) Program, were established to significantly reduce future losses from floods by funding the creation of FMA plans and projects that reduce or eliminate the long-term risk of flood damage to buildings, manufactured homes, and other structures insured under the NFIP. Another provision of the 1994 Act is the Increased Cost of Compliance (ICC) provisions, which provide additional funding above and beyond the traditional insurance policy payout to assist with bringing substantially damaged structures up to the current code. In lieu of repairing damaged structures, property owners can elect to use their ICC payments to support the non-federal share of a FEMA buyout match requirement if they choose to sell the damaged structures to an eligible applicant willing to convert the land to open space.

The Flood Insurance Reform Act of 2004 created a new focus on repetitively damaged structures. A new program would provide owners of repetitively damaged structures funding to elevate, demolish or relocate the structure, and those who refuse mitigation offers would see their insurance rates increase incrementally until they were paying full actuarial rates for insurance. About 30 percent of all flood insurance payments are for repetitively damaged properties. Removing such properties from risk zones would significantly reduce flood damages in New York. NYSOEM is working with FEMA to help implement the program.

Community Rating System Program of the NFIP

The Community Rating System (CRS) is a voluntary program for NFIP-participating communities. The National Flood Insurance Reform Act of 1994 codified the CRS in the NFIP. The CRS has been developed to encourage and provide incentives in the form of flood insurance premium discounts for communities to go beyond the minimum floodplain management requirements and develop extra measures to provide protection from flooding. Flood insurance premium rates are adjusted to reflect the reduced flood risk resulting from community activities that meet the three goals of the CRS: to reduce flood losses, to facilitate accurate insurance rating, and to promote the awareness of flood insurance. For a community to be eligible, the community must be in full compliance with the NFIP.

All communities begin with a Class 10 rating (which provides no discount). There are 10 CRS classes: Class 1 requires the most credit points and gives the greatest premium discount; Class 10 identifies a community that does not apply for the CRS or does not obtain a minimum number of credit points and receives no discount. There are 18 activities recognized as measures for eliminating exposure to floods and credit points are assigned to each. The 18 activities are organized under four main categories: Public Information, Mapping and Regulation, Flood Damage Reduction, and Flood Preparedness. Once a community applies to the appropriate FEMA region for the CRS program and its implementation is verified, FEMA sets the CRS classification based upon the credit points, and that determines the premium discount for policyholders. Premium discounts ranging from 5 percent to a maximum of 45 percent will be applied to every policy written in a community as recognition of the floodplain management

activities instituted. **Table 2-7 - Community Rating System Participants** shows New York State participating communities. For up to date CRS status information go to the FEMA NFIP CRS web site at the following link, www.fema.gov/nfip/crs.shtm, and for more information on the CRS program go to the web site at the following link, training.fema.gov/EMIWeb/CRS/.

**Table 2-7
NFIP - Community Rating System (CRS) Participants**

CRS#	Community	County	Current Class
360226	Amherst, Town of	Erie	8
360147	Ashland, Town of	Chemung	9
360988	Bayville, Village of	Nassau	8
360148	Big Flats, Town of	Chemung	8
360149	Chemung, Town of	Chemung	9
360772	Corning, City of	Steuben	9
360463	East Rockaway, Village of	Nassau	9
360150	Elmira, City of	Chemung	8
360151	Elmira, Town of	Chemung	9
360774	Erwin, Town of	Steuben	8
360464	Freeport, Village of	Nassau	7
360417	Greece, Town of	Monroe	9
360153	Horseheads, Town of	Chemung	9
360154	Horseheads, Village of	Chemung	9
360308	Ilion, Village of	Herkimer	9
360047	Johnson City, Village	Broome	9
360247	Lackawanna, City of	Erie	9
360476	Lawrence, Village of	Nassau	8
365338	Long Beach, City of	Nassau	8
360118	Moravia, Village of	Cayuga	8
360506	Niagara Falls, City of	Erie	8
360801	Northport, Village of	Suffolk	10
360667	Oneonta, City of	Otsego	8
360932	Scarsdale, Village of	Westchester	8
365342	Southampton, Town of	Suffolk	8
360156	Southport, Town of	Chemung	9
360595	Syracuse, City of	Onondaga	8
360056	Union, Town of	Broome	8
360157	Wellsburg, Village of	Chemung	9

Hazard Mitigation Grant Program

Section 404 of the Stafford Act provides for the Hazard Mitigation Grant Program (HMGP) and under current regulations, HMGP funds are awarded to States that experience a Major Disaster. The amount awarded is limited to a maximum of 15% of total FEMA payments for Individual Assistance (IA) and Public Assistance (PA) programs made within the first 12 months after the Presidential Declaration. (Under the new DMA 2004 regulations, States with an approved Enhanced Mitigation Plan can receive up to 20% of total FEMA payments for Individual Assistance and Public Assistance.) New York State currently has a Standard Multi-Hazard Mitigation Plan and therefore receives the 15% figure.

Approved hazard mitigation measures are generally funded on a 75 Federal/25% non-Federal cost share basis as provided for in the Stafford Act. While the State assumes ½ of the non-Federal share (12.5%) for section 406 mitigation projects carried out at damaged facilities under the PA program, the State does not generally contribute to the 25% non-Federal share of Section 404 mitigation projects implemented through the five FEMA hazard mitigation grant programs. A wide variety of projects have been funded throughout the State with HMGP funds. The types of HMGP projects funded in the State will be detailed in **Section 10**.

Please refer to www.fema.gov/news/disasters_state.fema?id=36 for complete information about all disaster and emergency declarations in New York State.

The Federal Hurricane Preparedness Program (HPP)

As one of the agencies supporting efforts toward a national hurricane program, FEMA is concerned with reducing the impacts of hurricanes and coastal storms along coastal areas of the United States and reducing the subsequent losses. FEMA has expanded its National Hurricane Program to provide financial and technical assistance to State and Local governments to support their efforts to mitigate the damaging effects of hurricanes. This component, the State Hurricane Program, includes the State Assistance Program and the Local Grant Award Program. The State Hurricane Program is authorized under the Stafford Act, and rules for implementing the program are found in 44 CFR. NYSOEM is the coordinating agency for the program in New York State.

The National Earthquake Hazards Reduction Program (NEHRP)

The National Earthquake Hazards Reduction Act of 1977, P.L. 95-124, requires hazard reduction measures be implemented to reduce the risks to life and property from earthquakes. FEMA, the U.S. Geological Survey (USGS) and the National Science Foundation (NSF) administer NEHRP. The NEHRP provides a variety of earthquake hazard mitigation assistance projects.

National Mitigation Strategy

At the first Biennial National Mitigation Conference in December 1995, FEMA's then-Associate Director for Mitigation Richard T. Moore unveiled the National Mitigation Strategy. It was noted in the document that the strategy was "developed to provide a conceptual framework to reduce...losses." These losses include lives, personal property, real property, and immeasurable

psychological impact and social dislocation. The quantifiable costs have run in the billions of dollars. The mitigation strategy document also noted that “the foundation of the strategy is to strengthen partnership among all levels of government and the private sector and to empower all Americans to fulfill our responsibility for ensuring safer communities.” It sets forth major initiatives in areas of hazard identification and risk assessment, applied research and technology transfer, public awareness and education, incentives and resources, and leadership and coordination.

The State of New York accepts the premise of the National Mitigation Strategy and has been doing its part to ensure that it is successfully implemented in the State.

2.5.2 - U. S. Department of Interior (DOI): www.doi.gov/

The Coastal Barrier Resources Act (P.L. 97-348)

The Coastal Barrier Resources Act (CBRA) prohibits all Federal activities that could subsidize private shorefront development on U.S. Department of Interior-designated undeveloped barrier island units. Permitted activities that can be funded include open space acquisition, non-structural erosion and flood control projects, fish and wildlife research, and similar activities. In New York State, 12 CBRA units have been designated on Long Island. The CBRA influences development in these areas by insuring that projects no longer receive funding from the Federal government and must be paid for by State and Local governments or private developers.

The Coastal Zone Management Act (P.L. 92-583)

The Coastal Zone Management Act (CZMA) authorized State governments to prepare comprehensive management programs for their coastal areas. Once approved by the U.S. Department of Commerce, the State coastal management programs govern all Federal and State permits and direct development actions within the coastal area. Under Section 303 of the Act, all States which are preparing coastal management programs must include standards to minimize the loss of life and property within hazard areas by controlling poorly sited or designed development, and to minimize disturbance of natural protective features such as dunes. In New York State, the act is implemented by two programs in two different agencies: the DOS Coastal Management Program and the DEC Coastal Erosion Hazard Areas program. Links to the programs are provided in the mission statements provided for these agencies above.

2.5.3– United States Army Corps of Engineers (USACE)

www.nad.usace.army.mil/ (eastern NY) www.lrb.usace.army.mil/ (western NY)

During a typical year, the United States Army Corps of Engineers (USACE) responds to more than 30 Presidential disaster declarations and numerous State and Local emergencies. Emergency responses usually involve cooperation with other military elements and Federal agencies in support of State and Local efforts. USACE conducts its emergency response

activities under two basic authorities: the Flood Control and Coastal Emergency Act (P.L. 84-99, as amended) and the Stafford Disaster and Emergency Assistance Act (P.L. 93-288, as amended). Under the Stafford Act, the Corps supports FEMA in carrying out the Federal Response Plan, which calls on 26 Federal departments and agencies to provide coordinated disaster relief and recovery operations. Under this plan, the Corps has the lead responsibility for public works and engineering missions.

Shore protection

With a large proportion of the U.S. population living near the sea and lake shores, and an estimated 75% of U.S. vacations being spent at the beach, there has been Federal interest – and a Corps of Engineers mission - in protecting these areas from hurricane and coastal storm damage.

USACE looks for the most economical, environmentally sound, and socially acceptable solutions to shore protection. In some cases, this will involve hard structures – jetties, seawalls, etc. In many other cases, a preferable approach is beach nourishment, the placement of sand along the beach. During storms the sand acts as a buffer and protects the structures behind the beach. Storm waves move the sand offshore, causing the waves to also break further offshore and provide less threat to property. Much of the sand that moves offshore during storms remains in the system and returns to the beaches, carried by the smaller waves prevalent during summer.

USACE shore protection projects are usually cost-shared with the State, the Local jurisdiction where the project is located, or both. In cases where the project involves beach nourishment, the cost-sharing agreement usually calls for periodic re-nourishment, often over a period of 50 years.

Requests for shore protection projects nearly always come from communities where intense development has already taken place. In evaluating project performance, USACE has found that Federal shore protection projects have had no measurable effect on encouraging more development as the Federal Government plays no role in decisions regarding land use along the shore: State and Local authorities make these decisions and manage their shores.

USACE carries out shore protection projects at the request of Local sponsors, as authorized and funded by Congress. Projects are performed only on publicly-accessible beaches, and only after thorough studies have determined a positive cost-to-benefit ratio exists. Although USACE projects provide benefits such as shoreline protection, habitat protection and renewal, and the generation of tax dollars associated with continued recreation, the primary purpose is always the protection of life and property.

Flood Control

USACE also has authorities to address flooding along rivers and streams. In the past and most recently with the widespread flooding in the Catskills in 2005, Congress has funded so called General Investigations (GIs) which allow the Corps to perform flood protection studies for an extensive portion, or an entire, river basin. These investigations identify past and potential future

damages from flooding events and determine potential alternatives to prevent or mitigate these damages. DEC staff from the Bureau of Flood Protection and Dam Safety often participate with Local officials in providing information and developing flood mitigation recommendations for the final GI report that is produced by USACE. If the reports identify potentially cost-effective options for mitigating flood damages, Congress may appropriate funding for planning, design, and construction of specific flood protection projects.

Dam Safety

USACE is a leader in developing engineering criteria for safe dams and conducts an active inspection program of its own facilities. USACE, at the request of the State, can also perform inspections at dams built by Federal, State, and Local agencies and private entities. As an example, after the June 2006 floods New York State asked USACE to assist the DEC Dam Safety Section in inspecting all high hazard dams in the flood impacted areas. Information on dams in NYS can be accessed through the National Inventory of Dams (NID) website at geo.usace.army.mil/pgis/f?p=397:12:3044261958453891.

2.5.4 – Natural Resource Conservation Service (NRCS) www.ny.nrcs.usda.gov/

The Natural Resources Conservation Service (NRCS) provides leadership in a partnership effort to help people conserve, maintain, and improve natural resources and the environment. NRCS puts nearly 70 years of experience to work in helping owners of America's private land to conserve their soil, water, and other natural resources. Local, State, and Federal agencies and policymakers rely on the NRCS expertise and technical assistance, which is based on sound science and suited to a customer's specific needs. Cost share projects and financial incentives are available in some cases. Most work is done with Local partners, such as the County Soil and Water Conservation Services.

Wildfire Prevention and Recovery

NRCS Plant Materials Program conservationists are working on critical issues related to fire and drought. The Emergency Watershed Protection Program helps safeguard lives and property threatened by natural disasters such as wildfires, floods, hurricanes, and tornadoes.

2.6 – Local Agencies

The private citizen and all levels of government have a role in the prevention and mitigation of disasters. It is generally recognized that most prevention/mitigation activity relies on the actions and support of private citizens and Local governments. A review of the activities that can prevent or reduce the effects of the many kinds of disasters in New York State shows that these activities are mostly available to, and best applied by, the private citizen or Local government(s).

A. Local Emergency Planning Program

Article 2-B, NYS Executive Law authorizes the preparation of Local disaster prevention, mitigation and preparedness plans. In addition, localities covered by a State disaster declaration are required to prepare Local recovery and redevelopment plans. The recovery and redevelopment plan must include consideration of reconstruction, removal or relocation of damaged facilities, new or amended land-use regulations and plans for economic recovery. Plans to prevent and minimize the effects of disasters shall include, but not be limited to:

- Identification of potential disasters and disaster sites
- Recommended disaster prevention projects, policies, priorities and programs, with suggested implementation schedules, which outline Federal, State, and Local roles
- Suggested revisions and additions to building and safety codes and zoning and other land use programs
- Such other measures as reasonably can be taken to prevent disasters or mitigate their impact.

B. County Mitigation Coordinators

To promote coordinated Inter-municipal mitigation planning at the Local level, the State strongly encourages the designation of a Mitigation Coordinator in all Counties. Immediately following the FEMA-1095-DR-NY disaster, NYSOEM sought to have a Mitigation Coordinator designated for each County through correspondence from the NYSOEM. To date, all of the State's counties have designated Mitigation Coordinators, and although NYSOEM has not taken full advantage of the program, the agency looks to partner more closely with Mitigation Coordinators to identify gaps, establish priorities and strategies, and develop projects in their communities.

C. Soil & Water Conservation Districts - Soil & Water Conservation Committee (SWCC):

www.nys-soilandwater.org/

The SWCC is responsible for administering the U.S. Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS) programs and funds for technical assistance to New York State's 58 Soil and Water Conservation Districts. In the aftermath of recent disasters, many districts have implemented streambank protection and flood prevention projects and have others on the drawing board, funded. Technical assistance such as surveying, design, layout, and supervision of projects are also provided through the program.

D. Zoning and other Land Use Regulations

While many of the programs cited under the State and Federal Sections above have not always been coordinated with each other, at least with regard to hazard mitigation, this still remains a goal. NYSOEM encourages Local communities to incorporate mitigation standards directly into

zoning and land use ordinances, and proposes that FEMA offer extended terms (e.g., 100 years) to the life of the standard hazard mitigation plan for those jurisdictions that do. New incentives like this would offset the impact of economic development pressures and shortage of funding, which often affects the ability of Local governments to prepare mitigation plans and/or incorporate them into zoning ordinances and project review procedures.

While many of the programs discussed would protect coastal areas, a shortage of personnel and funding has prevented their most effective enforcement. Further, while mitigation-related, they do not generally incorporate hazard mitigation as an explicit or primary goal and fail to capture substantial mitigation benefits which might be obtained with some minor modification of their operating procedures. It is these types of enhancements that NYSOEM seeks to capture through participation in the U.S. Army Corps of Engineers' Silver Jackets program.

The plan will seek to maximize State and Federal programs that provide funding and resources, or that dovetail with current mitigation efforts and programs being used in our State. Current trends at the national level, including FEMA's review of mitigation planning procedures, bode well for effective mitigation planning and project implementation at the State and Local levels.

2.6.1 - Environmental Emergency Services, Inc. (EES): www.highwater.org

Chemung and Steuben Counties, and most recently Schuyler, have joined to found a private nonprofit organization to provide flood protection information and assistance. This is a unique arrangement in New York that was prompted by devastating floods the region experienced in the 1970's. The Southern Tier of New York continues to be highly flood prone due to the steep topography which has caused much development to occur in the valley bottoms. Because it is a mostly rural area, the region's residents have had difficulty accessing information about flood and other extreme weather warnings. EES has attempted to fill the gap in the following ways:

Data Collection System

EES maintains an automated system of rain and stream gauges that sends data by radio to a computer located at a central collection site. This system covers Steuben and Chemung Counties, and now Schuyler County, providing data that was not available during the floods of 1972 and 1975.

Communication System

EES was instrumental in establishing a communication facility at its operations center in the Corning Fire Station. The facility includes emergency management communication networks for both Steuben and Chemung Counties, for both County area/RACES (ham) radios, and the DEC Flood Administrative Radio System. This facility allows the flood warning operations center to monitor and contact whomever necessary to supply the information that they need. With this communication system, EES has improved the capability of emergency management systems for

the entire area and demonstrated a need for cross communication that's been recognized by all the agencies involved in flood management. Through these efforts, Emergency Managers for both Counties can monitor or call directly the NWS, the USACE, the DEC Dam Safety Section, the DEC flood crews and engineers, NYSOEM, and individual rain and stream readers.

Volunteer Recruitment and Training

EES operates its services with an all-volunteer staff and continuously recruits personnel. This group of volunteers is largely separate from the volunteer staff that supports the emergency management offices. In addition, EES provides training to all the volunteers and provides semi-annual exercises in flood emergencies.

Public Education

Since the inception of the flood warning service, a primary goal has been in the area of public education. EES commissioned the acquisition of complete flood stage map sets covering the entire area. The organization also produced a flood awareness brochure that it provided to Municipalities and the public at no cost. The brochure describes the area's flood hazards and provides information as to what actions should be taken in the event of flooding.

Flood Protection Library

EES continues to provide a flood protection library to the Southern Tier Library System that includes books on flood prevention techniques for homeowners, businesses, and the community. EES has also provided flood stage mapping and the national flood insurance rate maps which provide information on whether a prospective buyer will need to purchase flood insurance.

NFIP-Community Rating System

When the Community Rating System (CRS) was initiated in 1990, one objective was to provide benefits to communities that take steps to reduce flood hazards in their borders. EES found it was already providing some of the items that qualify a community for reduced flood insurance rates and by coordinating these efforts with the communities, their residents could receive a direct reduction in their flood insurance premiums. Through these efforts, most of the Municipalities in Chemung County and several in Steuben have participated and to date some have qualified for a reduction of 10% in homeowners flood insurance rates.

Collection System Enhancement

EES has received grant funding to enhance the data collection capabilities of the alert system. Through this enhancement, data on temperature, barometric pressure, relative humidity, wind speed and direction, and rainfall previously unavailable is being captured at 7 sites. This augmented approximately 30 rainfall data sites already operating. Another key enhancement to this grant activity has been to incorporate IP data collection directly to the NWS at national headquarters and the NWS Office in Binghamton, thereby providing information directly to the people trained to recognize and warn of impending severe weather. This is a

significant enhancement providing the meteorologists with a level of weather detection that other areas of the country had previously enjoyed. EES continues to work to enhance weather detection and forecasting in this 3 County region.

Local, State, & Federal Agency Coordination & Cooperation

The need for a cooperative effort to self-help flood protection created the Chemung River Basin Flood Warning Service, now known as EES. The group's original charter was developed with Memoranda of Understanding (MOUs) among Local, State, and Federal agencies as to their respective roles during flood activities and their relationship to the new organization. In addition, a board of directors was established with representation from the Counties, Agencies, Industry, and Municipalities throughout the original two-County region. It is this interrelationship that has resulted in the excellent level of inter-agency cooperation that exists today. Schuyler County has joined EES to form a 3-county operation intended to further enhance the region's coordinated response to flood events.

2.6.2 - Hudson River-Black River Regulating District (HRBRRD)

www.hrbrrd.com/gauges.html

The Hudson River-Black River Regulating District (HRBRRD) was created to reduce flooding in these two major watersheds and to augment river flow during times of drought. The Black River flows from the Adirondacks northwest to Lake Ontario while the Hudson River flows south from the same Adirondack range to the Atlantic. The Black River passes through much of the State's dairy region and small rural towns, while the Hudson flows past numerous cities to New York Harbor. In 1959 the New York State Legislature passed legislation combining the Hudson River Regulating District (founded in 1922) and the Black River Regulating District (founded in 1919), each originally created to regulate their respective watersheds.

The legislation charged the District with regulating the flow of these two rivers "as required by the public welfare including health and safety." Specifically, the District's responsibilities involve reducing floods caused by excess run off, and augmenting river flow at times of drought or other periods when normal river flows are low. Organized as a public benefit corporation, the District was given a broad spectrum of legal powers to accomplish its mission, including the authority to build and operate reservoirs, issue bonds and apportion costs on its beneficiaries to finance construction, maintenance, and operations.

Operations

Management of the District is vested in a Board appointed by the Governor. The Board reports annually to the Department of Environmental Conservation (DEC) and its financial operations are reviewed by the Office of the State Comptroller (OSC). The five-member Board, by law,

must include a minimum of two residents of the Black River area and two from the Hudson River area. The fifth member is selected at large from anywhere in the State. The Board's obligations are to formulate policy for operating the District through rules and regulations; to operate and maintain reservoir facilities, regulate the flow from reservoirs to minimize flooding and maintain a minimum flow to its beneficiaries; operate a surveillance system for precipitation, streamflow, snow depth, and flood conditions; maintain certain specific reservoir levels; pay property taxes; maintain a sound financial status for maintenance and operation procedures including retirement of any bonded indebtedness; and, submit to the DEC an annual report covering operations, personnel, petitions, reservoir conditions, and finances.

Facilities: A Survey

The supply of water, or augmentation of natural low flow, in each river basin reduces or eliminates the occurrence of unsanitary river conditions and provides a base flow or volume of water necessary for the continued operation of industry and business on the river. Conversely, the storage of water during periods of high flow minimizes flooding in each river system. Flood protection provided by reservoirs in the Hudson River watershed can reduce peak river flow by as much as 75%. Flood protection provided by reservoirs in the Black River watershed can reduce peak river flow by as much as 12%. The implementation of this Program is itself pre-disaster and post-disaster mitigation that reduces losses to the citizens and jurisdictions impacted by drought and flood hazards.

If a hazardous condition or event directly related to the statutory obligation of the District is identified or deemed likely to occur, the District adjusts its operations accordingly. This includes complying with requests from other Federal, State, or Local agencies and authorities. In addition, the Regulating District issues press releases, public notices, and posts statements on its website. In general, the Regulating District issues notices concerning rapidly changing reservoir water elevations and potential reservoir ice hazards.

The operating plans established for the District's reservoirs include procedures to reduce flooding through the storage of water and reduce drought conditions by maintaining minimum river flow through the release of water. River conditions in each watershed are continually monitored and weather and river forecasts are used to establish reservoir operating schedules and the timing and quantity of water releases. District staff is available around the clock to respond to changing operating conditions and at least two are available via pager at all times.

At each of its dams the District maintains Emergency Action Plans (EAPs) that establish response procedures in the event of an actual or imminent dam failure, including notification procedures for affected parties, Local and State emergency response agencies, and State and Federal agencies.

2.6.3 - New York City Department of Environmental Protection (NYCDEP)

www.nyc.gov/html/dep/html/watershed_protection/streams.shtml

The New York City Department of Environmental Protection (NYCDEP) has developed a watershed-based plan for stream management and uses this approach in the watersheds that drain into New York City's reservoirs.

A. The Geomorphic Approach to Stream Management

Fluvial geomorphology is the science of river form and function. Stream stability from the geomorphic perspective is defined as a channel that *self* maintains its morphology -- its cross sectional area, its planform geometry, and its slope -- by effectively transporting its water and sediment supply, over time, without aggrading (building its streambed elevation) or degrading (downcutting its streambed elevation). The stable stream channel from the geomorphic perspective is not a static one but one which adjusts its morphology in response to changes in a number of interdependent variables including width, depth, slope, sinuosity, velocity, sediment supply, or streamflow.

Geomorphic stream assessment is the measurement of stream system geometry on a stream reach-by-stream reach basis throughout a sub-watershed; this allows one to classify the reach, to determine if the reach is stable or unstable, and to determine the source of the instability if necessary. Natural channel stability restoration uses hydraulic geometry relationships (width and depth for a given discharge and stream type, for example) derived regionally from naturally stable channels as a blueprint, or template, to redimension unstable channels to a stable form.

Stream reach classification is the geomorphic inventory of stream reaches and is an essential tool for organizing a multi-objective river corridor management strategy that would include flood risk mitigation. By classifying specific stream reaches, reach specific management strategies can be developed that address human land use needs together with the natural stability potential for that reach. For example, differing stream reach types have differing sensitivities to disturbance, streambank erosion potential, recovery potential, and vegetative controlling influence. Additionally, stream reaches can be treated in relation to each other, thereby ensuring that instability at an upstream reach is corrected to prevent undermining a stability restoration project downstream.

Historically, stream projects have generally sought to fulfill a single primary objective from several possibilities: flood hazard mitigation through the over widening and straightening of river reaches to increase the channel's floodwater storage capacity and velocity, thereby reducing depths of inundation on the surrounding floodplain; property and road protection through the hardening of streambanks on a site by site basis; riparian zone enhancement through streamside

plantings; or fisheries habitat enhancement through the installation of check dams or random boulder placement in the channel. In the case of channel-based flood hazard mitigation projects, this has required ongoing gravel removal to maintain the capacity to convey flood flows, unfortunately resulting in a loss of the channel's ability to move its own sediment load at the channel forming flow, and therefore its ability to maintain its own stable dimensions.

With the loss of stable dimensions there is often a loss of the low flow channel critical for aquatic habitat during summer and winter low flows, and the advent of multi-thread channels, reducing flows even further. Gravel accumulation in the mid-channel can create or exacerbate streambank erosion, and associated manipulation of the streambed elevation from gravel removal can rejuvenate head cuts which move streambank erosion upstream. Geomorphically-designed channel flood hazard mitigation projects reduce flood hazard risk by minimizing streambank erosion, preventing adjustments in bed elevation that transfer instability up and down stream, and reduce excess floodwater inundation where gravel removal operations in such channels are behind schedule. They are also self-maintaining and as a result are more cost-effective.

Effective stream management requires an approach that addresses multiple objectives, it is compatible with current stream management practices that meet public and private needs, that is tailored and applicable to each region's hydrology, climate and geologic history, and that provides a common language for the broad array of people who directly or indirectly influence the management of rivers. This broad array of individuals includes town planning board members, highway superintendents, landowners, and Local, County, State, and Federal regulatory agencies. The geomorphic approach to river management can provide a common framework enabling cost effective, long term stewardship of stream corridors by this network of stream managers. A geomorphic approach to stream management can complement more traditional approaches to stream management by creating projects and plans that serve goals of ecosystem restoration in equal measure to human needs of flood risk mitigation, private property protection, and water quality improvement.

NYCDEP through its stream management program is supporting the restudy of nearly 500 miles of streams and their floodplains mapped under the National Flood Insurance Program (NFIP) in the West of Hudson watersheds. The study will provide support to communities undergoing the map revision process.

NYCDEP is also funding efforts through local government partnerships to improve floodplain management, flood hazard mitigation and flood response/recovery efforts. Training efforts to date have included programs leading to the certification of local floodplain managers (CFMs) and training for highway department staff and contractors on post flood stream remediation practices.

Stream management plans have been written, adopted by communities, and are being implemented in the six reservoir basins in the West of Hudson Watershed. The plans include a broad array of floodplain management recommendations which are being implemented locally. These plans and implementation status can be accessed at www.catskillstreams.org.

B. Reservoir Operations

Although all of New York City's water supply reservoirs by nature of their design attenuate peak downstream flows, NYC is committed to being as helpful as it can to down basin needs without putting elevated risk on its water supply.

To help enhance the attenuation the reservoirs already provide and manage river habitats while preserving the primary water supply purpose of the reservoirs, New York City along with the other parties to the 1954 Supreme Court Decree (the states of New York, New Jersey and Delaware and the Commonwealth of Pennsylvania) have implemented the Flexible Flow Management Program (FFMP) for the Delaware River Basin. The FFMP provides a safe reliable supply of drinking water for millions of people, protects the ecological needs of the river and assists with flood mitigation. The program is designed to reduce spilling to help with flood mitigation by making greater releases when storage is high. Conversely, to preserve drinking water supply, lower releases are made when less storage is available.

The NYC Delaware Basin water supply reservoirs were not constructed for flood control and do not contain release works capable of effective flood management operations. However, it should be recognized that the NYC reservoirs do not cause or exacerbate flooding, as some have suggested, they attenuate flooding. Substantial flood mitigation, especially immediately below the dams, is provided by these reservoirs even when they are spilling. A considerable percentage of a storm's runoff is held back behind the dams, reducing the flood peak; the water entering the reservoirs is restricted from spilling out as fast as it rushes in, the water backs up and the downstream peak flows are lessened. Without the NYC reservoirs, regardless of their storage levels, downstream peak flow rates would be considerably higher.

2.6.4 – Genesee/Finger Lakes Regional Planning Council (G/FLRPC)

<http://gflrpc.org/>

The Genesee/Finger Lakes Regional Planning Council (G/FLRPC) was established in 1977 by a joint resolution approved by its eight original member Counties, including Genesee, Livingston, Monroe, Ontario, Orleans, Seneca, Wayne, and Yates. Wyoming County was admitted in 1986. The Council was organized pursuant to Articles 5-G and 12-B of the New York State General Municipal Law. The nine Counties in the Genesee/Finger Lakes Region comprise 4,680 square miles, and have a population of nearly 2 million residents. The voting members of the Council represent participating Counties, the City of Rochester, and

the community at-large. These members include chief elected officials, local legislators, department heads, and key community leaders in the region.

The G/FLRPC is one of ten Regional Planning Councils within the State of New York. The primary functions of G/FLRPC include Local, Regional and Water Resources Planning, Regional Economic Development, and a Data, Technology, and Resource Center. G/FLRPC assists with the development and update of all-hazard mitigation plans. G/FLRPC prepares hazard mitigation plans by combining the ideas and interests of local officials for mitigation projects with standard recommendations for mitigation projects and programs that are based on NYSOEM and FEMA publications and projects. G/FLRPC researches the background of disaster events, investigates the feasibility of proposed mitigation projects, coordinates the involvement of a broad range of State, County, Municipal, and non-profit officials in the planning process, and reaches out to the general public for citizen input into the mitigation planning process.

G/FLRPC staff has assisted five Counties (Wayne, Livingston, Wyoming, Orleans, and Genesee) with the preparation of county-wide all-hazard mitigation plans. In addition, G/FLRPC assisted the Town and Village of Arcade in Wyoming County with the preparation of a joint town/village all-hazard mitigation plan.

2.7 – Inter-State Agreements

2.7.1 - Delaware River Basin Commission (DRBC): www.drbc.net

A. The Delaware River

The Delaware River extends approximately 330 miles from its headwaters at the confluence of the East and West Branches in Hancock, New York to the mouth of the Delaware Bay, where it flows into the Atlantic Ocean. It is the longest undammed river east of the Mississippi and drains 12,800 square miles from portions of New York, Pennsylvania, New Jersey, and Delaware. The main stem Delaware is fed by 216 tributaries. Headwaters include the East Branch Delaware, West Branch Delaware, and Neversink rivers.



B. Delaware River Basin Commission

The Delaware River Basin Commission (DRBC) was formed in 1961 by the signatory parties to the Delaware River Basin Compact (Delaware, New Jersey, New York, Pennsylvania, and the United States) to share the responsibility of managing the water resources of the Basin. Commission programs include water quality protection, water

supply allocation, regulatory review, water conservation initiatives, watershed planning, flood loss reduction and recreation.

C. Flood Loss Reduction

The responsibilities for facilitating flood loss reduction are scattered across many Federal, State, and Local agencies and organizations in the Delaware River Basin and are far-reaching; involving both planning and operational functions. Flood loss reduction functions are administered by numerous Federal, State and Local agencies. DRBC was formed, in part, to bring together various government and non-governmental stakeholders across jurisdictional boundaries for the shared interest of the watershed. Coordination of efforts is critical for effective flood loss reduction to occur.

D. Flood Advisory Committee (<http://www.state.nj.us/drbc/advisory.htm#flood>)

DRBC's Flood Advisory Committee (FAC) was established in 1999 and serves to coordinate agencies' efforts to improve the basin's flood warning system and mitigate flood losses. The FAC meets quarterly and provides a forum for coordination of flood warning and flood loss reduction activities and the efficient use of technical and financial resources for the benefit of the Delaware River Basin community.

Members of the FAC include representatives of state emergency management and environmental protection agencies from NY, PA, NJ and DE, representatives of county/local emergency managers, federal agencies such as the National Weather Service (NWS), United States Geological Survey (USGS), Natural Resources Conservation Service (NRCS), Federal Emergency Management Agency (FEMA) and the U.S. Army Corps of Engineers (USACE), National Park Service (NPS) and regional entities/interests such as the Delaware River Joint Toll Bridge Commission and the Electric Generation Industry.

E. Delaware River Basin Interstate Flood Task Force

As the result of major main stem flooding in 2004-2006, DRBC commissioners convened a Delaware River Basin Interstate Flood Mitigation Task Force that produced an Action Agenda with 45 consensus-based recommendations focusing on a proactive and systematic approach to flood mitigation in the Delaware River Basin.

(www.state.nj.us/drbc/Flood_Website/taskforce/index.htm)

DRBC is tracking and working towards implementation of those recommendations and a number of activities are underway in the six priority management areas encompassed by the action agenda: reservoir operations, structural and non-structural mitigation, stormwater management, floodplain mapping, floodplain regulation, and flood warning. Notable projects for which DRBC is lead or co-sponsor are as follows:

- In conjunction with USGS, USACE and NOAA/NWS, development of a Flood Analysis Model to assess potential impacts of reservoir operation on downstream flooding during the September 2004, April 2005, and June 2006 floods
- In conjunction with USACE and NOAA/NWS, development of Flood Inundation Maps for the main stem Delaware River from Port Jervis, NY to Trenton, NJ
- In conjunction with NOAA/NWS and USGS, upgrades to the Delaware River Enhanced Flood Warning System
- In conjunction with the DRBC Flood Advisory Committee (FAC), evaluate floodplain management recommendations for the Delaware River Basin
- In conjunction with state agencies and USGS, support the importance of stream gages
- In conjunction with Supreme Court Decree Parties, continue the development of a Flexible Flow Management Plan

2.7.2 – Susquehanna River Basin Commission (SRBC): www.srbc.net

A. The Susquehanna River

The Susquehanna River is the largest river lying entirely in the United States that flows into the Atlantic Ocean. The Susquehanna and its nearly 49,000 miles of tributaries drain a 27,510-square-mile area. The Susquehanna River is the largest tributary to the Chesapeake Bay, providing roughly half of the freshwater inflow to the bay. The Susquehanna River basin is situated over parts of the states of New York, Pennsylvania, and Maryland and is one of the most flood-prone in the nation due to the varied topography and susceptibility to tropical systems.

B. The Susquehanna River Basin Commission

The Susquehanna River Basin Commission (SRBC) was established through a Federal-Interstate Compact by and among the states of New York, Maryland, Pennsylvania, and the Federal government on December 24, 1970. The Compact recognizes mutual interest in the water resources of the basin and establishes the Commission as the agency responsible for coordinated management of the water resources of the Susquehanna basin.

Each of the four signatories to the Compact is represented by a Commissioner who serves as the spokesperson for the jurisdiction. In the case of the Federal government, the commissioner and his alternate are appointed by the President of the United States. For the three States, the commissioners are the governors or their designees. The governors also appoint alternate commissioners.

The commissioners, or their alternates, meet quarterly to consider approval of projects using water; adopt regulations, direct planning, and chart management of the river basin resources.

A staff of technical, administrative, and clerical personnel under the leadership of an Executive Director supports the daily operations of the Commission.

C. Responsibilities of the SRBC

Commission staff develops and implements programs as directed by the Commissioners and as found in the Commission's [Comprehensive Plan for the Management and Development of the Water Resources of the Susquehanna Basin](#). The Comprehensive Plan identifies Flooding as a Priority Management Area with the desired result of reducing loss of life and preventing property damage through an integrated network of structural and non-structural flood protection measures. Additionally the Comprehensive Plan focuses on Drought Coordination as an Area of Special Interest.

D. Flooding in the Susquehanna River Basin

The Susquehanna River Basin (SRB) is one of the most flood-prone watersheds in the nation and experiences flood related damages in excess of \$150 million on average every year. The basin's topography and geology and nearly 49,000 miles of waterway are some of the contributing factors that contribute to two types of flooding. The first situation occurs when a section of river is very wide, but then is suddenly squeezed into a steep, narrow gorge. During heavy rainfall events or when the winter ice begins to breakup, the increased flow of water or ice backs up in the narrow gorge, causing the river to overflow its banks. Also, when the ice jam breaks, a sudden surge of water can cause downstream flooding. The second situation occurs when a river flows through an area with very little slope, and shallow banks. In this topography, this is fairly common in the basin, the river levels out and flows slowly. During heavy rainfall events, the river quickly swells and overflows its banks. When winter ice breaks up, the slow-moving flow causes the ice to jam easily, creating obstacles and backing up the water.

While Tropical Storm Agnes of 1972 resulted in damages of \$2.8 billion dollars and remains one of the nation's most costly natural disasters, June 2006 will be remembered by some in the Susquehanna River Basin as producing the worst flooding in recorded history. The most severe flooding in the basin occurred in the southern tier of New York along the Susquehanna and Chenango Rivers and the eastern and central areas of Pennsylvania.

The June 2006 flood impacted 11 Counties within the New York portion of the SRB. In each of these Counties a disaster declaration was made at the Federal and/or State level, and all Counties were made eligible for disaster relief funding. Estimated damages in New York Counties approached \$300 million, although some of that damage occurred in parts of Counties draining to the Delaware River. Basinwide, thousands of homes and businesses were severely impacted or destroyed, hundreds of bridges were swept away or left unstable, hundreds of miles of roadways were impacted, and hundreds of millions of dollars in property damage were incurred. Three fatalities occurred in the New York portion of the basin; one in Chenango County and two at the collapse of a culvert under Interstate 88 in Sidney, Delaware County.

While a number of flood control projects are in place to protect the citizens of the basin, studies have determined the best way to further reduce flood damages in the basin is through nonstructural measures such as flood forecast and warning systems. The Susquehanna Flood Forecast and Warning System (SSFWS) coordinated by the Susquehanna River Basin Commission since 1986, provides residents of the basin with warning and forecast information in advance of and during flooding events. The program is a cooperative effort involving NOAA's National Weather Service, the U.S. Geological Survey, U.S. Army Corps of Engineers, and the states of New York, Pennsylvania, and Maryland.

E. Drought

SRBC's Drought Coordinating Committee is comprised of each of the signatories and assesses five main parameters to determine emerging drought conditions: precipitation deficits, stream flows, groundwater levels, soil moisture and water-supply reservoir levels. Currently, precipitation deficits remain most notable in portions of central Pennsylvania, including Snyder and Northumberland Counties where deficits are about 5 inches below normal for the past 90 days. Based on Committee recommendations to SRBC Commissioner's the Commission may declare drought of any level (Watch, Warning, or Emergency).

F. Flood Loss Reduction

Of the 1,400 communities in the Susquehanna River Basin, about 1,160 (or about 80 percent) have residents located in flood-prone areas. Roughly 30 percent of the basin's population lives along major rivers. While no one can prevent floods, the resulting damages can be reduced through: (1) proper planning to prevent building in flood-prone areas; and (2) flood management and protection. Due to the diverse conditions and flood-prone nature of the Susquehanna basin, flood management programs work best when structural and nonstructural measures are combined.

G. Structural Flood Control

Structural flood control devices include:

- dams and reservoirs
- floodwalls and levees
- channel excavation and modification

Flood control dams and reservoirs store significant amounts of floodwater to reduce or prevent downstream flooding. Floodwalls and levees prevent floodwaters from inundating designated areas. These structural devices substantially reduce the basin's average annual flood damages.

H. Nonstructural Programs

Nonstructural flood protection programs include:

- flood forecast and warning systems

- flood insurance
- relocation
- flood education and training
- flood proofing
- flood plain management

Nonstructural flood measures can be extremely cost-effective. Among the most cost-effective is the Susquehanna Flood Forecast and Warning System. The flood damages the system prevents annually have averaged 12.5 times the cost of operating it. Radar and a network of rain and stream gages provide the data that are used to forecast river levels and issue more accurate early flood warnings. Early warnings give people and businesses time to secure their property and get themselves out of harm's way.

I. SRBC's Flood Management and Protection Program

The SRBC has been involved in flood management and protection since the early 1970s. The agency provides a wide range of services, including:

1. **Susquehanna Flood Forecast and Warning System** – The Susquehanna Flood Forecast and Warning System (SFFWS) is one of the nation's premier warning systems. The operation and activities of the SFFWS are coordinated by an inter-agency committee whose members include the SRBC, the National Weather Service, the U.S. Geological Survey, the U.S. Army Corps of Engineers, the NY State Department of Environmental Conservation, and the Pennsylvania Emergency Management Agency and the Departments of Environmental Protection and Community and Economic Development. SRBC also helps communities establish local self-help flood warning programs.

Following the June 2006 flood, and based on recommendations from SRBC, New York State Senator Thomas Libous secured \$500,000 to provide new flood stage forecast mapping and new stream and rain gages for the purpose of improving flood forecasts. SRBC worked with SFFWS partners to prioritize mapping and identify locations for new gaging. As a result of the funding maps have been produced for 10 National Weather Service river forecast points, 3 new stream and 4 new rain gages have been added to the network, and numerous upgrades to existing gages.

2. **Floodplain Management** – SRBC helps identify floodways and flood-prone areas and advises industry and municipal officials regarding techniques for flood proofing structures to reduce flood damages. SRBC also has completed 245 flood insurance studies and has prepared over 50 flood plain assessment reports - covering all high-population and high-damage prone areas in the basin.

3. **Flood Stage Forecast Mapping** – SRBC produces community flood stage forecast maps that detail expected area of inundation relative to stage at a local National Weather Service (NWS) river forecast point. Flood stage forecast mapping is available for viewing online at maps.srbc.net.
4. **Flood Education and Outreach** – SRBC produces educational brochures and other publications on flooding and flood management. Members of SRBC staff are available for speaking engagements and also offer training to:
 - Emergency management and locally-elected officials on how to use their community flood stage maps
 - Local officials on how to interpret flood insurance information and stream hydraulics
 - Current and future drivers on the dangers of crossing flooded roadways.

SRBC recently provided road signs to five counties in New York’s southern tier warning drivers to turn around when roads are flooded. 54 signs were distributed to County emergency managers for road crossings affected by high water.

J. Future Activities

SRBC will continue to support funding for the Susquehanna Flood Forecast and Warning System to insure adequate flood warning for citizens of the Basin. Development of flood stage forecast mapping to communicate risk will be produced for at risk communities and Commission staff will continue to provide education and outreach related to flood hazard mitigation.

2.7.3 – Northeastern Forest Fire Protection Compact (NFFPC)

The Department of Environmental Conservation’s Division of Forest Protection represents New York State in the Northeastern Forest Fire Prevention Commission or “Compact” (NFFPC). The international compact is comprised of seven U.S. States, four Canadian Provinces and the New England National Forests.

The NFFPC mandates that participating members:

- Provide resource sharing (mutual aid) among members and establish procedures to facilitate this aid. The sharing of resources may include fire crews, fire management (overhead) staff, fire equipment and fire aircraft
- Provide fire related information and technology sharing among members
- Support the development of integrated forest fire plans and the maintenance of appropriate forest fire fighting services by its members

- Maintain a central agency (the Compact) to coordinate the services needed by member States and Provinces

Each State and Province is required to fund the cost of training, equipping, and maintaining an effective forest fire force to meet the usual conditions in their jurisdiction. Yet through the Compact, they also have immediate access to the additional resources of other Compact members, in cases of severe forest fires.