

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 – Planning Committee

The New York State Emergency Management Office (SEMO) Mitigation Section led the development of the State Multi-Hazard Mitigation Plan (Plan). The Mitigation Section worked with personnel from the other sections of SEMO, representatives of member agencies of the New York State Disaster Preparedness Commission (DPC), other State, Local, and Regional agencies. In order to accomplish the goal of updating the NYS Multi-Hazard Mitigation Plan, which was initially approved in January 2005, a series of meetings were held and these were supplemented by a number of questionnaires, phone contacts, and e-mail correspondence.

The foundation of the plan update effort was the original document, and considerable time went into making determinations about the process to be followed, and which information was in need of replacement due to its irrelevance or material that was out of date, at this time. It was determined that the update process would initially 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 Director of SEMO appointed a Plan Update Working Group which was made up of representatives from several SEMO Sections including: Mitigation, Planning, Recovery, GIS, and Administration. The role of this Working Group was to bring together the resources, such as personnel, equipment, and stakeholders, that would be needed to accomplish the process of updating the plan in keeping 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 Working Group determined that a Steering Committee would be called together to review the basic requirements of the plan and to offer suggestions on the process which could best be followed in collecting data from the numerous State agencies and stakeholders who should provide input. This Working Group met weekly throughout the planning process.

A meeting of the Steering Committee, made up of State and Federal agencies, Regional and Municipal authorities, and representatives from several river basin authorities, was held on April 19, 2007. 23 agency representatives, not including SEMO staff, attended the meeting. Information was distributed including the entire State Plan in electronic format, copies of the Mitigation Strategy Section, and a questionnaire which was targeted at evaluating the plan and the progress agencies had made in meeting the mitigation objectives. Dates were set for responses to specific portions of the questionnaire, and questions were addressed in terms of the role of each stakeholder in the planning process. Power Point presentations provided the attendees with the background information needed to understand the requirements of the planning process. Agencies that were unable to attend received the materials via mail or e-mail.

With an understanding that the update process would require a time consuming and rigorous research effort, a determination was made to recruit Planning Assistants from universities located in the Albany area, but the hiring standards focused on the recruitment of upper classmen or graduate students in the areas of Urban and Regional Planning, Geographic Information Systems, Environmental Engineering, Research, and Journalism. The Planning Assistants were hired through great effort, and some initial training was conducted by SEMO staff, but through a cooperative working with FEMA Region II Staff, additional training was arranged and a two day training session was arranged for June 21 and 22, 2007. The main emphasis of this training opportunity was the FEMA requirements which must be kept in focus throughout the plan update process, but another outcome was the goal of trying to make the State Plan a useful resource for Local jurisdictions who will undertake the planning effort in future years. It was determined that some useful maps and planning solutions would be offered both in the plan and online. The overall outcome of this collaborative training was that all involved were committed to producing a State Plan which will serve the citizens of the State through a comprehensive mitigation strategy, but also by providing some mitigation resources to the Planners who will provide Jurisdictions with Local Hazard Mitigation Plans.

The questionnaire responses received from all agencies that make up the Disaster Preparedness Commission as well as several other authorities and associations were reviewed and analyzed by the Planning Assistants, and several significant changes were made to the plan based on new agency programs and expanded mitigation efforts. These programs are described in detail in this section and in subsequent sections of the plan. Another significant research effort went into **Section 3 Risk Assessment** and the **Hazard Profile Section** of the plan. It became clear that the existing plan was premised on data that required updating and revision in order to meet the standard of providing the most current, readily available information. An extensive search was

conducted of reports, policies, websites, and publications in order to update the information presented in the plan. In some cases, existing information was determined to be valid or new material or data was not available, so the existing information was retained in the plan. Several Local Jurisdiction Hazard Mitigation Plans were utilized throughout the development of the State plan. It was found that the hazard information and mitigation strategy information from the Local plans provided some interesting detail to supplement the hazard profile and mitigation strategy section. However, it should be noted that the practicality of incorporating the data from the 34 approved plans covering 430 jurisdictions within NYS was determined to be unreasonably excessive, and a limited selection of plans was made to represent jurisdictions with significant vulnerability to specific hazards.

On August 23, 2007, a Planning Committee meeting was held at the NYS Office of Homeland Security, Albany, N.Y., and this meeting was targeted at facilitating a review of the updated Hazard Profile and Vulnerability Section as well as conduct an in depth evaluation and revision of the Mitigation Strategy Section of the revised plan. Several weeks prior to the meeting, each participating agency was provided with a complete copy of the 2005 Mitigation Strategy section, and they were also provided with a specific Mitigation Strategy Assessment Form, which was designed to measure the status of mitigation activities and to get a brief narrative on the progress of these activities. In addition, planning participants were encouraged to develop new mitigation activities or actions based on their assessment of the hazards profiled and based on programs that may currently be implemented through some part of their day to day agency operations.

The August 23rd meeting showed excellent representation from agencies across the State, however, due to distance considerations, arrangements were made to have long distance agencies participate through a teleconference connection. This option will also be available in future meetings. At this meeting, every agency was provided with a copy of the Draft Hazard Profile Section and they were asked to evaluate this section and make comments over the next several months. Any significant changes in the Hazard Profile Section were briefly summarized. In addition, the Mitigation Strategy Section goals, objectives, and activities were fully evaluated and reviewed, and suggestions for revisions were discussed and consensus decisions were made to update the plan accordingly. At the end of the meeting, the agencies submitted the completed Mitigation Strategy Assessment Forms, and the responses were integrated into the plan.

On September 14th of 2007 the planning team generated the first draft of the NYS Hazard Mitigation Plan. The draft was mailed to all appropriate departments and personnel, with the intent of providing a rough plan for review prior to the scheduled September 26th Planning Committee meeting. This was done in order to allow the appropriate people to review the plan in advance in order to allow for positive and constructive feedback at the September 26th meeting.

The Planning Committee, comprising all DPC agencies as well as several appointed authorities and regional groups, was convened on September 26, 2007. This meeting was well attended, and participation was lively and interactive. The focus of the meeting was the Mitigation Strategy

Section, but several sections of the plan were discussed as the result of the distribution of the rough draft of the plan on September 14th. Several modifications and additions were made to the Mitigation Activities Section, and it appeared that agency representatives had a sincere interest in keeping the mitigation planning efforts active throughout the year. While some agencies or groups were not able to attend, they were afforded an opportunity to submit their input via written commentary. All comments and suggestions were considered by the Planning Work Group and incorporated, as appropriate, into the plan.

At the end of the meeting on September 26th, the Planning Committee developed a list of recommendations which will be presented to the DPC along with the plan. The main intent of these recommendations are to keep the planning effort alive, and to assure that appropriate staffing resources are allocated in order to assure that all agencies can focus 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 well being 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 twenty three State agencies and one voluntary organization. Article 2-B, Section 21 establishes membership to the Commission (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, the president of the New York state 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 chairman of the thruway authority, 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. The governor shall designate the chair of the commission.....

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. The adjutant general shall serve as secretary to the commission and provide staff services as may be necessary through the state emergency management office.

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. prepare state disaster preparedness plans, to be approved by the governor, and review such plans and report thereon by March thirty-first of each year to the governor and the legislature. In preparing such plans, the commission shall consult with federal and local officials, emergency service 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.

The DPC is comprised of the commissioners, directors, or chairs of 23 State agencies or offices and one volunteer organization, the American Red Cross. **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
Disaster Preparedness Commission (DPC) Organizational Chart**



2.1.2 – Information Gathering Process

In an effort to introduce the various State agencies to the Disaster Mitigation Act of 2000 (DMA 2000) and the new State planning requirements, the SEMO Mitigation Section, with assistance from the Federal Emergency Management Agency (FEMA) Region II, organized two Hazard Mitigation Planning Summits, which served as the basis of the original State Hazard Mitigation Plan, which was approved in January 2005. For the NYS plan update, the opportunity to hold and organize additional summit meetings was severely impacted by the series of significant and damaging hazards which occurred in the State over the past several years.

As described previously, the information gathering portion of the planning process was a labor intensive and time consuming effort. Several Planning Assistants 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 which was designed to solicit feed back 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 Section and the Mitigation Strategy Section 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 Canals Corporation
•	NYS Cyber Security & Critical Infrastructure Coordination (CSCIC)
•	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
•	NYS Division of Military & Naval Affairs (DMNA)
•	NYS Education Department / NYS Geological Survey
•	NYS Emergency Management Office (SEMO)
•	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
•	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
Local Municipalities, Local departments, and Non-Governmental Organizations	
•	American Red Cross
•	Association of Towns of the State of New York
•	Delaware River Basin Commission (DRBC)
•	Genesee Finger Lakes Regional Planning Council (G/FLRPC)
•	Greene County Soil & Water Conservation District
•	Hudson River-Black River Regulating District

• NYC Department of Environmental Protection (DEP)
• NYS Association of Counties
• NYS Emergency Management Association (NYSEMA)
• State University of New York at Buffalo
• Schenectady County
• Susquehanna River Basin Commission (SRBC)
Federal Agencies
• Federal Emergency Management Agency (FEMA)
• U.S. Army Corps of Engineers
• U.S. Geological Survey

Survey responses were gathered from agencies and several regional authorities, and the information was utilized to update the appropriate sections of the plan. Where the information from agencies was incomplete, numerous phone calls and e-mails clarified any questions that might have needed further discussion. It is interesting to note that as agency representatives became more familiar with the goals of the NYS Multi-Hazard Mitigation Plan, they became more active in the planning process and in the response for requests for information.

During the planning process, several meetings were held with stakeholders either in large groups or in smaller groups. The purpose of these meetings were to encourage widespread participation in the planning process, but also to gather the information needed to accurately complete the updated plan. All agencies were instrumental in providing information on their facilities (type, location, past damages, etc.) to assist in the development of the State risk assessment.

During the planning process, several types of material became very useful and informative including Federal reports, regulations, publications, and websites. A significant resource has been the NYS Geographic Information Systems (GIS) Clearing House and the National Flood Insurance Program (NFIP) Database. These sources provide a vast amount of information which can be processed and utilized for the creation of maps and tables which in turn can be inserted into the plan. The planning process has revealed that the potential that exists within the GIS field has great implications for the hazard mitigation field, and any jurisdiction initiating the planning process would be well served to utilize the resources that may be available to them.

**Table 2-2
Summary of Plan Development Collaboration**

Date	Action	Participants/Outcome
3/14/2007	State Plan Meeting	Participation: Les Radford, Radsworth Anderson, Susan Bergmann, Tom Abbati, Ed Lips and Richard Minogue Results: Les Radford led this meeting to plan steps for the update of the State Plan and methods for encouraging participation from the public and state agencies. A meeting for April 19th at 10 was set, and discussion centered on the items that need to be addressed

Date	Action	Participants/Outcome																						
		at this initial meeting. Review of crosswalk comments from the past and FEMA update requirements; develop a questionnaire for the agencies and participants in the meeting on April 19th. Hiring Planning Assistants for the update process was discussed.																						
3/ 20/ 2007	State Plan Meeting	<p>Participation: Les Radford, Radsworth Anderson, Susan Bergmann, Tom Abbati, Ed Lips and Richard Minogue</p> <p>Results: Les Radford led discussion focused on the steps to accomplish the update in an accurate and timely fashion with involvement of all stake holders. Further discussion about the Planning Assistants, and assignments given to accomplish this task. The group discussed Steering Committee makeup and agreed to expand membership to include GIS, IT and other agency's personnel. The agenda for April 19th was solidified. Discussion about FEMA requirements and the Crosswalk Comments review</p>																						
3/27/ 2007	State Plan Meeting	<p>Participation: Les Radford, Susan Bergmann, Tom Abbati, Ed Lips and Richard Minogue</p> <p>Results: Les Radford led discussion of accomplished assignments to date. Strategies to accomplish the plan update and the logistics of posting the plan on the website were discussed. Reviewed the list of those who confirmed attendance at the meeting on the 19th. Hiring the Planning Assistants was discussed. Agenda for the upcoming kick off meeting was discussed, and participants in the presentation were listed. We need to work with GIS specialist to update the information relating to the plan, new development and hazard areas.</p>																						
4/19/ 2007	NYS Hazard Mitigation Plan Update Organizational Meeting	<p>Participants: (Agency/Organizations only)</p> <p>State Departments</p> <table border="0" data-bbox="613 1016 1446 1226"> <tr> <td>State Emergency Management</td> <td>Environmental Conservation</td> </tr> <tr> <td>Port Authority</td> <td>Office of General Services</td> </tr> <tr> <td>Transportation</td> <td>Office of Parks and Recreation</td> </tr> <tr> <td>Office of Homeland Security</td> <td>Metropolitan Transportation Authority</td> </tr> <tr> <td>State Bridge Authority</td> <td>Department of Housing & Community Renewal</td> </tr> <tr> <td>Thruway Authority</td> <td>Department of Environmental Protection</td> </tr> </table> <p>Federal Agencies</p> <p>U. S. Army Corps of Engineers (USACE)</p> <p>Private Organizations</p> <table border="0" data-bbox="613 1331 1284 1478"> <tr> <td>Association of Counties</td> <td>Hudson River</td> </tr> <tr> <td>NYSEMA</td> <td>Association of Towns</td> </tr> <tr> <td>Local Representatives:</td> <td></td> </tr> <tr> <td>Greene County Soil & Water</td> <td>Susquehanna River Basin</td> </tr> <tr> <td>Delaware Rive Basin</td> <td></td> </tr> </table> <p>Results: Hazard Mitigation planning process reviewed, FEMA guidelines reviewed, Planning materials distributed, update requirements reviewed, "Planning Questionnaire" seeking vulnerability and mitigation information distributed. Copies of approved State Plan distributed.</p>	State Emergency Management	Environmental Conservation	Port Authority	Office of General Services	Transportation	Office of Parks and Recreation	Office of Homeland Security	Metropolitan Transportation Authority	State Bridge Authority	Department of Housing & Community Renewal	Thruway Authority	Department of Environmental Protection	Association of Counties	Hudson River	NYSEMA	Association of Towns	Local Representatives:		Greene County Soil & Water	Susquehanna River Basin	Delaware Rive Basin	
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4/24/2007	SEMO Task Force	<p>Participants: Les Radford, Susan Bergmann, Tom Abbati, Ed Lips and Richard Minogue, Robert Olazagasti, Dan O'Brien, Cynthia Steegmann</p> <p>Results: Discussion of 4/19 meeting, plan update progress and planning assistants.</p>																						

Date	Action	Participants/Outcome
5/3/2007	SEMO Task Force	Participants: Les Radford, Susan Bergmann, Tom Abbati, Ed Lips and Richard Minogue, Robert Olazagasti, Ed Lips, Dan O'Brien, Cynthia Steegmann Results: Overview of FEMA plan requirements. Beginning review of Section 3: Risk Assessment specifically Table 3-1 Hazard Definitions
5/8/2007	SEMO Task Force	Participants: Robert Olazagasti, Ed Lips, Dan O'Brien, Cynthia Steegmann, and Brenda Buckman Results: Preparation for May 10 conference call. Beginning work on NYS Natural Hazards List using FEMA's matrix, the 98 CEMP, Wikipedia
5/9/2007	SEMO Task Force	Participants: Robert Olazagasti, Ed Lips, Dan O'Brien, Cynthia Steegmann, and Brenda Buckman Results: Continued Preparation for May 10 conference call. Continued work on NYS Natural Hazards List
5/10/2007	Steering Committee Meeting via Conference Call	Participants: DEC John J. Ferguson; NYC DEP Paul Bennet; DOT Roberta Fox, Rob Limoges; Genesee Finger Lakes Planning Council Mr. Bevenzi, David Zorn; Susquehanna River Basin Commission Benjamin Pratt SEMO Taskforce – Greg Brunelle, Robert Olazagasti, Les Radford, Susan Bergmann, Dan O'Brien, Richard Minogue, Edward Lips, Cynthia Steegmann, Brenda Buckman Results: Assigned NYS Hazards Worksheet 1 to be returned on May 17th. Walked through list of hazards and discussed the relevance and risk rating of each hazard.
5/16/2007	SEMO Task Force	Participants: Greg Brunelle, Bob Olazagasti, Les Radford, Susan Bergmann, Dan O'Brien, Richard Minogue, Edward Lips, Cynthia Steegmann, and Brenda Buckman Results: Start date for Planning Assistants moved back to 6/14/07. IT request for e-mail distribution list. Weekly Taskforce meeting to be set up for Wednesday 2:30 – 3:30. Document management and the electronic file for Plan Update materials will be reorganized. NFIP presentation of information and discussion. Request to FEMA regarding the inclusion of material on a disk or electronic submission of the Plan. Local Plans will be centrally located for ease of review and sign out process established.
5/17/2007	Feedback	Questionnaire A-D and NYS Hazards Worksheet 1 items submitted via e-mail moved into the electronic file folder on the P-drive.
5/23/2007	SEMO Task Force	Participants: Greg Brunelle, Robert Olazagasti, Les Radford, Susan Bergmann, Dan O'Brien, Tom Abbati, Richard Minogue, Edward Lips and Brenda Buckman Results Preparation tasks assigned for arrival of the Planning Assistants. Day 1 program designed. Unsuccessful candidates will be notified. Coordinated with Recovery to gather and test Lap top computers. Contact Finance for cost center code. Ongoing need to clarify the functions of Planning, Steering and Taskforce Committees. Quick review of responses from Planning and Steering committees. Project Organization Chart updated.
5/30/2007	SEMO Task Force	Participants: Les Radford, Susan Bergmann, Tom Abbati, Richard Minogue, Edward Lips, and Brenda Buckman Results: Request will be given to IT for laptop computers for the Planning

Date	Action	Participants/Outcome
		Assistants/PAL working on the Plan Update. Start date and payroll cycle for Planning Assistants need to be confirmed. Prepare for 6/21 and 22 training with FEMA Mitigation Planning Specialist Audrey Massa from FEMA Region II. Generate discussion points for the Planning Assistants to aid them in completing the necessary tasks for the Plan update. Recently appropriated funding for Hudson Valley counties affected by recent disaster declarations information may be something to consider for the plan update.
6/6/2007	SEMO Task Force	Participants: Robert Olazagasti, Susan Bergmann, Dan O'Brien, Richard Minogue, Brenda Buckman, Results: Lap top computers with proper access are in process with IT for the planning assistants, agenda for Day 1 and 2 and questions for Audrey Massa are being developed by Rich and Ed. Organizational chart for project being updated.
6/13/2007	SEMO Task Force	Participants: Robert Olazagasti, Les Radford, Dan O'Brien, Tom Abbati, Richard Minogue, and Brenda Buckman Results: Working to finalize a list of questions for Audrey Massa 6/21 - 22 training. Final copy of the agenda for Day 1 and 2 for the Planning Assistant/Pal orientation to include building access, parking, human resources ets.
6/13/2007	Focus Group – flood data	Participants: SEMO: Robert Olazagasti, Susan Bergmann, Dan O'Brien, Richard Minogue, Fred Nuffer, DEC: Kenneth Markussen, Bureau Director/BFP&DS; Mike Stankiewicz, Flood Control & Coastal Erosion, Riccardo Lopez-Torrijois, IAGT/Floodplain/GIS, Jamie Ethier, Floor Plan Management, Bill Nechamen, Floodplain Management At DEC 2:00 – 4:00 Results: Coastal Erosion Hazard Management program was discussed for inclusion in update, timelines will not correspond to the plan update timelines, but there could be a mention, DEC has mitigation programs for waste water treatment facilities, Dam issues and various river basins, flood control facilities, and flood hazard identification system were discussed. Suggestion made that we contact DPS for information about Code Enforcement Officers and look into wildfires. SEMO will receive NFIP data from DEC.
6/14/2007	SEMO Planning Assistant/PAL	Participants: John Gibb, Greg Brunelle, Robert Olazagasti, Susan Bergman, Dan O'Brien, Richard Minogue, Ed Lips, Brenda Buckman, Fred Nuffer, Rexford Asiedu, John Fishbein, Jason McWhirter, Daniel Osburn, and Ran Zhang Results: Orientation and information meeting for planning assistants hired for plan update project.
6/19/2007	Phone Consult	Participants; Fred Nuffer and Dr. Kate White of the Cold Regions Research and Engineering Lab in Hannover, NH Results: Information gained from this Center of Engineering Expertise for the US Army COE on ice jams and ice jam flooding and mitigation
6/19/2007	Phone Consult	Participants: Fred Nuffer and Robert Tudor, Delaware River Basin (DRBC) Results: DRBC has provided information to update plan and completed questionnaire.

Date	Action	Participants/Outcome
6/19/2007	Phone Consult	Participants: Fred Nuffer and Benjamin Pratt, Susquehanna River Basin Results: SRBC had completed and returned the questionnaire and provided update information needed for the plan.
6/20/2007	SEMO Task Force	Participants: Dan O'Brien, Ed Lips, Fred Nuffer, Rexford Asiedu, John Fishbein, Jason McWhirter, Daniel Osburn, and Ran Zhang Results: Presentation of GIS information for the Planning Assistants.
6/21 and 6/22/2007	SEMO Planning Assistant/PAL	Participants: SEMO: Greg Brunelle, Robert Olazagasti, Ed Lips, Nadine Macura, Ron Raymond, Dan O'Brien, Richard Minogue, Brenda Buckman, Fred Nuffer, Rexford Asiedu, John Fishbein, Jason McWhirter, Daniel Osburn, and Ran Zhang FEMA: Audrey Massa, John Krol and Michael McHale Results: FEMA representatives were available for guidance meeting on plan update.
6/26/2007	Phone Consult	Participants: Ran Zhang and William Kelly, New York State Geologist Results: Discussion on availability of updated landslide data at NYS GIS
6/27/2007	Phone Consult	Participants: Ran Zhang and Roberta Fox, New York State Department of Transportation Results: Discussion on issues relating to DOT.
6/27/2007	SEMO Task Force	Participants: Greg Brunelle, Susan Bergmann, Dan O'Brien, Thomas Abbati, Richard Minogue, Brenda Buckman, Fred Nuffer, Rexford Asiedu, John Fishbein, Jason McWhirter, Daniel Osburn, and Ran Zhang Results: Discussion of complying with plan update requirements and including best practices where possible. We will not pursue preparing an Enhanced Plan.
6/28/2007	Phone Consult	Participants: Rexford Asiedu and Bill Ketzner of Agriculture and Markets Results: Discussion of drought effects on agricultural sector, Mr. Ketzner referred us to the United States Department of Agriculture for information
6/28/2007	Phone Consult	Participants: Fred Nuffer and John Ferguson NYS Department of Conservation Results: Questionnaire information discussed. Flooding contact Bill Nechamen, Division of Water provided. Next meeting 7/23/07
7/3/2007	Phone Consult	Participants: Rexford Asiedu and Delores Bochenek, US Department of Agriculture Results: Information about loan programs available to individual affected by droughts; however, he was not able to provide information regarding economic loss from drought conditions. The USDA database only contained current information and a historical database was not readily available or accessible.
7/5/2007	SEMO Planning Assistants/SEM O Mitigation Project	Participants: Fred Nuffer, Rexford Asiedu, John Fishbein, Jason McWhirter, Daniel Osburn, and Ran Zhang, Tom Abbati, Susan Bergmann. Results: Discussion of complying with plan updates requirements in sections regarding Mitigation Projects, and including best practice.

Date	Action	Participants/Outcome
7/6/2007	Agency Contact	Participants: Rexford Asiedu and Mark Klotz Results: Received an e-mail from Mark Klotz of DEC, regarding up-to-date drought information.
7/9/2007	Phone Consult	Participants: Rexford Asiedu and Fred Anders, Department of State, Coastal Resource Division Results: Phone contact to request information on Local Waterfront Revitalization Programs. Mr. Anders was out of the office, a voicemail was left.
7/11/2007	Planning Assistants/ Mitigation Project	Participants: Ran Zhang, Jason McWhirter, Harry Bartik and Mike Horan Results: FEMA Benefit and Cost Module tutorial and discussion of including best practice in Mitigation Project Section in the Plan Update.
7/11/2007	Phone Consult	Participants: Rexford Asiedu and Barry Pendegrass, Department of State Results: Mr. Pendegrass returned my call from Mr. Anders office. Mr. Pendegrass informed me that there have been no new LWRP adopted since March 2007. The list currently on the NYSDOS website was up-to-date. Mr. Pendegrass also made himself available for future contact or questions for the Coastal Resource Division.
7/11/2007	SEMO Task Force	Participants: Greg Brunelle, Robert Olazagasti, Dan O'Brien, Richard Minogue, Edward Lips, Brenda Buckman, Rexford Asiedu, John Fishbein, Jason McWhirter, Daniel Osburn, and Ran Zhang Results: Discussion of a Planning Committee meeting Mid-August at OHS bldg 7A. Plan will be electronic and updated post disaster or mitigation milestone completion and placed on the website to allow Agencies or organizations to update the sections. Regional Directors will be asked during the regular weekly conference call about counties HASNY information. FEMA has provided NFIP date and this will be used by Dan O'Brien
7/13/2007	NYSDOT- Landslides Data	Participants: Ran Zhang and Roberta Fox, New York State Department of Transportation Results: Email received from DOT containing landslides data that DOT gathered from their Regions. This data reflects problems on the system that NYSDOT is responsible for, but not the locally-operated and maintained transportation network.
7/16/2007	Phone Consult	Participants: Rexford Asiedu and Joe Fryer Department of Housing Results: Called in regard to the Hazard Questionnaire which was sent out in April 07. Mr. Fryer informed me that the Dept. of Housing had not received a questionnaire. An e-mail was sent to Mr. Fryer informing him of planning committee meetings which are being scheduled for Aug and Sept. as well as an attachment containing the questionnaire. Mr. Fryer said he will take a look at the questionnaire and return it in the near future.
7/16/2007	Phone Consult	Participants: Rexford Asiedu and Theresa Legall, MTA Results: Spoke with Theresa Legall, assistant to Eliot Sander of MTA, she could not recall receiving the questionnaire. A questionnaire was e-mailed out to her office and she informed me that she will pass it on to the proper division

Date	Action	Participants/Outcome
7/16/2007	Phone Consult	Participants: Rexford Asiedu and Joe Bovenzi and David Zorn, of the Genesee Finger Lake Regional Planning Council Results: Discussed the Hazard Questionnaire which was sent out in Apr 2007. Mr. Bovenzi informed me that he will be fielding questions and responsibility of filling out the questionnaire. He has agreed to provide a mission statement and mitigation strategies for the Regional Planning Council.
7/16/2007	Phone Consult	Participants: Rexford Asiedu and Robert Lander, NYSEMA Results: Discussed the Hazard Questionnaire. Mr. Lander acknowledged receiving the questionnaire; however, he did not believe his agency could provide any pertinent information pertaining 2008 NYS Hazard plan update. He did inform emergency managers across the state of the Plan update.
7/16/2007	Phone Consult	Participants: Rexford Asiedu and Daniel Shapiro's Office, Department of State Results: - Called NYS Dept. of State, Spoke with Daniel Shapiro's assistant. Mr. Shapiro was on a phone call and was not able to receive my call. Previous contacts with the DOS were unsuccessful.
7/16/2007	Phone Consult	Participants: Rexford Asiedu and Demetrius Crichlo, MTAPD Results: Demetrius Crichlo contacted Rexford Asiedu in regard to the questionnaire sent out in April 2007. He informed me that the MTA is willing to cooperate and respond to the questionnaire; however he was not quite sure if the MTA was required to include all of its subsidiaries
7/16/2007	Phone Consult	Participants: John Fishbein and Lori Mithen and Tom Bodden Association of Towns Results: Phone contact originated with Lori Mithen and continued with Tom Bodden, Mr. Bodden e-mailed a listing of programs that the association of town has run at their annual February NYC meetings since 2003 to be included in plan update.
7/16/2007	Phone Consult	Participants: Fred Nuffer and Paul Rush, head of Reservoir Operations and Deputy Director of the Bureau of Water Supply, NYC Department of Environmental Protection Results: Paul has reviewed, edited and updated section on NYCDEP.
7/16/2007	Phone Consult	Participants: Fred Nuffer and Christind Delorier, US Army Corps Results: No return contact. Section on USACOE has been updated and is complete. Data on questionnaire is probably not appropriate or necessary.
7/16/2007	Phone Consult	Participants: John Fishbein and Charles Phillips, Office of Homeland Security Results: The completed Mitigation Survey was e-mailed.
7/16/2007	Phone Consult	Participants: John Fishbein and Ira Forman NY/NJ Port Authority Results: The Mitigation Survey was completed after phone consultation.
7/17/2007	Phone Consult	Participants: Fred Nuffer and Glenn LaFave, Hudson River Results: Questionnaire had already been completed and returned. Edited information taken from questionnaire for use in the HR/BRRD portion of the plan. HR/BRRD

Date	Action	Participants/Outcome
		portion of the plan update completed.
7/18/2007	Phone Consult	Participation: Fred Nuffer and Rene VanSchaack, Greene County Soil and Water Results: Requested a brief summary of flood mitigation programs that had been initiated with local governments in his County. Will incorporate this information in the Soil and Water Conservation District section in the updated plan. (follow-up required)
7/18/2007	SEMO Task Force	Participants: Greg Brunelle, Robert Olazagasti, Dan O'Brien, Richard Minogue, Edward Lips, Brenda Buckman, Resford Asiedu, John Fishbein, Jason McWhirter, Daniel Osburn, and Ran Zhang Results: Planning Committee meeting Mid-August at OHS bldg 7A, Plan will be electronic and updated post disaster or mitigation milestone completion and placed on the website to allow Agencies or organizations to update the sections. Regional Directors will be asked during the regular weekly conference call about counties HASNY information. FEMA has provided NFIP date and this will be used by Dan O'Brien.
7/19/2007	Phone Consult	Participation: Rexford Asiedu and Demitrius Crichlo, MTAPD Results: Discussed the request for information on the MTA as well as all subsidiaries which fall under their jurisdiction. Locating the requested information is problematic for MTA because the previous contact with the agency, Charlie Windel, had retired and present staff are not quite sure what information was created or where it is located. I informed him that I will have a supervisor contact him and assist him with the questionnaire.
7/20/2007	Phone Consult	Participation: Ran Zhang and Martin Matzen, DHS/FEMA Office of the Chief Counsel Results: Discussed the liability issues of the potential landslide pilot.
7/20/2007	Phone Consult	Participation: Rexford Asiedu and Michaela Kochan, Department of Housing and Community Renewal Results: An e-mail from Michaela Kochan was received. Michaela requested a copy of the state Hazard mitigation plan so the DOH can complete the questionnaire which was sent out in April 2007.
7/20/2007	Phone Consult	Participation: Rexford Asiedu and Daniel Shapiro, NYS Department of State. Results: Mr. Shapiro will look over DOS section within the Hazard Mitigation Plan and will have someone on staff update. He informed me that he will get back to me on Tuesday, if not, SEMO should call back and remind home Mr. Shapiro seemed willing to help and assist SEMO in anyway necessary.
7/21/2007	Phone Consult	Participation: Rexford Asiedu and Joe Bovenzi, Genesee/ Finger Lakes Regional Planning Council Results: E-mail statement sent from G/FLRPC received regarding the Councils update in the Hazard Mitigation Plan. A portion of the response will be added to the state update.

Date	Action	Participants/Outcome
7/24/2007	SEMO Task Force partial and IT	<p>Participants: Kevin Ross, Greg Brunelle, Robert Olazagasti, Dan O'Brien, Rexford Asiedu, John Fishbein, Jason McWhirter, Daniel Osburn, Ran Zhang, and Brenda Buckman</p> <p>Results: Space on the agency website and in the server will be available. Discussion of a section response sheet and media for maps. Draft plan is expected to be available for post by 9/15/07. Discussed use of hyperlinks.</p>
7/25/2007	SEMO Task Force	<p>Participants: Richard Minogue, Ed Lips, Fred Nuffer, Rexfore Asiedu, John Fishbein, Jason McWhirter, Daniel Osburn, Ran Zhang and Brenda Buckman</p> <p>Results: Planning Committee meeting mid August at OHS Building 7A was discussed, the Hazard Profile section will be ready for review and Agency's will be asked what they have done 2005 – Present to be better prepared. The message/letter notification will be drafted. A request came for the monetary damages by disaster broken down by county for Public Assistance and Individual Assistance. The PA figures were requested and provided, the IA will have to come from Dept of Labor and we expect a response next week.</p>
7/26/2007	Phone Consult	<p>Participants: Rexford Asiedu and Daniel Shapiro, DOS</p> <p>Results: Received an e-mail from Daniel Shapiro, DOS, with regards to the update of the Dept of State's section in the Hazard Mitigation plan. Mr. Shapiro informed me that Bryant Stevens in OFPC and Tom Mahar in Codes with DOS, will be assisting me directly.</p>
7/27/2007	Phone Consult	<p>Participants: Rexford Asiedu and Bryant Stevens, OFPC</p> <p>Results: Received an e-mail from Bryant Stevens, OFPC, regarding the DOS's update to the Hazard Mitigation Plan. Mr. Stevens informed me that he will be handling all questions relating to the OFPC and will update their section in the plan.</p>
8/1/2007	SEMO Task Force	<p>Participants: Dan O'Brien, Richard Minogue, Edward Lips, Brenda Buckman, Fred Nuffer, Rexford Asiedu, John Fishbein, Jason McWhirter Daniel Osburn</p> <p>Results: Planning meeting scheduled for August 23, 1:00-3:30 and Sept 26, 1:00-3:30 OHS Bldg 7A. The draft agenda and meeting announcement letter was reviewed. Overall plan update.</p>
8/8/2007	SEMO Task Force	<p>Participants: Edward Lips, Brenda Buckman, Susan Bergmann, Rexford Asiedu, John Fishbein, Jason McWhirter and Ran Zhang</p> <p>Results: Review of progress on plan. 60 % done and sections 1,2,3 and 6 sent to FEMA for informal review by Audrey Massa.</p>
8/13/2007	Hazard profile meeting and meeting regarding pilot study	<p>Participants: Schenectady County Economic Development and Planning, U.S. Geological Survey, Schenectady County Attorney's Office, NY Geologic Survey, SEMO, Schenectady Co. Office of Emergency Management, Schenectady Co. Department of Engineering, Schenectady Co. Department of Public Works, NYS Cyber Security and Critical Infrastructure.</p> <p>Results: Discussed the possibility of doing a pilot study of more accurate landslide</p>

Date	Action	Participants/Outcome																						
		analysis and prediction based on soil types and slope analysis. This type of analysis would benefit the state, and given the availability of GIS and LIDAR data, could improve current mapping and prediction. Schenectady Co. Attorney will need to make a determination about the ability to proceed with the pilot.																						
8/15/2007	SEMO Task Force	<p>Participants: Greg Brunelle, Robert Olazagasti, Les Radford, Dan O'Brien, Richard Minogue, Edward Lips, Brenda Buckman, Fred Nuffer, Rexford Asiedu, John Fishbein, Jason McWhirter, Daniel Osburn and Ran Zhang</p> <p>Results: Discussion of upcoming meeting with DPC agencies and other participating organizations for the Plan Update. Discussion of the landslide pilot project</p>																						
8/16/2007	State Economic Development Role in Plan	<p>Participants: SEMO and Empire State Development Corp</p> <p>Results: Clarified the role of economic development in the planning process, and how they could enforce the objectives of the State Plan in Developing areas of the State. Preparation for upcoming meeting on the mitigation action section.</p>																						
8/22/2008	SEMO Task Force	<p>Participants: Susan Bergmann, Dan O'Brien, Richard Minogue, Edward Lips, Brenda Buckman, Fred Nuffer, Rexford Asiedu, John Fishbein, Jason McWhirter, Daniel Osburn and Ran Zhang</p> <p>Results: Plan update progress discussion and preparation for 8/23 meeting.</p>																						
8/23/2007	Planning Committee Meeting	<p>Participants: (Agency/Organizations only)</p> <p style="text-align: center;">NYS Departments</p> <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">Agriculture and Markets</td> <td style="width: 50%;">Office of General Services</td> </tr> <tr> <td>Banking Department</td> <td>Office of Homeland Security</td> </tr> <tr> <td>Criminal Justice</td> <td>Office of Mental Health</td> </tr> <tr> <td>Education</td> <td>Office of Parks and Recreation</td> </tr> <tr> <td>Emergency Management Office</td> <td>Office for Technology</td> </tr> <tr> <td>Energy Research & Development</td> <td>Police</td> </tr> <tr> <td>Health</td> <td>State</td> </tr> <tr> <td>Housing & Community Renewal</td> <td>Transportation</td> </tr> <tr> <td>Metropolitan Transportation Authority</td> <td>Temporary & Disability Assistance</td> </tr> <tr> <td>Military & Naval Affairs</td> <td></td> </tr> </table> <p style="text-align: center;">Private Organizations</p> <p>Empire State Development Corp</p> <p>Local Representatives:</p> <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">Delaware Rive Basin</td> <td style="width: 50%;">Susquehanna River Basin</td> </tr> </table> <p>Results: Attendees reviewed Plan Update Status. Hazard Profile Section was summarized and copies distributed for review and comment. Section 4- Mitigation Strategy was reviewed in detail and some revisions to goals, objectives and activities were recommended. In general, those present concurred with this section, and with edits suggested. Mitigation Strategy assessment forms were collected. Comment and feed back forms were distributed and agencies were asked to return them. Further follow-up will be conducted to gain input from agencies not represented at this meeting.</p>	Agriculture and Markets	Office of General Services	Banking Department	Office of Homeland Security	Criminal Justice	Office of Mental Health	Education	Office of Parks and Recreation	Emergency Management Office	Office for Technology	Energy Research & Development	Police	Health	State	Housing & Community Renewal	Transportation	Metropolitan Transportation Authority	Temporary & Disability Assistance	Military & Naval Affairs		Delaware Rive Basin	Susquehanna River Basin
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8/29/2007	SEMO Task Force	<p>Participants: Robert Olazagasti, Richard Minogue, Edward Lips, Brenda Buckman, Fred Nuffer, Rexford Asiedu, John Fishbein, Jason McWhirter</p> <p>Results: Plan Update progress discussed.</p>																						

Date	Action	Participants/Outcome
8/29/2007	Landslide Pilot Study	Participants: Dan O'Brien NYSEMO Bill Kappel USGS Bill Kelly, Andy Kozlowski NYS Geological Survey Results: Preliminary landslide methodology discussed.
9/5/2007	SEMO meeting w/ Department of Public Service (PSC)	Participants: John Fishbein(SEMO), Paul D. Eddy (DPS), Kate Tallmadge (DPS) Results: Clarified many key issues regarding the Power Failure Section within the Hazard Profile Section of the NYS Hazard Mitigation Plan.
9/5/2007	SEMO Task Force	Participants: Richard Minogue, Dan O'Brien, Brenda Buckman, Rexford Asiedu, John Fishbein, Jason McWhirter Results: Plan update status reviewed and prepared for September Planning Meeting.
9/6/2007	Phone Consult	Participants: John Fishbein (SEMO), Tom Mahar DOS, Brian Tolisoen (DOS) Results: Clarified and received information regarding NYS Building Codes, specifically regarding wind and seismic load information.
9/12/2007	SEMO Task Force	Participants: Robert Olazagasti, Dan O'Brien, Richard Minogue, Edward Lips, Brenda Buckman, Fred Nuffer, Rexford Asiedu, John Fishbein, Jason McWhirter Results: Plan update status reviewed and "draft "plan copy for cd distribution to planning committee with September 26, 2007 meeting notice. Updated earthquake maps were presented.
9/19/2007	SEMO Task Force	Participants: Robert Olazagasti, Richard Minogue, Edward Lips, Brenda Buckman, Fred Nuffer, Rexford Asiedu, John Fishbein, Jason McWhirter Results: Plan update progress and the agenda for 9/26/07 meeting discussed.
9/26/07	Planning Committee Meeting	Participants: (Agency/Organizations only) NYS Departments Agriculture and Markets Banking Department Bridge Authority Criminal Justice Education Emergency Management Office Energy Research & Development Environmental Conservation Health Housing & Community Renewal Metropolitan Transportation Authority Military & Naval Affairs Office of General Services NYC Dept. of Environmental Protection Private Organizations American Red Cross Office of Homeland Security Canal Corporation Office of Mental Health Office of Parks and Recreation Office for Technology Port Authority NY & NJ Public Service Commission Fire Prevention and Control State Transportation Temporary & Disability Assistance Thruway Authority Empire State Development Corp

Date	Action	Participants/Outcome
		<p>Local Representatives: Hudson River-Black River Reg. Dist.</p> <p>Results: Discussed the role of State Agencies and the DPC in the Hazard Mitigation Planning Process. How to keep mitigation concepts alive. Discussed how the plan should drive policy and agency actions rather than just meet FEMA requirements. Presentation of comments from Surveys Section 4. Presentation of Risk Assessment improvements. Draft of plan to FEMA – October 15. Timelines for completion. Compile recommendations to the DPC to guide future planning efforts.</p>
10/03/2007	SEMO Task Force	<p>Participants: Dan O'Brien, Richard Minogue, Edward Lips, Rexford Asiedu, John Fishbein, and Jason McWhirter</p> <p>Results: Plan update progress discussed, supplies and generation of draft copies was discussed.</p>
10/10/07	SEMO Task Force	<p>Participants: Richard Minogue, Dan O'Brien, Rexford Asiedu, John Fishbein, Jason McWhirter, Fred Nuffer and Brenda Gausby</p> <p>Results: Plan update progress discussed. Final revisions to draft being are to be completed by the following week in order to transmit a copy to FEMA.</p>
10/16/07	SEMO Task Force w/ NWS	<p>Participants: SEMO: Richard Minogue, Dan O'Brien, Rexford Asiedu, John Fishbein, Jason McWhirter, Fred Nuffer, NWS: John Quinlan, Ray O'Keefe, Steve DiRienzo</p> <p>Results: Haz Mit Plan Briefing, GIS Presentation, in depth discussion of the Hazards of NYS. Resources were documented and provided in follow up emails</p>
10/24/07	SEMO Task Force	<p>Participants: Robert Olazagasti, Richard Minogue, Dan O'Brien, Rexford Asiedu, John Fishbein, Jason McWhirter, Edward Lips and Brenda Gausby</p> <p>Results: Plan update progress discussed. Richard Minogue gave an update on the First Draft to FEMA and discussion with Audrey Massa.</p>
11/07/07	SEMO Task Force	<p>Participants: Robert Olazagasti, Richard Minogue, Dan O'Brien, Rexford Asiedu, John Fishbein, Jason McWhirter, Fred Nuffer and Brenda Gausby</p> <p>Results: Plan update progress discussed. Contacts will be made with vendors for printing/editing services.</p>
11/9/2007	Landslide Pilot Schenectady	<p>Participants: Dan O'Brien, Jason McWhirter NYSEMO William Kappel USGS William Kelly, Andrew Kozlowski NYSGS Marl Storti Schenectady County Eco and Planning Dept. Tony Minnitti NYSDOT.</p> <p>Results: Presentation of the Schenectady landslide pilot. The next step agreed upon of validating the pilot study with historic events.</p>
11/15/2007	SEMO meeting with NYS Education	<p>Participants: Dan O'Brien, NY State Education Office of Facility Development, NYS Archives.</p> <p>Results: Overview of GIS risk assessment.</p>
12/05/07	SEMO Task	<p>Participants: Robert Olazagasti, Richard Minogue, John Fishbein, Jason McWhirter,</p>

Date	Action	Participants/Outcome
	Force	Edward Lips and Brenda Gausby Results: Plan update progress discussed. The new version is posted on the SEMO web site. Recent information from Audrey regarding revisions was discussed. The group will focus on required revisions and on comments only officially transmitted from FEMA.
12/11/07	NY City OEM	Participants: Dan O'Brien, Jim McConnell, Lynn Seirup, Dorthy Nash. Results: Update on OEM's hazard mitigation plan. Sharing of information and ideas on the NYSEMO and NYCOEM hazard mitigation plans.
12/12/07	SEMO Task Force	Participants: Robert Olazagasti, Richard Minogue, John Fishbein, Jason McWhirter and Brenda Gausby Results: Discuss the recent information from FEMA.
12/12/07	Meeting with FEMA (Phone Consult)	Participants: Audery Massa, Scott Dulle, Brian Shumon, Dan O'Brien, Richard Minogue, John Fishbein, Fred Nuffer, Jason McWhirter. Results: Clarified and reviewed hazard mitigation issues regarding the NYS HAZ MIT Plan.

Addressing Data Deficiencies

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

The information that was used to calculate development trends was the U.S. Census Bureau's 2005 Population Estimates, which provides population change rates by municipality, an indicator of where development has occurred. It is hoped that the planned USGS update to the 1993 Land Cover dataset will be available for the next Plan revision. This will enable a comparison of recent land cover with the 1993 dataset providing a more geographically specific assessment of growth that is needed to better gauge increased exposure in hazardous areas.

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 New York State Office of Real Property System.

A major data deficiency is the limited information New York State maintains on its building assets needed for risk assessment. Currently, the primary database of state buildings is the NYS Office of General Service's "Fixed Asset Inventory", which contains over 16,000 building records. While this database contains useful information such as building value and square footage, it does not contain basic structural information needed to make general assessments of vulnerability to earthquakes, wind and flooding. In addition to the need to gather missing structural information there is a need to refine the accuracy of the geographic coordinates to enable better GIS screening of these buildings as to their proximity to floodplains; the presence of soils that amplify earthquake shaking and other hazardous areas.

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. These plans were reviewed and pertinent information was incorporated into the current plan.

- FEMA *Plan Development Toolkit*: <http://www.fema.gov/about/regionii/toolkit.shtm>
- FEMA *Multi-Hazard Mitigation Planning Guidance under the Disaster Mitigation Act of 2000*
- FEMA *Hazard Mitigation Grant Program Desk Reference*
- 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 Flood Mitigation and Multiple Hazard Mitigation Plans.* With the requirement that the State plan incorporates local planning conditions, these plans were reviewed and pertinent elements were incorporated into the State Plan. Many local hazard mitigation plans were reviewed, but the following were most specifically useful in the completion of the 2008 State Plan Update:
 - *Schenectady County*
 - *Buffalo City*
 - *Erie County*
 - *Nassau County*
 - *Delaware County*
 - *New York City*
- *Local Waterfront Revitalization Plans (LWRPs): Available LWRPs, in particular, the coastal policies that the 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.*
- *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. 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 compliments 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 around the region related to coastal flooding and erosion from the Nor’easter of December, 1992 and other similar storms.
- *New York State Department of Health Pandemic Influenza Plan, February 7, 2006:* This is a comprehensive plan for the prevention, detection and response to a pandemic flu outbreak. It can be viewed on the DOH website.

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 loosely coordinated. The State Hazard Mitigation Plan acts as an umbrella document that identifies the various risks and assesses the mitigation actions, which are being implemented to reduce these risks. Through the Plan, efforts of dissimilar groups with similar objectives are coordinated. The following sections describe some of these efforts.

2.3 – State Agencies

The following sections describe in detail a few State agencies that perform mitigation activities on a routine basis. Many State agencies, however, contribute to statewide mitigation efforts. **Table 2-3** presents a matrix showing the roles the various State agencies play in the statewide mitigation efforts. The State has a substantial role in ensuring mitigation measures of various types are implemented at the Local level. The State 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. 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/mitigation, which may be included in, or result from, any and all actions of the agency. Agency attention to disaster prevention/mitigation activities is a highly desirable goal for all State agencies. State agencies 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/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 which contribute to disaster prevention/mitigation. These activities may be conducted by direction of law, rule, or agency discretion or as part of agency budgets. The identified actions are 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.

**TABLE 2-3
STATE AGENCIES' ROLES IN MITIGATION EFFORTS**

	Dept. of Agriculture and Markets	Office of Children & Family Services	Criminal Justice Services	State Education Department	Energy Research & Development	DEC	DOH	Division of Housing/Community Renewal	Department of Insurance	DOL	Office of Mental Health	DMNA	Public Service Commission	Division of State Police	Department of State	Thruway Authority	DOI	SEMO	Office of Temporary & Disability Assistance	Urban Development Corporation	American Red Cross	Department of Corrections	Governor's Office for Small Cities
Compliance/ Enforcement Programs	X	X		X	X	X		X	X	X	X		X	X	X	X							
Education/Public Awareness	X			X	X	X	X		X		X			X	X		X	X			X		X
Equipment & Supplies		X				X	X				X	X		X	X	X	X				X		
Zoning/Land Use Programs						X		X						X		X	X			X			X
Monitor Potential Disasters	X	X		X	X	X	X				X		X	X	X		X	X				X	
Plans/Planning	X	X		X	X	X		X			X		X	X	X	X	X	X	X				X
Prevention/Mitigation	X	X	X	X	X	X		X			X		X		X	X	X	X	X			X	
Resource Management	X	X		X	X	X		X			X			X				X	X			X	
Technical Assistance		X		X		X		X			X	X		X	X		X	X					X
Training		X		X		X		X	X		X		X	X	X	X	X	X	X				
Risk/Vulnerability Assessment				X		X	X				X			X				X				X	

Compliance/Enforcement Programs

Disasters can be prevented/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 problems, or will at least provide warning. State regulatory oversight is a key element in preventing/mitigating disasters.

Education/Public Awareness

State agencies provide information to the public that allows them to take actions to reduce the effects of disasters. Experience has shown that a well informed public has contributed 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 are used to respond to disasters. The identification, acquisition, and deployment of such equipment are preventive/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, with wise land use management, disasters can be avoided or reduced. As New York is a home rule State, which means 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 anticipate situations that could develop into a disaster. A reporting and warning system, utilizing field staff, relays the information through the State Agency Liaisons to SEMO, 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

Many State agencies' projects, policies and programs, with their influence on Local government activities, will 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 what effect disasters will have on a community. When allocating resources, State agencies should consider the impact this will have on 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 such services, localities cannot always provide such assistance independently. Providing State agency technical assistance to communities can prevent/mitigate disasters.

Training

Disaster plans require trained personnel to implement them. 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 – New York State Emergency Management Office (NYS/SEMO)

Within the Planning Section of SEMO, Mitigation Staff have coordinated with the Response Planning Staff to assist in ongoing developments and refinements of the “Empire Comprehensive Emergency Management Plan” or CEMP. The Empire CEMP is a sample, all-hazards, comprehensive emergency management plan designed to assist Local governments in the development of their own CEMP. The CEMP Plan serves as a key document in a jurisdiction under which all other locally-developed plans build upon or annex to. Further, the sample CEMP provides for the policy, oversight, and direction across all phases of emergency management in a Preparedness/Risk Reduction (prevention and mitigation), Response and Recovery format. The Planning section staff is working in unison to generate planning guidance that serves the end goals of both mitigation planning and response planning in a manner that is consistent with mitigation planning requirements, as well as State Executive Law, generally-accepted planning practices and in follow-up efforts to ensure NIMS compliance. Moreover, the design and implementation of this planning guidance is reinforced through State-developed Professional Development Series (PDS) course curriculum on emergency planning. Collectively, these efforts would ensure that planning guidance and assistance from the State is stratified across all program areas and will only help to reduce the planning burden on local communities. The Mitigation Section of SEMO also participates on a regular basis in Local CEMP workshops that are organized by the Planning Section.

2.3.1.1 – SEMO Sections

Under the leadership of the Executive Branch of SEMO, are the Hazard Mitigation, Planning and Recovery Sections. The following three sections provide section-specific activities performed by SEMO.

2.3.1.2 – The Mitigation Section

The Mitigation Section oversees the State's Pre-Disaster Mitigation, Flood Mitigation Assistance, and Hazard Mitigation Grant programs. The Mitigation Section also facilitates community mitigation planning.

Duties of the Mitigation Section include, but are not necessarily limited to, the following:

- Implementing and updating the State All Hazard Mitigation Plan
- Administering the Hazard Mitigation Grant Program
- Administering the Pre-Disaster Mitigation Program
- Administering the Flood Mitigation Assistance Program
- Providing technical assistance to communities during the preparation of community mitigation plans
- Working with Federal, State, and Local agencies in the implementation of hazard mitigation plans
- Providing technical assistance and training programs to State and Local personnel and the private sector
- Coordinating mitigation operations following disaster declarations
- Keeping abreast of mitigation requirements and technologies and transferring them to Local governments and other interested parties.
- Serving on various Federal, State, and Local panels or committees for the development, implementation and promotion of hazard mitigation initiatives.
- Working in conjunction with State agencies to promote State and Federal programs that result in mitigation.

2.3.1.3 – The Planning Section

The Planning Section oversees the State's Comprehensive Emergency Management Planning efforts, the Coastal Preparedness Program, Continuity of Operations Planning, and serves as the lead in providing State agencies and Local governments with all-hazards response planning guidance and support. In addition, the Planning Section routinely conducts Hazard Analysis Workshops, threat assessments, vulnerability assessments, gap analyses reviews, and is the lead for providing Local governments with numerous training courses on emergency planning. Duties of the Planning section include:

- Coordinating State response planning efforts with State agencies and Local governments.
- Providing planning guidance to State and Locals in Continuity of Operations Planning, which includes co-delivery of COOP courses as authorized by the DHS/Office of Grants and Training (MGT-331).
- Supporting the conduct of various risk and vulnerability assessments.
- Provide planning guidance and assistance on Pandemic Influenza that is consistent with guidance from State and Federal public health officials.
- Provide guidance and support to State and Locals for planning-based NIMS requirements.
- Deliver the State's version of the FEMA Professional Development Series (PDS) course on Emergency Planning (G-235), and support the delivery of two other PDS courses.
- Deliver the State's Advanced Planning Course, which goes beyond the rudimentary planning requirements in the basic planning course, G-235.
- Provide direct, hand-on technical planning assistance to State and Local agencies.
- Provide guidance and support to State and Local governments on Coastal Preparedness, Hazardous Materials Preparedness, and CBRNE-based incidents.
- In support of the State's Department of Agriculture and Markets, planning staff provide guidance and assistance in support of animal preparedness to address the transportation, evacuation, and shelter of companion animals in response to a disaster.

- Section staff serves on several working groups as the State’s point of contact for proposed planning revisions to the Catastrophic Annex (and Supplement), Evacuation Annex, and proposed animal planning efforts of the National Response Plan (NRP).

SEMO continues to support planning, training, public information, and other initiatives to enhance the New York City-Long Island Region's level of preparedness for hurricanes and coastal storms. The continuing planning priority on Long Island continues to involve the communities in a comprehensive mitigation and response planning process. These efforts are continuously reiterated during the Hurricane Emergency Conference held each year. Other program initiatives include the placement of storm preparedness information in telephone books distributed throughout Long Island and regular presentations on the coastal storm threat by SEMO staff in SEMO Region I. New York State is also involved in numerous coastal preparedness planning meetings, including the FEMA-Corps of Engineers Metropolitan New York Hurricane Transportation Study, Regional Evacuation Liaison Team (RELT), FEMA Gap analysis efforts, and is providing direct planning support to County and Local governments.

A. New York State Earthquake Preparedness Program

The New York State Emergency Management Office in partnership with member agencies and organizations of the New York City Area Consortium for Earthquake Loss Mitigation (NYCEM) has completed an earthquake loss estimation study of the New York City metropolitan area using the FEMA HAZUS software. Major efforts of this study included the development of soil databases for the New York City Metropolitan Region and integration of the New York City Department of Finance’s “Mass Appraisal System” database of buildings into the HAZUS model. Copies of this report are found at: <http://www.nycem.org/default.asp>

The Earthquake Program includes a cooperative effort with the New York State Geological Survey in seismic hazard mapping involving a statewide classification of the State’s surficial geologic materials according to National Earthquake Hazard Reduction Program (NEHRP) Soil Classification System. The Earthquake profile section of the plan provides county maps showing the adjustment to the USGS seismic maps based on soil factors derived from this effort. This information has also been incorporated in HAZUS models that have been used in support of state and local earthquake exercises.

2.3.1.4 – The Recovery Section

The Recovery Section manages the Public Assistance Program and ensures mitigation actions are included in projects supported by the Public Assistance Program. In addition to performing mitigation projects as part of the disaster recovery process, the Recovery Section informs the Mitigation Section of any potential need for mitigation projects that may be outside of the Recovery Section’s scope of duties.

2.3.1.5 - CEMP

The following has been included to further explain the role of the CEMP and how it integrates with Mitigation Planning:

I. CEMP History, Authority, and Overview

At the close of the civil defense era, the State of New York developed and utilized an Emergency Operations Plan (EOP). As with a typical EOP format, the plan was primarily response oriented and lacked little in supporting pre-disaster and post-disaster response activities. In 1979, State Executive Law, Article 2-B was signed into law and required the development of a State Disaster Preparedness Plan. Under Article 2-B, the plan was redesigned to address all-hazards emergency preparedness, response, and recovery. This new approach resulted in the development of the New York State Comprehensive Emergency Management Plan (CEMP).

Section 21 of State Executive Law, Article 2-B identifies the State Disaster Preparedness Commission (DPC) and States that the DPC will coordinate the State's emergency management program. The section also identifies 23 State agencies or offices and one volunteer organization, the American Red Cross, which shall participate in emergency management activities. Section 22 of Article 2-B identifies the roles and responsibilities of the Disaster Preparedness Commission, of which includes the preparation of State disaster plans; directing State disaster operations and coordinating those with Local government operations; and coordinating with Federal, State, and private recovery efforts. Further, the State Emergency Management Office has been authorized to serve as the administrative arm to the Disaster Preparedness Commission.

SEMO utilizes the authority in Article 2-B to help set the direction in a coordinated, stratified, and cohesive Statewide emergency preparedness effort. At all levels of the organization, SEMO meets frequently with various agencies and organizations to address a variety of all-hazards based preparedness, response and recovery concepts, policies, plans, and procedures.

The following discussion provides for an overall summary of the State's planning methodology and provides the reader with understanding of just how well integrated the State's emergency management program is stratified across all hazards and program areas.

II. Purpose and Scope of the New York State CEMP

In 2003, the State of New York began an effort to completely reorganize its planning methodology. The effort culminated in the development of the State Comprehensive Emergency Management Plan (CEMP) in three distinct, but interconnected volumes. These are:

- Volume 1: All-Hazard Mitigation Plan
- Volume 2: Response and Short-Term Recovery
- Volume 3: Long-Term Recovery Plan

Volume 1: *All-Hazard Mitigation Plan* is a comprehensive analysis and profiling of all natural hazards that impact New York State (this Plan). This plan requires a risk assessment of the community and public assets and estimates of damage resulting from hazards are utilized to propose mitigation goals, objectives, and activities designed to reduce property damage and loss of life. This information is subject to FEMA review and approval, and it must be maintained through regular assessment of progress made on the proposed activities, and it must be updated every three years.

Volume 2: *Response and Short-Term Recovery*, identifies the State's overarching policies, authorities and response organizational structure that will be implemented in an emergency or disaster situation that warrants a State response. In addition, this document identifies the concept of operations, lines of coordination, and the centralized coordination of resources that will be utilized in directing the State's resources and capabilities in responding to and recovering from a disaster. Further, this document serves as the basic foundational framework for the State's response levels, and the operational basis on which functional and hazard-specific annexes will be built upon. State agencies support the implementation of this document pursuant to statutory obligations founded in State and/or Federal regulation. Agency-specific operational plans in support of this document are considered as well.

Under this realignment, the basic tenants of each volume serve as the state's over-arching document of policies, authorities, command and control, response and recovery mechanisms and capabilities for how the State of New York will prepare for, respond to, and recover from all hazards. In addition, there are seven functional annexes to Volume 2 that serve as emergency support functions, similar to the Emergency Support Functions (ESFs) in the NRP, to coordinate response activities. Each functional annex addresses an area or function of critical concern to ensure that an effective coordinated emergency response takes place throughout the State. Further, each functional annex combines the collective input from each group to apply their respective areas of expertise, capabilities, facilities, equipment, and personnel to address one specific area or function of concern.

The State utilizes a variety of other functional annexes (support annexes) and hazard-specific annexes to the CEMP. Under this design, the development of each annex builds upon the

policies, concepts, and authorities identified in the CEMP to serve the goals of the planning effort. The scope of each functional or hazard-specific annex is very defined and narrow from an all-hazards approach to a specific hazard or function. In the transition, the strategic concepts in the CEMP are transitioned into tactical operations to support the State's response.

In recognizing and understanding the full purpose and scope of the CEMP, several items should be identified. These include:

- The variety of emergencies or disaster situations that could occur in the State. Depending on the event, the hazard may be relatively routine in nature, or may pose a variety of response issues and concerns that have serious implications. As noted in the previous modules, Local government is typically the first line of defense in response to an emergency. The response generated by Local government may be adequate to remedy the situation, or the event may overwhelm some or all of the resources at the Local level.
- In most instances, State assistance is supplemental to Local efforts. Depending on the event, State response actions may occur concurrently or consecutively with the Local response. In each case, State response and short-term recovery actions may include a variety of actions that will help in restoring essential services and systems to minimum operating standards.
- It is important to note that while State agencies possess a wealth of resources and response capabilities, the State may also become overwhelmed, necessitating EMAC and/or Federal resources to effectively respond to and recover from the event. Further, depending on the event, some emergencies may warrant an immediate Federal presence (i.e., the WTC) absent the exhaustion of State and/or Local resources.

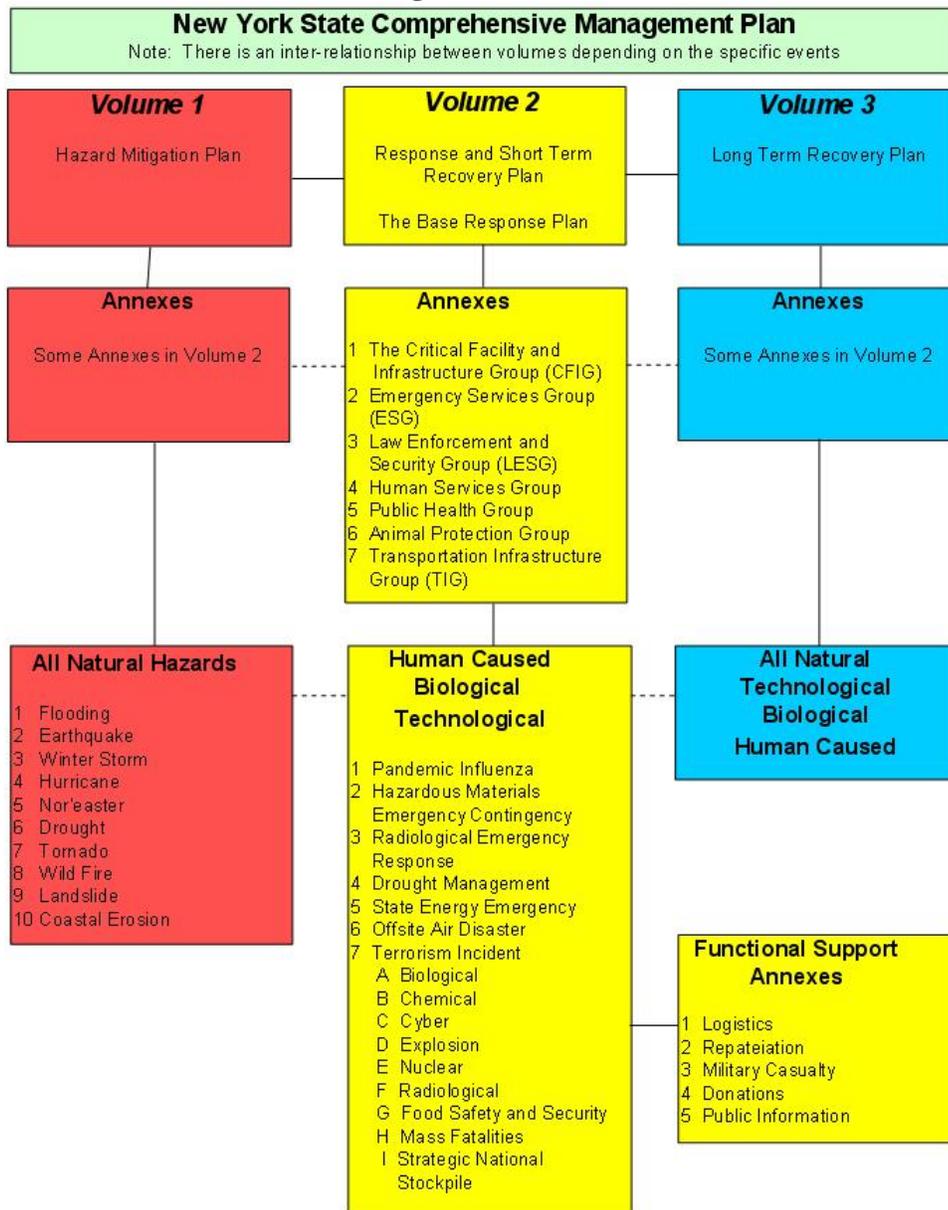
The CEMP applies to all natural, technological, and human-caused emergencies or disasters where Local capabilities may be exceeded, necessitating the use of State and/or Federal agencies and resources. In addition, the mechanisms in the CEMP are designed to address short-term recovery from any hazard that could adversely affect the State, and provide for seamless transition to the long-term recovery phase. The elements of the CEMP may also be utilized for an increase in threat, regardless of the hazard, or pre-planned events that warrant the State to assume a more proactive and protective posture. These include mass gatherings, holiday celebrations and National Special Security Events (NSSEs).

The CEMP is structured in such a manner that allows for flexibility and application across a broad range of hazards and functions. In addition, the overarching policies, authorities and functions in Volume 2 serve as the foundation and basis for the development and the implementation of other State response plans, including all functional and hazard-specific annexes. A graphic depiction of the CEMP's structure is depicted in the following

III. NYS CEMP Structure and Functional Groups

1. NYS CEMP Structure

Figure 2-2



2. Functional Groups Under Volume 2, *Response and Short-Term Recovery*

Volume 2 is supported by seven Functional (Performance) Annexes. Each annex was developed by a State Functional Group comprising of multiple State agencies, which serve as coordinative points and mechanisms similar to the Federal Emergency Support Functions (ESFs) in the NRP.

When implemented, each annex applies the group's collective response capabilities and activities to the hazard while using the group's expertise, capabilities, facilities, equipment and personnel to address one specific area or function of concern. Each State Functional Group has a written protocol, a specific overall mission, and includes a lead or supervisory agency to help coordinate the overall efforts of the group. The groups are as follows:

Transportation Infrastructure Group (TIG): The Transportation Infrastructure Group Functional Annex is a plan designed to address response and short-term recovery from natural, technological, or human-origin hazards that could adversely affect the transportation infrastructure. Response and short-term recovery actions that will restore vital life support systems to minimum operating conditions are identified below.

For State Agency transportation infrastructure facilities:

- Conduct damage assessment to determine status of facilities and/or modes;
- Provide technical advice and evaluation and engineering, contracting construction management, and inspection services
- Contract for the emergency repair
- Monitor the operational status of State-owned and operated facilities
- Provide other support to assist State agencies in meeting goals related to lifesaving and life-sustaining actions, damage assessment, and short-term recovery activities.

For Local transportation infrastructure facilities following a Gubernatorial State Declaration of Disaster Emergency:

- Coordinate with Local officials to conduct damage assessment to determine the condition of facilities
- Perform temporary repairs and/or clearance of facility obstruction(s) when Local resources are depleted and transportation infrastructure remains closed posing life-threatening situations
- Provide technical advice and evaluation
- Assist with contracting, construction management, and inspection
- Provide assistance with contracting for emergency repairs to meet goals related to lifesaving and life-sustaining actions, damage assessment, and short-term recovery activities

Although it is anticipated that the Transportation Infrastructure Group, as well as other functional groups, would be activated for major emergencies that would include a Gubernatorial State Declaration of Disaster Emergency, activation of the Transportation Infrastructure Group is not limited to a Gubernatorial State Declaration of Disaster Emergency. Such response and short-

term recovery actions for Local transportation infrastructure may be taken in the absence of a gubernatorial declaration only under the most exigent circumstances as directed by the Governor.

The Critical Facility and Infrastructure Group (CFIG): The role of the CFIG Functional Group is to provide coordinated, short-term, and focused State assistance to State agencies and Local governments that have experienced impaired or lost critical facilities and/or infrastructure that may impact public health and/or create life-threatening and unsafe situations. In addition, the CFIG can provide for monitoring and reporting of the operational status of State critical facilities and infrastructure during emergency situations. The CFIG provides technical advice and evaluation, engineering services, contracting assistance for construction management and inspection, contracting for the emergency repair of water and wastewater treatment facilities, public buildings, public property, Municipal and State utilities, and other non-transportation infrastructure; and real estate support to assist State agencies and Local governments in meeting goals related to lifesaving and life-sustaining actions, damage mitigation, and recovery activities.

Emergency Services Group (ESG): The role of the ESG is to detect and suppress wildland, rural, and urban fires resulting from, or occurring coincidentally with an incident requiring State assistance. The Group can provide specialized lifesaving assistance to State and Local authorities. Urban Search and Rescue operational activities include locating, extricating, and providing on-site medical treatment of victims trapped in collapsed structures. Non-Urban Search and Rescue operational activities include locating missing persons, locating lost boats, locating downed aircraft, extricating people if necessary, and treating victims upon rescue. The ESG provides State support to State and Local governments in response to an actual or potential discharge and/or release of hazardous materials following a State Disaster Emergency Declaration. The group coordinates requests for and deployment of Federal resources needed, interoperating with Federal ESFs #4, #9, and #10 resources requested to assist State response. The Group may be activated without a State Disaster Emergency Declaration. Following the response phase, the Group can provide resource support to Local emergency services in establishing and maintaining a State of readiness consistent with generally accepted standards. The Group can also support post-incident assessments, evaluations, and legal actions resulting from a hazardous chemicals release.

Law Enforcement and Security Group (LESG): The role of the LESG is to coordinate State law enforcement personnel to protect life and property, as appropriate. This includes utilizing statewide communications networks for information transfer and sharing, assisting in evacuations and warning, support of Local responders, providing security and protection, assisting in identification and disposition of the dead, and providing limited aviation equipment and support. The Group can support preliminary damage assessment and situational information from affected areas, augment security in evacuated areas and support traffic and access control points that may be used in population repatriation and family reunification.

Human Services Group (HSG): The Human Services Group Coordinates State and voluntary agencies assistance in support of Local efforts to meet the mass care needs of disaster victims. This assistance will support the local delivery of mass care services of shelter, feeding, and mental health services to disaster victims; the establishment of systems to provide bulk distribution of emergency relief supplies to disaster victims. In addition to an enormous response capability, the Humans Services Group can assist in supporting disaster mental health services and the collection of information to operate a Disaster Welfare Information (DWI) system for the purpose of reporting victim status and assisting in family reunification.

Public Health Group (PHG): The Public Health Group provides coordinated State assistance to supplement State and Local resources in response to a public health and emergency medical service care needs. The Group may coordinate State and Federal resources during a developing potential medical situation, including with Federal ESF #8 resources requested to assist the State response. The Group can support a variety of public health-related functions including follow-up epidemiological surveillance, supporting the health and hospital network capabilities, and issuing public health advisories on health issues that stem from the disaster.

Animal Protection Group (APG): The Animal Protection Group coordinates response activities and resources to provide protection to human and animal populations from animal disease outbreaks, natural disasters, and other emergencies when resources are, or may be expected to be, exceeded. In addition, it provides an overview of the roles and responsibilities of the State, Federal, and Private agencies functioning under this annex. The annex also describes the emergency response organization and assigns responsibilities for various animal protection functions. The APG can provide assistance in the identification of livestock and reunification of livestock with the appropriate owner. Recovery support includes potential State and Federal provisions for reimbursement for livestock lost as a result of the disaster.

Additional Functional and Hazard-Specific Annexes

As mentioned, Volume 2 of the CEMP pinpoints specific policy and overall State incident management coordination and its implementation is supported by the activation of individual agencies or State Functional Groups. These policies, authorities, and concepts are primarily strategic in nature to allow for adjustment and application across a broad range of functions and hazards. This broad “view” of the response is not only desirable, but is necessary in allowing State adjustments and lays the foundation for hazard-specific and functional annexes.

Unlike the overarching pieces in Volume 2, planning for a specific hazard (i.e., Terrorism) or function (Donations Management) warrants an in-depth and narrowed view. In developing such documents, the scope of the CEMP is narrowed from an all-hazards perspective to a well-defined hazard or function. In doing so, the policy and strategic sense of the CEMP becomes a tactical element implemented for that purpose.

The planning methodology that is employed in developing these annexes is dynamic and needs to be carefully drawn. These annexes need to build upon what already exists in Volume 2 and not undermine those policies and activities. Further, in applying State resources to this hazard or function, roles and responsibilities may be defined in an agency-specific (individual) standpoint or from a State Functional Group standpoint. The following is a list of the State's hazard-specific and functional annexes, including the 7 Functional Groups:

Functional Annexes to Volume 2: Response and Short-Term Recovery Plan

Law Enforcement and Security

Emergency Services

Critical Facilities and Infrastructure

Transportation Infrastructure

Public Health

Human Services

- Includes Appendices for Food, Shelter, and Water.

Animal Protection

- Includes an Appendix for Emerging Infectious Diseases in Non-Human Populations.
- Includes an Appendix to shelter companion animals.

Hazard Specific Annexes to the CEMP

* Pandemic Influenza Annex

Hazardous Materials Emergency Contingency Annex

Radiological Emergency Response Annex

Drought Management Annex

State Energy Emergency Annex

Offsite Air Disaster Annex

Terrorism Incident Annex

- Biological Terrorism Response Appendix
- Chemical Response Appendix
- Cyber Terrorism Appendix
- Explosion Response Appendix
- Nuclear Device Response Appendix
- Radiological Materials Response Appendix
- Food Safety and Security Appendix
- Mass Fatalities Appendix
- Strategic National Stockpile Appendix and CHEMPACK Attachment

Functional (support) Annexes to the CEMP

Emergency Mass Repatriation Annex

Military Mass Casualty Plan

Donations Management Annex

Emergency Public Information Annex

***Pandemic Influenza**

For the purposes of this report, Pandemic Influenza was not profiled as a Natural Hazard. New York State recognizes the significant risk that a Pandemic Influenza poses on the population, and for that reason, NYS has developed an extensive plan which addresses such an event. In addition to the Pandemic Plan, there is an annex within the New York State Comprehensive Emergency Management Plan (CEMP) which is devoted to Pandemic Influenza as well as other health related issues. For more information regarding Pandemic Influenza or other health related concerns, please visit the NYS Department of Health website at <http://www.health.state.ny.us/>.

3. CEMP Volume 3: Long-Term Recovery Planning

Volume 3 of the State Comprehensive Emergency Management Plan CEMP is the Long-Term Recovery Plan.

- This volume includes the mechanisms for utilizing long-term recovery components, including mitigation, provided for under the Federal Robert T. Stafford Disaster Relief and Emergency Assistance Act and a variety of Federal-State programs. Further, this volume provides specificity for coordinating with ESF-14 of the NRP, Long-Term Community Recovery, and Mitigation Annex.

Volume 3 also recognizes the primacy of Local governments in the implementation of long-term recovery plans and depending on the nature and impact of the disaster, new programs might be necessary to effectuate full recovery.

2.3.1.6 - State Approach for Integrating Mitigation Initiatives (Capability)

- *§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)(ii) The State mitigation strategy shall include a discussion of the State's pre- and post-disaster hazard management policies, programs, and capabilities to mitigate the hazards in the area, including:*
 - *An evaluation of State laws, regulations, policies, and programs related to hazard mitigation as well as to development in hazard-prone areas and;*
 - *A discussion of State funding capabilities for hazard mitigation projects*
- *§201.5(b) Enhanced State Mitigation Plans must include all elements of the Standard State Mitigation Plan identified in §201.4...*

The goal of the State All-Hazard Mitigation Plan is to motivate State agencies as well as the public and private sector, to mitigate the effects of hazards, encourage on-going mitigation activities, and to establish priorities for hazard mitigation programs at all levels of the State.

The SEMO Mitigation Section has been active in developing working partnerships with Federal, State, and Local agencies and organizations. SEMO periodically meets with the DPC and other governmental agencies to encourage the incorporation of mitigation into daily activities.

To this end, the Mitigation Section of SEMO held several meetings with various State agencies to determine which programs are beneficial to hazard mitigation planning.

The current Comprehensive State Hazard Mitigation Program that exists in New York State was established in 1995. In addition to the new and expanded programs that are administered by SEMO, other programs are administered by, or in conjunction with other agencies.

SEMO will continue to work with the various agencies and organizations across the State to explore methods of integrating mitigation into the daily activities of those entities.

SEMO manages federally supported programs that foster mitigation, such as Earthquake, Hurricane, Flood Mitigation Assistance, Hazard Mitigation Grant Programs, and the Pre-Disaster Mitigation Program.

State sponsored programs administered by SEMO are listed below.

A. State Emergency Planning Program

Article 2-B, NYS Executive Law requires the preparation of State disaster preparedness plans that shall include prevention/mitigation, response, and recovery. In addition, the law authorizes each Local government to develop its own disaster preparedness plan. In developing local disaster preparedness plans, jurisdictions must, at a minimum, address a broad range of topics spanning all-hazards preparedness, response, and recovery in each plan. Further, the plans must include consideration of reconstruction, removal, or relocation of damaged facilities, new or amended land use regulations and plans for economic recovery. As part of the planning requirements, portions of the plan are earmarked to prevent and minimize the effects of disasters and 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, zoning and other land use programs
- Such other measures as reasonably can be taken to prevent disasters or mitigate their impact

The State combines the requirements of Article 2-B with that of Section 409 of the Stafford Act. Accordingly, the All Hazard Mitigation Plan serves as the State's Comprehensive Hazard Mitigation Plan that satisfies both State and Federal requirements.

The State has encouraged the development of numerous plans and planning efforts that build upon basic, all-hazards State and Local disaster preparedness plans. For example, counties in the State have active Local Emergency Planning Committees (LEPCs) that coordinate off-site preparedness efforts from facilities that meet chemical inventory regulatory requirements as identified under the Superfund Amendments and Reauthorization Act (SARA) Title III. Local planning requirement under Title III require risk-based planning. While these LEPCs play an integral role in helping a community prepare for a chemical emergency, the representation of the LEPC is also mirrored in other Local planning meetings and can provide a linking point to hazard awareness and response planning methodology. The State has encouraged this type of approach, which has also carried over into numerous hazard-specific planning efforts, including but not limited to:

- Preparedness efforts for emergencies stemming from commercial nuclear power plants. The State possesses seven "nuclear" counties, and numerous other jurisdictions that fall in the plume ingestion pathway of one of the State's four nuclear sites.
- Preparedness efforts for Pandemic Influenza have provided an integrated approach to planning for a Pandemic from a Local, State, Federal (Health and Human Services) and International (World Health Organization) standpoint.
- In cooperation with the State Office of Homeland Security, the State has utilized a comprehensive planning approach for State and Local plan integration for CBRNE-based incidents.
- The State has promoted and provided sample guidance on Continuity of Operations Planning (COOP) that will support a governmental agency's ability to prepare for, respond to, and recover from all hazards.

B. Statewide Hazards Awareness Campaigns

The State conducts annual awareness campaigns concerning Hurricanes, Winter Storms, Severe Weather Preparedness/Flooding, and general Emergency Management. The campaigns generally consist of a Gubernatorial Proclamation of a "Hazard Awareness Week" and mass mailings of

hazard preparedness materials to Local emergency and other personnel who then disseminate the information to Local residents.

C. Warning Systems

The State has consolidated meteorological personnel and developed a partnership with the National Weather Service to gain access to current weather information and analyses in order to be able to disseminate timely weather information and warnings to threatened coastal residents. The development of an advanced Emergency Weather Center at the State Emergency Coordination Center (ECC) will help facilitate this access and dissemination.

D. NY-ALERT

The State has undertaken a landmark effort in utilizing all available resources, both public and private, designed to enhance the State's ability to alert the public in emergency situations and respond after disasters. The system is known as NY-Alert.

1. What is NY-ALERT?

NY-ALERT is the revolutionary New York State All-Hazards Alert and Notification web-based Portal. This portal offers state of the art technology through which State and Local governments can provide emergency information to a defined audience (Local, County, Regional, or Statewide).

State and Local agencies will be able to create *incident specific emergency messages* to the general public or a targeted audience. NY-ALERT can take advantage of alert messages routinely provided by agencies to the public of impending weather or road closures (e.g. Thruway closures, National Weather Service warnings). NY-ALERT expands the avenues of how communication and information will be transmitted. Communication is practically instantaneous in many cases.

NY-ALERT can distribute information of impending events, such as National Weather Service alerts of snowstorms, tornadoes, or severe weather. It can also alert the State to consequential actions such as road closures caused by those events, and protective actions that are recommended by State, Local governments, Colleges, Universities, and the private sector where appropriate. Public health and safety educational information for Local and State agencies will also be transmitted through the various communications venues.

NY-ALERT is the first system of its kind in the entire nation. Built using pre-existing technology, NY-ALERT can distribute *tens of thousands* of informative messages over a wide range of media in a matter of seconds.

2. NY-ALERT and Mitigation

The new NY-ALERT system will enhance New York State's disaster mitigation. It enables instantaneous and accurate communications between emergency planners, emergency responders, and the people of New York State.

The primary goal of mitigation programs is to reduce the impact of hazards by protecting people and property. The clear and wide-reaching advanced notification provided by NY-ALERT allows people to evacuate or take some actions to protect property. Advanced notification would best benefit those impacted by: hurricanes, coastal storms, dam failure, floods, severe winter storms, and/or tornadoes/high winds. The more the system is used other applications and benefits will be realized.

Only authorized personnel will be allowed to issue alerts which have been vetted through their systems be it weather (National Weather Service), terrorism (Office of Homeland Security), law enforcement (State and Local agencies), and/or health (State and Local health departments).

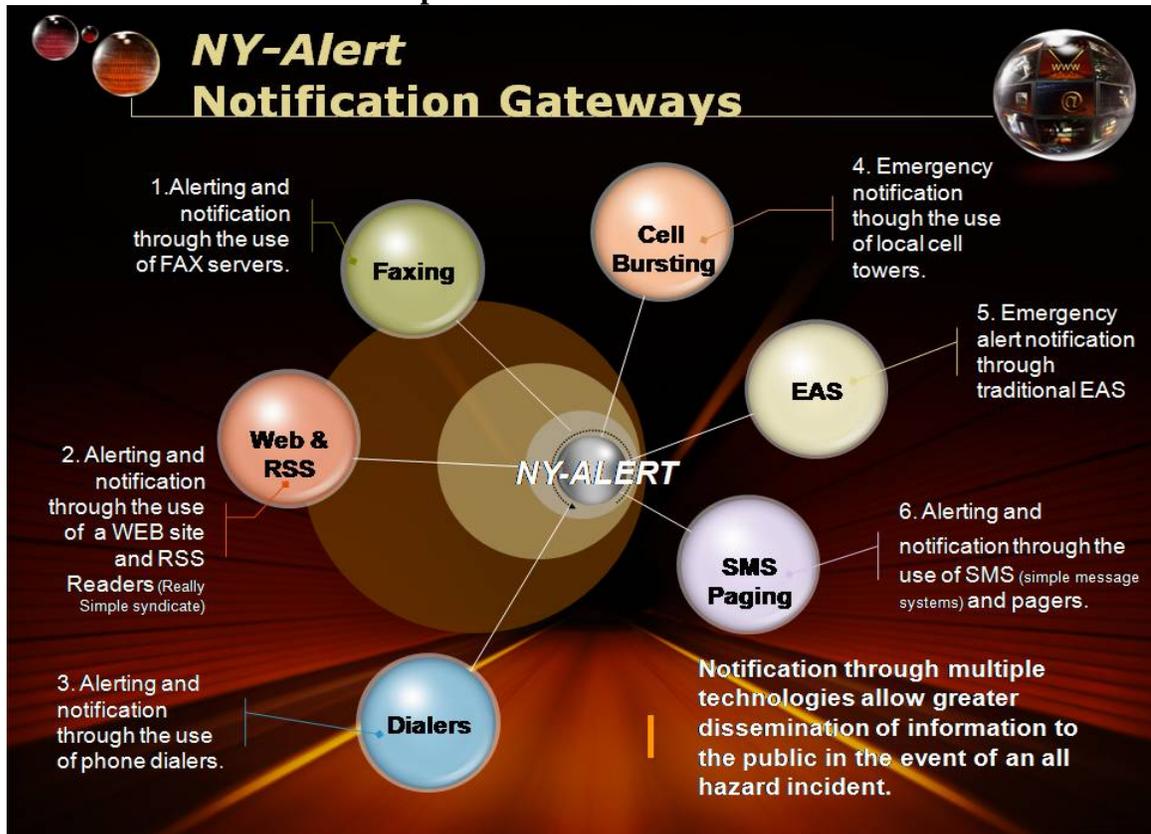
Notification Gateways

The NY-ALERT system sends alerts through a variety of communications technologies. When activated, NY-ALERT will disseminate information through the following channels:

- Activation of the Emergency Alert System (EAS)
- Blast faxes
- Email message to media, business, and individual subscribers
- Really Simple Syndicate (RSS) feeds posted to the website which people with RSS readers will automatically receive information
- Text messages or Short Message Service via cell phones and pagers
- Postings to the NY-ALERT website
- Press releases to targeted media generated from the NY-ALERT portal
- Cell bursting – messages sent to all cell phones within range of selected cell sites
- Dial-out recorded messages to subscriber phone numbers

When activated, NY-ALERT has the potential to communicate with all of the previously listed media at once, again, reaching tens of thousands of people instantly.

Figure 2-3
The Capabilities of NY-ALERT



3. Secure Private Notifications

A secondary, but important, feature would allow governmental participants (State and Local agencies) to provide notifications to identified select groups through the same secure web portal. This feature would utilize the fax, email, text message, and dial-out messaging described previously. For example, the State Police could provide information to a group of police chiefs. NY-ALERT can be used to immediately send messages to a pre-approved list of contractors to provide things like food, clean water, and debris removal tools in the advent of a disaster.

4. University Application

A State University of New York (SUNY) application would allow campus officials to immediately send messages through the secure portal to the entire subscribing campus population. Students, faculty, and staff could select how they want to receive this information; email, text message, posting to the web site, and/or recorded telephone/cell phone message. The NY-ALERT subscription process can be initiated at the time of

student registration or any time after. In partnership with the SUNY technical staff, import tools can be developed for bulk registration, corrections, and revisions.

The State Emergency Management Office (SEMO) is working in conjunction with the University at Albany to be the first university or school in the State to use NY-ALERT. This is an invaluable tool for schools and universities looking to bolster on-campus security and communications in the wake of the April 16, 2007 tragedy at Virginia Tech.

Phased Implementation

There is a phased implementation of NY-ALERT that began of June 1, 2007 when the website (www.nyalert.gov) went public. Included are the following features:

- SEMO has the capability for web-based activation Statewide of the EAS
- SEMO will be creating and posting to the website critical emergency related information, public instructions, and public information including: severe weather warnings, significant highway closures, other emergency conditions, and State response actions. Information will be immediately disseminated to media outlets, Emergency Managers, and State response agencies
- SEMO and the University at Albany will be conducting a pilot project to utilize NY-ALERT as a campus-based emergency information system
- SEMO and other State agencies will begin utilizing NY-ALERT to notify emergency contacts and specific groups via email, telephone message, and fax
- Public, automatic RSS feeds from the NY-ALERT website

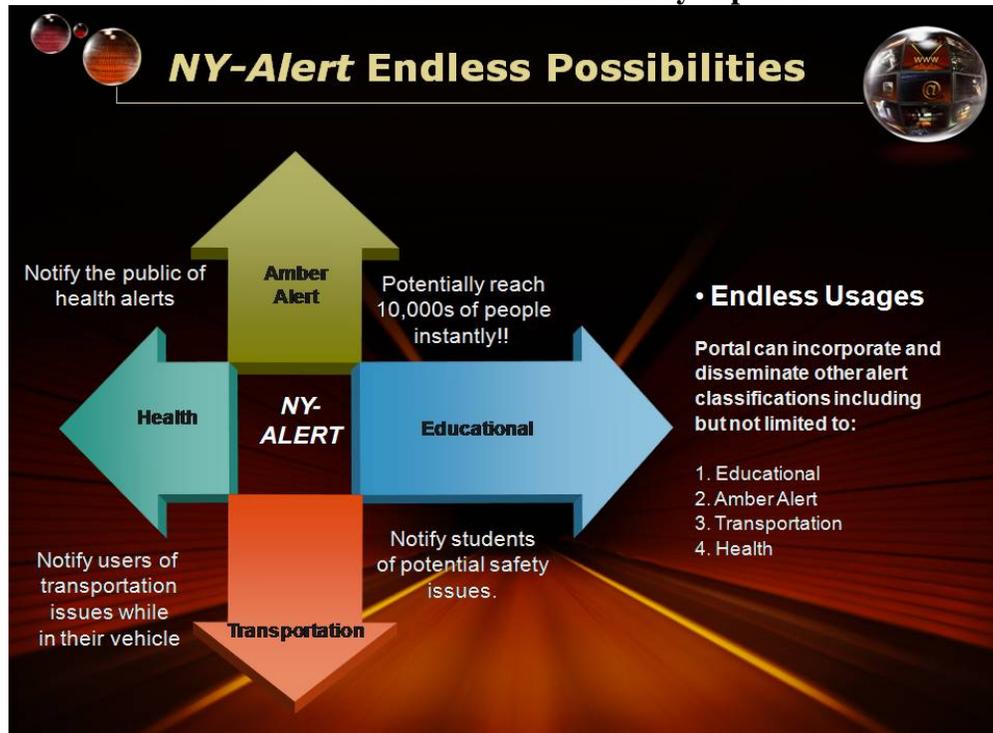
During the months after its initial release NY-ALERT and its information “gateways” were set to be thoroughly tested. Local emergency managers will be trained to use the system and granted access to begin using NY-ALERT and activate EAS. They will be able to create local emergency alert messages to the general public and targeted groups.

5. The Future of NY-ALERT

NY-ALERT will continue to be tested and upgraded in the future. Improvements will include additional fax and phone dialer capability and additional computer servers to support the subscriber base. Since August of 2007, the public has been able to subscribe to NY-ALERT on the program website (www.nyalert.gov). They can receive emergency information via email, phone call (traditional, VOIP, or cell), fax, cell phone, and/or pager text message. Other innovations and updates are still in the works to continually improve the already ground-breaking and dynamic NY-ALERT system.

As improvements are made, NY-ALERT will only become more effective. Instantaneous and effective communications are at the heart of hazard mitigation.

Figure 2-4
The future of NY-ALERT is endlessly expansive



6. Security of the NY-ALERT System

New York State has built a robust and redundant secure system. SEMO will monitor the NY-ALERT system *24 hours a day*. In the extremely unlikely case that false information makes it to the NY-ALERT website, it will be removed immediately. Corrected information will be posted and sent to subscribers. Since the message system is under *continual review*, any apparent misinformation will be tracked down by SEMO to the originating agency. Protocols will be developed with State agencies to have them report any corrective message immediately.

The originating agency which releases any information through NY-ALERT is accountable for all information that it releases. However, the alerts will be monitored by State personnel to maintain accuracy.

Additionally, the NY-ALERT system has a built-in redundancy. Should the primary location be pre-empted, the secondary redundant site will be operational. The transition is seamless.

2.3.2 - New York State Department of State (DOS)

“The Department of State defends the public's safety, protects and develops a sustainable environment, strengthens local communities, and serves the business community.”

DOS-Division of Code Enforcement and Administration (Codes Division)

As implemented by New York State Consolidated Laws, Executive Law, Article 18, “The New York State Uniform Fire Prevention and Building Code Act” as amended, the State Uniform Fire Prevention and Building Code contains minimum construction standards that must be met by all construction that occurs within communities in New York State (save for certain exempt categories, such as Federal). The Code contains mitigation-related standards, which include:

- Standards for wind loads and flood protection that serve to provide a measure of protection to coastal structures from hurricanes
- Snow loading guidance for buildings
- NFIP flood protection standards, which are incorporated by reference
- Provisions for resistance of lateral forces from seismic activity
- Updated standards for design of structural systems to withstand snow load forces.

The implementation and use of these codes is a useful mitigation tool that can be effective Statewide. New structures will be built to the required standards to minimize the impact from hazard events. The Codes reach the full mitigation potential when followed during the construction of new structures. For example, the inclusion of hurricane straps and shutters and high impact windows in high wind zones can easily be included in the construction stage with little extra cost to the construction budget.

Whenever possible, the State encourages retrofitting of older structures to make the structures better able to withstand hazard events. The retrofitting process, however, is often cost-prohibitive and in many cases may cost more than the construction of a new building. As such, retrofitting of older structures does not happen as frequently.

New York State completed the full adoption of the family of International Codes: The International Building Code / Fire Code / Residential Code / Property maintenance Code/ Plumbing Code / Mechanical Code / Fuel Gas Code / Energy Conservation Code, and most recently, the Existing Building Code. These ICC (International Code Council) Codes are now incorporated as part of the NYS Uniform Fire Prevention and Building Code and represent an improvement over the previous code. The Codes Division provided the requisite transitional training on these new codes to all code enforcement officials in the state.

The Mitigation Section has been working with the DOS Codes Division in the development of the Code Enforcement Officials (CEO) Certification Courses. The CEOs are required to take a certain number of credit hours of refresher courses to maintain their certification. During discussions with the DOS, SEMO recommended the DOS review the many courses offered by both the SEMO Training Section and FEMA's Emergency Management Institute (EMI) developed for CEOs and include the courses as acceptable coursework contributing towards the yearly certification requirement. As the development and enforcement of building codes is an important tool in the mitigation of hazards, this larger selection of courses will allow CEOs to expand their knowledge of mitigation. In addition, this cooperative effort between SEMO and the DOS has the potential to increase the awareness and enforcement of sound mitigation policies and programs at the local level.

Functions of DOS-Division of Code Enforcement and Administration

Compliance/Enforcement Programs

Codes Division: Responsible for code regulating construction and maintenance of buildings, including fire prevention and life safety, structural safety, sanitation and accommodations for people with disabilities. The regional staff provides technical assistance to local code enforcement officials and fire departments in the enforcement of the Uniform Fire Prevention and Building Code with regard to building construction, unsafe structures, and fire safety regulations. *The Code Enforcement Disaster Assistance Response (CEDAR)* program is a code enforcement team for disaster response which provides hazard mitigation through an emergency services strategy. The CEDAR program uses the mutual aid philosophy to facilitate damage assessment and speed up relief and recovery efforts. CEDAR is the product of a partnership between organizations; established by the New York Department of State (DOS) Codes Division (Division of Code Enforcement and Administration), in conjunction with the New York State Emergency Management Office (SEMO) and the New York State Building Officials Conference (NYSBOC). NYSBOC is an association of building officials dedicated to advancement of code-related issues and education of the code official.

At the present time, during a disaster, the CEDAR program utilizes specially trained personnel from the Department of State (Codes and OFPC) or other state agencies, activated through a mutual aid system; to assist in building damage assessment. The program expedites the assessment process by providing an appropriate number of specially trained professionals. This program expedites the identification of unsafe structures as well as identifying structure that are safe for residents to reoccupy.

Education/Public Awareness & Plans/Planning

Codes Division: Responsible for training both new and certified code enforcement officials, including fire officials. The educational services unit has prepared a training seminar to initially familiarize the code enforcement officials, county emergency

coordinators, and chief executive officers of Local government with those resources which are available. The training seminar is designed to inform them in advance and to provide administrative procedures to expedite assistance, within the confines of State law, in the event of a natural disaster. Code officials will be trained to gather the appropriate information for forms required by other government agencies, to determine if buildings are fit to be inhabited or if they are dangerous, and to respond to the increase in requests for building permits for reconstruction. The seminars are open to others such as licensed professional engineers, architects, designers, and contractors.

Training

Codes Division: The Technical Services Unit provides assistance to Code Enforcement Officials, design professionals, and the general public on the *Uniform Fire Prevention and Building Code*. The unit is also responsible for the approval of factory-built homes and buildings and oversight of State-permitting agencies. The members of the unit have a broad background of different disciplines including architecture as well as civil, fire protection, mechanical, and structural engineering. The members of the unit assist regional staff with complex issues on projects and respond to augment local building departments in times of natural disasters.

DOS- Office of Fire Prevention and Control (OFPC):

Functions of DOS- Office of Fire Prevention and Control:

Compliance/Enforcement Programs

Office of Fire Prevention and Control: Provides technical assistance to local code enforcement officials and fire departments in the enforcement of the Uniform Fire Prevention and Building Code with regard to building construction, unsafe structures, fire safety regulations and hazardous materials storage and use. The State Fire Administrator certifies firefighters, fire instructors, fire investigators, code enforcement officials and Hazardous Materials Responders who deal with inspection and enforcement programs in the performance of their duties. OFPC also enforces the provisions of the Uniform Code in all College facilities located outside of New York City.

Education/Public Awareness

Office of Fire Prevention and Control: Administers fire safety education programs to prevent or mitigate fires. Provides pamphlets, literature, and information on Fire Safety and Burn Injuries. Conducts a Statewide fire safety conference on fire prevention materials and programs.

Equipment and Supplies

Office of Fire Prevention and Control: Through the State Fire Mobilization and Mutual Aid Plan, provides fire service resources including: personnel; apparatus; specialty teams;

in addition to other items such as, water pumps, electrical generating equipment, emergency medical units and supplies, chainsaws, communications equipment, and hazardous materials response equipment for use during emergencies.

State emergency assets include: power equipment of automobile extrication, hazardous materials metering equipment, containment equipment, and protective and decontamination equipment. In addition, specialized urban search and rescue equipment is available for incidents such as building collapse

Monitor Potential Disasters

Office of Fire Prevention and Control: Through its field personnel and their contact with the county fire coordinators and local fire departments, monitors fire and other fire department related emergency conditions that have the potential to become large enough to require activation of the State Fire Mobilization and Mutual Aid Plan.

Plans/Planning

Office of Fire Prevention and Control: Provides training and technical assistance for all levels of government in the development of plans that range from Employers' Emergency Response plans, County Hazardous Materials Response, and Arson plans. The State of NY Fire Mobilization and Mutual Aid Plan is administered and activated by the State Fire Administrator. Statewide reporting of hazardous materials storage for persons engaged in commerce is coordinated by the State Fire Administrator and used by Local government to develop emergency response plans.

Prevention/Mitigation Projects

Office of Fire Prevention and Control: Develops and provides advocacy of fire and building codes that are designed to protect life and property from unsafe construction, poor fire safety practices and the improper storage and use of hazardous materials. Develops and distributes Public Fire Prevention Education materials and trains individuals in fire prevention education.

Resource Management

Office of Fire Prevention and Control: Operates and keeps current the State Fire Mobilization and Mutual Aid Plan and advises Local governments and fire departments on the maintenance and operation of County and Local fire and mutual aid plans. Mutual Aid plans provide department resources including but not limited to fire apparatus, personnel, water pumps, etc. OFPC administers the Capital District Urban/Technical Search and Rescue Team (NYRRT-1). Through the Fire Mobilization and Mutual Aid Plan, coordinates fire service resources in response to major emergencies.

Technical Assistance

Office of Fire Prevention and Control: Provides management advice and technical assistance to State agencies, municipal corporations, fire districts and fire companies relating to fire suppression, fire prevention, arson, technical rescue and fire investigators. The Hazardous Materials Bureau provides a wide variety of assistance to municipalities and State agencies regarding the cause and origin determination of fires. On-scene assistance is provided including canine accelerant detection teams as well as cause and origin teams. The Bureau additionally administers the Burn Injury Reporting System and the Property Insurance Loss Register, which are vital programs for fire investigators.

The Special Services Bureau provides technical assistance and response capabilities in the technical rescue field. On-scene assistance is provided by the Capital District Urban/Technical Rescue Team as well as full time staff with specialized training in this field.

Provides advice and assistance for hazardous materials incidents, specialized detection/monitoring equipment, specialized protective clothing and incident stabilization tools and equipment. Specialized computerized data base programs are available and a direct link to CHEMTREC's Material Safety Data Sheet (MSDS) database is available.

Oversee New York State's urban search and rescue assets including disaster search canine capabilities. Provides technical assistance to fire departments and other responders regarding technical rescue operations which includes on scene technical assistance.

Training

Office of Fire Prevention and Control: Provides training programs in the field and at the State Academy of Fire Science at Montour Falls for paid and volunteer firefighters and other public and private officials. This training includes areas such as basic and advanced firefighting, fire, accident and technical fire, and accident rescue training, hazardous materials incident mitigation, arson investigation and fire service management including training in the Incident Command System. Specialized technical rescue training ranging from structural collapse training, trench rescue, swift water rescue, rope rescue, confined space rescue, accident victim extrication, and ice rescue is also provided.

The Firefighting Personnel Standards and Education Commission receives and makes recommendations on the standards for training programs, minimum qualifications for instructors, and the training requirements which may be set for local paid firefighters.

Risk/Vulnerability Assessment

Office of Fire Prevention and Control: Operates the computerized State Fire Incident Report System. Fire Departments submit detailed information concerning fires and emergencies they respond to including information on building construction, ignition factor, cause and origin as well as information on equipment malfunction and dollar loss. A chemical database of over 4,400 chemicals and 54,000 synonyms is maintained to provide detailed chemical information and computer model vulnerability zones in the event of a release. Several databases are maintained to cross reference information for compatibility and vulnerability information, including isolation zones

DOS-Division of Coastal Resources

Division of Coastal Resources

Under the Coastal Zone Management Act, States have been given authority to review all Federal actions affecting their coastal area to ensure their consistency with State policies. This includes direct Federal actions, actions of others that require Federal authorization and Federal funding actions that affect the coast (e.g., Federal funding of mitigation activities in the coastal area). Federal agencies must submit a determination of the consistency of any action with coastal policies, and DOS concurs or objects to the determination. If DOS objects, the action may not proceed. Appeals are possible. State agencies undertaking actions in the coastal area must perform a consistency review, which DOS can review and comment on. State agencies must first file a Consistency Assessment Form (CAF) with DOS as early in the planning process as possible, and before a State Environmental Quality Review Act (SEQRA) determination is made.

The New York State Waterfront Revitalization and Coastal Resources Act (Article 42, NYS Executive Law), enacted in 1981, established the State's Coastal Management Program (CMP), pursuant to the Federal Coastal Zone Management Act.

New York State Coastal Management Program (CMP)": The State's CMP established New York's vision for its coast by clearly articulating specific policies including "Development Policies" and "Flooding and Erosion Hazards Policies".

The CMP establishes a comprehensive strategy, based on 44 policies, for the management, use and protection of the State's coastal resources.

Policies Number 1 to Number 6 pertain to development issues. Policies Numbered 7, 8, 9, 10 address fish and wildlife. Mitigation activities should be consistent with these policies to ensure protection of natural resources.

Policies Number 11 to Number 17 deal with flooding and erosion issues. In particular, policy Number 17 requires that flood and erosion mitigation should first use non-structural approaches (acquisition, relocation, elevation, etc.) whenever possible. If those can be shown not to be feasible, then one may graduate to beach nourishment or other soft alternatives. If those will not

work, then hard structures may be considered.

Other policies that may influence mitigation activities include Number 19 and Number 20 which address public access to the shore; Number 21 and Number 22 which address recreation; Numbers 23, 24, and 25 address historic and scenic resources; Number 26 addresses agricultural lands in the coastal area; Numbers 27, 28, and 29 address ice and energy issues; Numbers 30 to 43 address water and air resources and Number 44 which specifically addresses wetlands. A copy of the policies can be found at: <http://www.dos.State.ny.us/cstl/cstlcr.html#policies>.

Any mitigation action in the coastal area must be consistent with and advance the policies. Any mitigation action in watersheds draining to the coast must be consistent with the State coastal policies to the extent that such action affects the land, water, or resources of the coastal area.

The CMP provides for the direct participation of Local governments by enabling them to develop and adopt Local Waterfront Revitalization Plans (LWRPs) which provide for orderly development in coastal areas. An LWRP is a locally prepared, comprehensive land and water use plan for a community's natural, public, working waterfront and for developed coastal resources. It provides a comprehensive framework within which critical coastal issues can be addressed. In partnership with the Division of Coastal Resources, a municipality develops community consensus regarding the future of its waterfront and refines State coastal policies to reflect Local conditions and circumstances. Once approved by the New York Secretary of State and the Federal Office of Coastal Resources Management, the LWRP serves to coordinate State and Federal actions needed to achieve the community's goals for its waterfront. In other words, the Local policies substitute for the State policies in that Municipality. An LWRP advises DOS on Federal consistency matters and DOS issues its decision.

Incorporation of the previously mentioned flood and erosion policies assist in minimizing public risks and environmental damage. Structures and other facilities are located in a prudent manner and potential disasters are avoided. The identified policies establish performance standards for coastal development. Enforcement of these standards relies on a requirement that all Federal, State and Local actions undertaken within LWRP areas must be consistent with the Federal and State policies. Over 190 LWRPs have been prepared in communities along waterways and water bodies in New York State including the Atlantic coast, the Hudson River Estuary and Lakes Erie, Ontario, and Champlain (see **Table 2-4** in section 2.2 for a list of Coastal waterbodies and designated inland waterways). 72 of those prepared Plans have received approval status from NYS DOS Secretary of State, and nearly all approved by the Office of Coastal Resource Management, a division of NOAA.

Local Waterfront Revitalization Plan, Division of Coastal Resources, Assistance to Local Governments: NYS DOS Division of Coastal Resources staff encourages and provides assistance to Local governments for the development of Local Waterfront Revitalization Programs (LWRP). A Local Waterfront Revitalization Program may contain a number of

components addressing issues important to the community, including waterfront redevelopment and erosion hazards management. The Mitigation Section of SEMO routinely reviews and comments on LWRPs developed by Local governments in conjunction with the New York Department of State. LWRPs are comprehensive land and water use plans and programs that include enforceable policies to guide decision making related to the State's coastal zones. The plans, programs, and policies of LWRPs address water-dependent and water-enhanced uses, economic development, public access, recreation, natural habitat, and environmental quality. Water-dependent and water-enhanced uses of the waterfront areas are recommended as first options.

The Mitigation Section reviews the plans to ensure the strategies developed by Local communities do not inadvertently place people or property at undue risk of a hazard event. For example, in an effort to revitalize the economy of their community, the LWRP might propose to place a shopping district or residential development within the coastal zone. Upon review of the LWRP, the Mitigation Section would advise the DOS, the State coordinating agency for the development of LWRPs, and management of the coastal zone, of the potential risk to lives and property that may result from the proposed development.

In addition to addressing the potential negative consequences of the development, SEMO would recommend that alternatives be considered such as placing the development upland and using the area for water-dependent or water-enhanced uses. It would also be recommended that if upland development sites are not appropriate for development and the proposed development has to be placed in the coastal zone, hazard-resistant construction materials, practices, and methods must be employed to limit the impact of future disasters on the development. The benefit of these recommendations to the community would be the protection of development from flood events or the creation of an open-space recreation area that will help draw people to the waterfront district, thus providing a potential economic benefit.

**Table 2-4
Local Waterfront Revitalization Plans in New York State
LWRP Status Totals (Sept, 2007) - Coastal Management Program, DOS**

Number of Draft Plans Prepared Statewide	Number of Plans - State Approved
190+	~72
Counties with Approved Plans	Number of Plans - State Approved
Westchester	9
Niagara	8
Suffolk	6
Monroe	6
Dutchess	4
Erie	7
Jefferson	4
Rensselaer	4
Ulster	4
Rockland	4
Essex	2
Oswego	2
St. Lawrence	3
Albany	2
Greene	1
Montgomery	1
Nassau	1
New York	1
Orange	1
Orleans	1
Sullivan	1

Source: Coastal Management Program, NYS Department of State

Table 2-5 identifies those waterways and water bodies' Municipalities must be adjacent to in order to be eligible for Environmental Protection Fund Grants for Local Waterfront Revitalization Programs and related projects.

**Table 2-5
List of Coastal Water Bodies and Designated Inland Waterways**

COASTAL WATERBODIES	
Arthur Kill	Kill von Kull
Atlantic Ocean	Lake Ontario
East River	Lake Erie
Harlem River	Long Island Sound
Hudson River (south of federal dam at Troy)	Niagara River
	St. Lawrence River

DESIGNATED INLAND WATERWAYS			
Ausable River	Delaware River	Lake Champlain	Sacandaga Lake
Big Tupper Lake	Genesee River	Lake George	Salmon River
Black Lake	Grasse River	Long Lake	Saranac River
Black River	Great Sacandaga Lake	Mohawk River	Saratoga Lake
Boquet River	Honeoye Lake	Oneida Lake	Schroon Lake
Canandaigua Lake	Hudson River (north of federal dam at Troy)	Onondaga Lake	Seneca Lake
Cayuga Lake	Indian Lake	Oswegatchie River	Skaneateles Lake
Chautauqua Lake	Indian River	Otisco Lake	State Canal System
Chemung River	Keuka Lake	Otsego Lake	Susquehanna River
Conesus Lake		Owasco Lake	Tioughnioga River
Cranberry Lake		Raquette Lake	Upper Saranac Lake
		Raquette River	

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

A Local Waterfront Revitalization Program may contain a number of components addressing issues important to the community, including, but not limited to, the following:

- Waterfront redevelopment
- Harbor management
- Public access
- Erosion and flood hazards management
- Water quality protection
- Habitat restoration
- Historic maritime resource protection

A Municipality may choose to complete a Local Program in a single planning effort or prepare and implement one component at a time, beginning with its most critical issues.

Each Local Waterfront Revitalization Program or program component must indicate what Local implementation measures are needed, specific projects that will advance the program, and State and Federal agency actions necessary for the program's success.

Benefits of an LWRP include:

- **Clear Direction** - A LWRP reflects community consensus regarding use of its waterfront. As such, it can significantly increase a community's ability to attract appropriate development that will take best advantage and respect the unique cultural and natural characteristics of its waterfront.

- **Technical Assistance** - A LWRP establishes a long-term partnership between Local government and the State, providing a source of technical assistance to prepare and implement a Local Program.
- **State and Federal Consistency** - State and Federal permitting, funding, and direct actions must be consistent with an approved LWRP. This "consistency" provision is a strong tool that helps ensure all government levels work together to build a stronger economy and a healthier environment.
- **Financial Assistance** - A LWRP presents a unified vision for the waterfront; it therefore, increases a community's chances to obtain public and private funding for waterfront projects. Funding for both the development and implementation of Local Waterfront Revitalization Programs is available from the New York State Environmental Protection Fund.

Regional Plans

Regional Plans are similar to LWRPs in that they are comprehensive land and water use plans addressing a region's natural, public, working waterfront and for developed coastal resources. It provides a comprehensive framework within which critical coastal issues can be addressed. Regional plans contain policy which refines State coastal policies to reflect conditions and circumstances for the region. The Regional Plan policies substitute for the State policies in consistency reviews. Regional plans are also consensus documents. Unlike LWRPs, the Regional Plans focus on the region, not on individual municipalities, except as they may affect regional issues. Once approved by the New York Secretary of State and the Federal Office of Coastal Resources Management, the Regional Program serves to coordinate State and Federal actions needed to achieve the regional goals. To date, a Regional Plan has been prepared and adopted for the Long Island Sound coast. As well, a Regional Plan has been prepared for the South Shore Estuary Reserve area on Long Island, but has not been approved yet by the Federal government.

Coastal Change Analysis Program

The Coastal Change Analysis Program (C-CAP) is a national effort to develop and distribute regional land cover and change analysis data for the coastal zone by using remote sensing technology. In addition to data development, C-CAP establishes guidelines and standards for developing digital, regional land cover and change data along the nation's coastal zone. The data used in this program is created from a combination of satellites and fieldwork. C-CAP classifies land cover types into 22 standardized classes that include forested areas, urban areas, and wetlands. C-CAP land cover data are derived from Landsat Thematic Mapper (TM) satellite imagery. For more information on C-CAP go to: <http://www.csc.noaa.gov/crs/lca/ccap.html>.

Reformulation Study

The United States Army Corps of Engineers (ACE) is currently conducting a Reformulation Study in the State of New York. The purpose of the on-going Fire Island to Montauk Point (FIMP) Reformulation Study is to identify, evaluate, and recommend long-term solutions for reducing risk from hurricane and storms for properties within the floodplain extending along 83-miles of ocean and bay shorelines from Fire Island Inlet to Montauk Point. This area extends as far landward as Sunrise Highway and Montauk Highway. The Study considers all areas within the maximum estimated limit of flooding and is located entirely within Suffolk County. The Study area also includes 26 miles of the Fire Island National Seashore, which is under the jurisdiction of the National Park Service.

The United States Congress and New York State have asked the ACE to develop a comprehensive long-term plan of risk reduction for areas prone to flooding, erosion and other storm damage. This plan would replace the numerous uncoordinated measures that have been used to protect individual properties with a comprehensive management approach that considers the entire coastal system. The objective of the Study is to evaluate and recommend a long-term, comprehensive plan for risk reduction, which maintains, preserves, or enhances the natural resources.

The Reformulation Study looks at the area as a comprehensive coastal system and evaluates alternatives for their impacts at specific locations and on the entire system. The study team includes the participation of all concerned Federal, State, and Local government agencies, as well as major scientific and environmental organizations. It includes State-of-the-art engineering, environmental, economic, and planning studies to provide information about historic conditions and to model possible future conditions. To ensure objectivity and high standards, these studies are being independently reviewed.

The planning process consists of a series of steps to identify problems, propose, and evaluate alternative solutions, and ultimately identify a recommended plan. The development of alternative plans will combine different measures in different locations of the study area. This approach offers both flexibility and opportunities for long-term decisions about what works best for each location, as well as for the entire study area.

Storm damage reduction options may include structural and non-structural options, and may supplement the effectiveness of coastal management measures. The Study approach is to identify cost-effective regional or coastal protection features, such as beach and dune fill and groin modification. Concurrently, the direct protection of flood plain development through measures such as flood proofing or structure acquisition will be evaluated and ultimately integrated into a comprehensive plan.

An additional element of the FIMP project will be a Floodplain Management Plan to ensure the future effectiveness of the Coastal Management Measures or the Storm Damage Reduction

features. The elements of the Floodplain Management Plan will be developed in parallel with the development of the Coastal Management Measures and Storm Damage Reduction features.

While Coastal Management and Storm Damage reduction features may be implemented with Federal funding support, the Floodplain Management Plan is implemented at the State, County and Community level.

Functions of DOS-Division of Coastal Resources

Compliance/Enforcement Programs

Division of Coastal Resources: Reviews projects proposed for the coastal zone of the State to ensure consistency with State coastal policies. This review includes any proposed Federal activity in the coastal area, or outside of the coastal area and affecting land or water use or resources, or any State, Local, or private action which requires Federal permits or involves Federal funding. Consistency approval is required before a project can proceed. The requirement for consistency review includes development, dredging, shore protection, mitigation, water uses, and other activities which may have coastal effects.

Education/Public Awareness

Division of Coastal Resources: Maintains a web site providing information on Division activities and sources of help for coastal issues. Provides technical, planning, and zoning assistance/education to Local governments on a variety of coastal development and natural resource protection issues.

Zoning/Land Use Programs

Division of Coastal Resources: Provides planning and management assistance to Local and Regional planning agencies within the coastal zone and communities along major inland water bodies of the State, to prepare comprehensive Local Waterfront Revitalization Plans, Regional Coastal Management Plans, Harbor Management Plans, and implementation programs directly affecting land and water use in the coastal zone and areas adjacent to inland water bodies. This includes direct technical assistance with preparation of plans and zoning regulations and their implementation. Local funding assistance for plan development and implementation is provided through the State Environmental Protection Fund Program

Monitor Potential Disasters

Division of Coastal Resources: Cooperatively maintains an erosion monitoring program along the south shore of Long Island and New York City together with the US Army Corps of Engineers and New York State Sea Grant. Data collected by the monitoring program tracks shoreline erosion conditions and provides early warning of developing erosion hot spots.

Plans/Planning

Division of Coastal Resources: Provides planning assistance to Local and Regional planning agencies within the coastal zone and along major inland water bodies of the State, to prepare comprehensive LWRPs, Harbor Management Plans, and Regional Coastal Management Plans.

Prevention/Mitigation Projects

Division of Coastal Resources: Development of Local Waterfront Revitalization plans requires preparation of strategies to address mitigation of coastal flooding and erosion within a municipality. Regional Plans address mitigation of flooding and erosion. Erosion mitigation projects, to reduce the impact of flooding, erosion, and improperly designed shoreline erosion protection, are funded by this Division through the State Environmental Protection Fund Program. The Division reviews Federal coastal storm protection projects to ensure that the State's concerns for prevention/mitigation of storm damages are incorporated into projects.

Technical Assistance

Division of Coastal Resources: Provides technical advice on issues related to flooding and erosion, dredging, natural resources, and water quality, to Local and Regional agencies. Provides advice on planning, land and water use, zoning, and related topics to Local and Regional agencies. Provides technical assistance through its Geographic Information System and assists in the integration of mapping products into coastal planning.

Risk/Vulnerability Assessment

Division of Coastal Resources: Cooperatively maintains an erosion monitoring program along the south shore of Long Island and New York City together with the US Army Corps of Engineers and New York State Sea Grant. Data collected by the monitoring program provides risk/vulnerability information to public and private landowners. Prepares Local Waterfront Revitalization Plans that include risk/vulnerability assessment of flooding and erosion hazards, shoreline development impacts, water quality impacts, and hazard impacts related to natural resource modification.

DOS- Division of Community Services & Local Government

Functions of DOS- Division of Community Services & Local Government

Education/Public Awareness

Division of Community Services: Works with Community Services Block Grant (CSBG) recipients (i.e., community action agencies, migrant and seasonal farm worker organization) to increase awareness of and preparation for meeting human needs in response to disaster situations. Encourages coordination between CSBG and local

emergency management offices and regional SEMO offices to improve coordination of human services efforts related to preparedness and response. Grantees are encouraged to share disaster preparedness information with their constituents (i.e., low-income residents and others who often have special needs to be addressed in an emergency situation) on a continuous basis through their outreach, information and referral efforts, and as part of their general program operations.

Zoning/Land Use Programs

Division of Local Government and Community Services Local Planning: Provides comprehensive planning and management assistance to local and regional planning agencies to prepare comprehensive development plans and implementation programs including direct technical assistance with preparation of flood plain development plans and zoning regulations.

Prevention/Mitigation Projects

Division of Community Services: Through a set-aside of the unrestricted portion of Community Services Block Grant funds, local grantees are assured of quick access to resources allowing them to meet emergency needs resulting from a disaster. For example, a grantee may mitigate a local emergency situation by opening its food pantry, congregate feeding site, or warehouse beyond its normal customer base knowing that CSBG disaster relief funding will allow them to rapidly restock their shelves and replace food and personal items used during the disaster. Existing contracts between DOS and the 57 CSBG grantees allows for a prompt disbursement of these funds (which originate from the US Dept of Health and Human Services).

Resource Management

Division of Local Government and Community Services: Provides advice on creating and maintaining cooperative enterprises between Local governments.

Division of Community Services: Maintains an updated list of emergency contacts at each of the 57 local CSBG grantees, allowing for prompt mobilization of available resources such as staff to conduct intake and outreach, approved kitchen/feeding facilities, child care, transportation, established network of volunteers, etc.

DOS- Division of Legal Services

Functions of DOS- Division of Legal Services

Plans/Planning

Division of Legal Services: Provides technical legal assistance to fire departments on all elements of day-to-day operations, including preplanning of response through county fire mutual aid plans; gives legal advice to the State Fire Administrator of the Office of Fire Prevention and Control on revisions and operations of State Fire Mobilization and Mutual Aid Plan. Gives technical assistance to Local governments on the preparation of plans to be approved as part of the Coastal Zone Management Program. Provides advice to the Division of Coastal Resources on State coastal planning activities and on legislation.

2.3.3 - Department of Environmental Conservation (DEC)

“Conserving, improving, and protecting New York's natural resources and environment”

DEC – Division of Water

Compliance/Enforcement Programs

- Assures that State construction activities comply with State Floodplain Management Regulations and administers the coastal erosion, flood protection, and dam safety programs.
- assures that construction activities across the State comply with construction storm water regulations to protect water quality and control storm water runoff

Equipment and Supplies

- Provides personnel, supplies, equipment, and communications for operation and patrol of flood protection projects during periods of high water emergencies.

Zoning/Land Use Programs

- Provides general health, welfare and safety by assuring proper siting of structures
- Cooperates with the Corps of Engineers in construction of local flood and shore protection projects
- Manages the State Dam Safety program, including the inspection of dams, review of plans and specifications for the rehabilitation, or removal, of dams and provides professional expertise and appropriate advice concerning dam safety during emergency situations
- Administers the Coastal Erosion Hazard Area Program, which is designed to restrict or prohibit development within areas along the coast that have been defined and mapped to protect natural features or prevent erosion damages. Permits are required for any development within the identified areas.
- Assists local governments in qualifying for National Flood Insurance Programs

- Assures that State construction activities comply with State flood plain management regulations.

Plans/Planning

Provides floodplain management services through the conduct of floodplain studies, and provides floodplain mapping to FEMA standards. Works with New York City, the Delaware River Basin Commission and downstream states in developing a drought sensitive procedure for operating the New York City reservoir system; issues certifications annually for major oil holding facilities for spill control plans; maintains Water Quality Accident Contingency Plan and Handbook; maintains forest fire response plans; approves plans for alternate fuel use; and assists USCG and EPA to develop contingency plans for petroleum and other hazardous materials.

Prevention/Mitigation Projects

- Cooperates with the U.S. Army Corps of Engineers (USACE) in construction of local flood protection projects; also cooperates with the USACE and local governments in construction of shore protection projects
- Prepares, through its Source Review Section, emergency fuel exceptions if there is a fuel shortage; administers a regulatory program to control transportation, storage, treatment, and disposal of hazardous wastes and petroleum wastes
- Administers a regulatory program to control the handling and storage of petroleum products in bulk.

Monitor Potential Disasters

Division of Water: Cost shares with the United States Geologic Survey (USGS) to operate some two hundred plus stream gages across the State to provide flood warning and forecasting abilities as well as a permanent record of stream flows. This gauging system and the record of flows is essential in assessing flood risk

Technical Assistance

Staff provides technical assistance at the scene of fires, spills, floods, dam safety incidents, etc, as well as for clean up and decontamination. During ice jams, DEC provides technical assistance regarding water releases as needed.

1. State Assistance to Communities

The Governor has designated DEC as the State coordinating agency for the National Flood Insurance Program. The Department's Flood Protection and Dam Safety Bureau and its Regional Floodplain Management Coordinators act as the liaison between FEMA and local municipalities. Also, Article 36 of the Environmental Conservation Law directs the DEC to give municipalities any necessary technical assistance to qualify them for entrance into the NFIP. Following is a list of DEC activities related to the Program:

- Explain NFIP requirements for Program eligibility to local officials
- Assist in the preparation of local floodplain management regulations
- Provide model regulations
- If requested by the community, attend local hearings on regulations to assist in answering questions regarding the NFIP
- Assist local officials in understanding flood insurance studies and maps
- Assist the local administrator in permit review
- Provide detailed Floodplain Management training and technical assistance
- Be the repository of data and calculations used in the preparation of flood insurance studies
- Monitor community compliance with the NFIP.

A community may request assistance in any of these areas by contacting the appropriate DEC Regional Office or the Flood Protection Bureau in Albany.

2. Article 36, Environmental Conservation Law

Article 36, ECL, is the basis for the Department's actions in relation to the National Flood Insurance Program. The federal Flood Disaster Protection Act of 1973, among other provisions, requires the purchase of flood insurance as a prerequisite for receiving any form of federal financial assistance for acquisition or construction purposes in identified special flood hazard areas. The State Legislature recognized that if a flood-prone community did not join the NFIP or did not maintain its eligibility, federal grants or mortgages for purchasing or repairing structures in the special flood hazard area would be denied. Therefore, the Legislature directed that: (1) the DEC provide technical assistance to local governments in the preparation of programs necessary to qualify for the NFIP; (2) local governments are empowered to regulate all actions by any county, city, town, village, school district or public improvement district when such actions are proposed for location within the municipality's identified areas of special flood hazard; and (3) State agencies take actions that minimize flood hazards and losses in connection with state-owned facilities and programs.

As a result of this mandate, the DEC promulgated regulations that spell out how State agency compliance is to be accomplished. They can be found in Title 6 of the Official Compilation of Codes, Rules, and Regulations of the State of New York, under Part 502.

3. Part 502 - State Agency Compliance

Under Article 36 of the Environmental Conservation Law, State agencies are directed to minimize flood hazards and losses in connection with State-owned and State-financed buildings, roads, and other facilities. The Part 502 regulations contain the criteria that State agencies must meet. These criteria meet or exceed the floodplain management criteria of the National Flood Insurance Program and ensure that State projects will not negatively impact a community's special flood hazard areas.

4. NFIP: Local Administrator

Each local community must designate a local administrator who is assigned the task of administering the floodplain regulations in the community. This person might be selected from an existing local staff position such as the building inspector, community zoning official, engineer or planner. Some communities choose to enter into an agreement with the county or with a private firm for this work to be done. The person engaged to do the job should be, at a minimum, familiar with standard development practices and general construction techniques and able to read maps, plans and specifications. He or she should be capable of understanding and applying the provisions of the NFIP.

5. Dam Safety Program

Authority for this program rests in Environmental Conservation Law (ECL) 15-0503 and 15-0507. These sections of the ECL define permitting requirements for dams, the responsibilities of dam owners, and the state's authority to ensure dam safety. The Dam Safety Program maintains a computerized inventory of dams, along with map and file records dating back to 1900, and in some cases earlier. The state's inventory of dams includes over 5,500 dams.

Dam Safety Classifications

Dams are classified in terms of potential for downstream damage if the dam were to fail:

- **High hazard** dams could cause loss of human life, or interrupt critical infrastructure such as an interstate highway. The state's inventory of dams contains over 384 high hazard dams. Fifty-two percent are owned by municipalities.

- **Intermediate hazard** dams are dams whose failure could cause damage to homes and important utilities, severe environmental damage, or other serious economic damage. Twenty-five percent of the state's 757 intermediate hazard dams are municipally owned.

- **Low hazard** dams are dams whose failure could cause damage to isolated buildings and local roads, or minor environmental or economic damage.

Engineering criteria for dams are contained in DEC's "Guidelines for Design of Dams." Every dam is unique and must be evaluated individually by the design engineer and DEC's Dam Safety Program staff. In general, high hazard dams are subject to the most stringent engineering design criteria because the consequences of failure can be so severe. Engineering criteria for even low hazard dams are quite stringent; they should, for instance, be able to safely withstand the flow from a 100-year storm.

Inspection and Enforcement

As part of the program's technical regulatory activities, Dam Safety Program staff perform visual inspections to verify that the owner is conducting proper inspections and maintenance of the dam. DEC engineers also review historic records and other available information on the dam. DEC will share its inspection findings with a dam owner upon request, but it is important to understand that DEC's inspection is not a substitute for a comprehensive inspection program by the owner.

When the Dam Safety Program identifies deficiencies which pose a threat to life, property, or natural resources; its staff works with the dam owner to ensure that necessary remedial measures are undertaken. DEC tries first for voluntary compliance by the dam owner. When an owner is uncooperative, and if conditions warrant, DEC will seek a binding schedule, as part of a consent order or a Commissioner's order. Additionally, DEC has authority to perform the work with its own resources and pursue legal avenues to recover costs from the owner if the owner fails to comply with the order.

When DEC finds that a dam poses an imminent threat to life and property, and time does not allow for standard enforcement procedures, it can issue a Commissioner's Summary Abatement Order, which requires the owner to take specific action, such as breaching the dam. In the case of immediate threat, when there is a cooperative owner and with concurrence from appropriate parties, DEC can issue an authorization for emergency work pursuant to the Uniform Procedures Act.

When the DEC receives notice of an emergency condition at a dam, the Dam Safety Program staff work with the dam owner, local and state public safety officials to prevent a sudden release from the dam's impoundment. In some cases, a dam failure cannot be prevented, and those downstream must be notified and, if necessary, evacuated.

State Executive Law gives local officials the authority to declare a state of emergency under certain circumstances. An up-to-date emergency action plan (EAP) can help dam owners and public safety officials provide a more efficient response to a dam emergency. Guidance on developing an EAP can be found in DEC's document "An Owner's Guidance Manual for the Inspection and Maintenance of Dams in New York State," and in FEMA's guidance on developing a dam EAP.

Permits

In New York, a dam safety permit is required for dam construction, reconstruction, repair or removal. The dam safety provisions of the Environmental Conservation Law were modified in 1999. Those modifications raised the size thresholds for dams requiring permits, so that more of the smallest dams, which tend to pose the least risk, are exempt from dam safety permit requirements. Work on dams is exempt from dam safety permitting if the dam meets any of the following criteria, which are found in ECL 15-0503:

- Height is less than 6 feet, regardless of impoundment capacity;
- Potential impoundment capacity is less than 1 million gallons, regardless of dam height;
- Dam height is less than 15 feet, and maximum impoundment capacity is less than 3 million gallons.

It is important to note that many dam projects are subject to other permits from DEC because of their potential impact on water quality.

When work on a dam needs a permit, Dam Safety Program engineers conduct a technical review of the work to check that the resulting structure will meet the state's safety criteria and that the design is consistent with modern engineering techniques. All applications must include an engineering design report, plans, and specifications. A New York registered professional engineer must develop and stamp the design.

Owner Responsibility

Regardless of regulatory obligations, dam owners need to implement a safety program. As recent dam failures around the nation point out, even a relatively

small dam failure can be costly in terms of dollars or even lives. Consistent inspection and maintenance and an up-to-date emergency action plan are the best ways to avoid a costly dam failure.

An effective inspection program is essential for identifying problems and providing safe maintenance of a dam. An inspection program should involve three types of inspections:

- (1) Periodic technical inspections, sometimes called “formal” inspections,
- (2) Periodic maintenance inspections, and
- (3) Informal observations by workers who visit the dam regularly, for purposes such as operating valves.

Technical inspections must be performed by specialists familiar with the design and construction of dams and should include assessments of the structure’s safety. Technical inspections are performed by a licensed professional engineer experienced in dam safety evaluation.

Maintenance inspections are performed more frequently than technical inspections in order to detect at an early stage any developments which may be detrimental to the dam. They involve assessing operational capability as well as structural stability on a regular schedule, as well as after the dam experiences unusual conditions, such as a severe storm or earthquake.

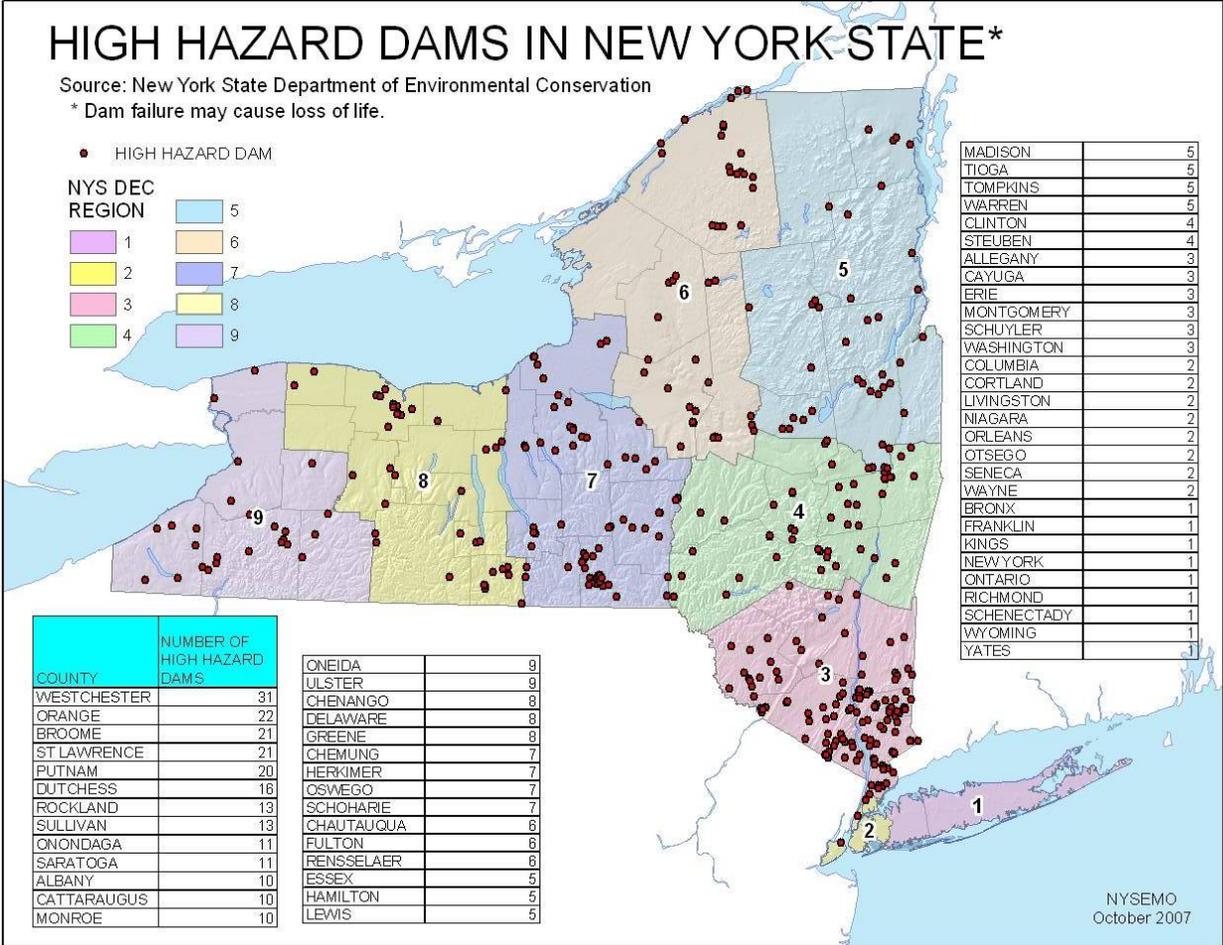
The third type of inspection is actually a continuing effort by on-site project personnel performed in the course of their normal duties. Education of new personnel is required to ensure the continued effectiveness of these inspections.

Future Directions

The dam safety law revisions of 1999 gave DEC the authority to promulgate regulations which require a dam owner to have a safety program when a dam poses a threat of personal injuries, substantial financial damage, or substantial environmental damage. DEC is currently developing those regulations. The regulations authorize DEC to require emergency action plans, inspection, maintenance and record-keeping plans, financial security, and other provisions which it deems necessary. Before you develop your local hazard mitigation plan, it is recommended that you contact the Regional DEC, Division of Water office, in order to identify the most current status of emergency action plan development, inspection and maintenance status, etc. **Figure 2-5** identifies the county location of the 384 high hazard dams within New York State

DEC’s new dam safety regulations will provide greater consistency in the way dams across the state are inspected, operated, and maintained – a benefit to dam owners, the public, and municipal officials responsible for public safety.

Figure 2-5



Flood Control Projects

The Flood Control Projects Section has been given the responsibility to act as the non-federal sponsor for flood control projects that have been or will be built by the US Army Corps of Engineers. For new projects or ones undergoing significant revisions, design reports are analyzed before they are accepted and the project is constructed. For existing projects, the Flood Control Projects Section participates in the Corps of Engineer's annual inspections and supports regional offices in their efforts to assure that the projects are properly maintained. The section has the responsibility for accumulating budget requests from DEC's Regional offices and developing a budget request for both the Capital and the Rehabilitation and Improvement (R&I) budgets. When it is determined how much money will be available for R&I activities, the Section is responsible for determining how it will be distributed among the Regions.

The Section's priority responsibility is to assure the proper maintenance of existing flood control projects. Over 100 flood control projects have been constructed in New York by the Corps of Engineers in the past 60 years. None of the projects has ever experienced a failure. In recent years, projects have been tested by the floods of January and November 1996, in January and July 1998, in September of 2004, April of 2005 and June and November of 2006. Project operations are inspected jointly by Corps of Engineers staff, DEC regional staff, and local municipal sponsors. Information gained from periodic inspections is used to prioritize DEC regional requests for maintenance projects.

Through its capital budget, DEC contributes to the non-federal share of Corps of Engineers flood control projects. The Federal Government pays 100% of the cost of reconnaissance studies. The nonfederal sponsor is responsible for 50% of the cost of feasibility studies, and 35% of the cost of construction of any new projects. The State pays the entire 50% for feasibility studies but cost shares at 17.5% each with local municipalities for the cost of construction of new projects. The Flood Control Projects Section reviews analyses that the Corps of Engineers performs.

In recent years, the Corps of Engineers has initiated numerous feasibility studies for communities impacted by flooding across the State. These recent studies are different from past feasibility studies done by the Corps in that they will actively consider nonstructural as well as structural solutions to both fluvial and ice jam flooding. A flood hazard mitigation plan for each affected municipality is prepared as part of the study.

The Flood Control Projects Section is also responsible for administering Part 501 permits for use of flood control lands. Approximately 12 permits are issued each year. About 600 are currently in place. Permits are issued by the Director of the Bureau of Flood Protection and Dam Safety after review by the DEC Regional Office and the Corps of Engineers. Permits are issued to underlying fee owners of property which has a flood

control easement. They are only given when the proposed activity will not impair or impede the maintenance or operation of the flood control project.

The Section has also taken on the responsibility for reviewing flood control projects submitted for State Clean Water/Clean Air Bond Act funding.

7. Coastal Erosion Programs

Coastal Erosion Development Requirements: The Coastal Erosion Programs are within the Flood Control Projects Section. This group is responsible for carrying out the State's Coastal Erosion program along the tidal and Great Lakes coastlines. The Section also works with the Corps of Engineers on any Corps' coastal protection works.

The goals of the coastal erosion program are to assure that new construction in coastal areas is placed at a safe distance from areas of active erosion and the impacts of coastal storms, and to prevent damage to natural protective features and other natural resources. The construction of coastal erosion protective structures is regulated to assure they are used only where necessary to protect human life or where the public benefits clearly outweigh the public expenditures.

Regulations pertain to "erosion hazard areas" which include "natural protective feature areas" and "structural hazard areas." "Natural protective feature areas" are land and/or water areas containing natural protective features which afford protection to other lands from erosion or high water, or which contain important reserves of sand or other natural materials available to replenish normal storm related losses. These are typically the areas between a bluff or dune line and the water. "Structural hazard areas" are shore lands which are located landward of natural protective features and which are receding at a long-term average annual recession rate of one foot or more per year. The inland boundary of a structural hazard area is calculated by starting at the landward limit of the fronting natural protective feature, and measuring along a line perpendicular to the shoreline a horizontal distance landward which is 40 times the long-term average annual recession rate. The landward limit of a bluff is defined as a line 25 feet landward of the bluff's receding edge. The landward limit of a primary dune is defined as a line 25 feet landward of its landward toe.

Local communities may regulate activities within designated erosion hazard areas by passing and enforcing local laws or ordinances which comply with DEC regulations. In communities which have not passed compliant local laws or ordinances, DEC regulates activities within designated erosion hazard areas. The Department may revoke certification of local programs for failure to properly administer the program. DEC directly regulates activities undertaken by a State agency within designated erosion hazard areas regardless of whether the local community has passed its own regulations.

Coastal erosion management permits are issued for regulated activities which are reasonable and necessary, which will not likely cause a measurable increase in erosion at a location, and which prevents or minimizes adverse effects on natural protective features, existing protective structures, and natural resources.

Permanent structures are generally not allowed within a structural hazard area. Movable structures are allowed subject to permit. Within protective feature areas, excavating, grading, mining, or dredging which diminishes erosion protection are prohibited, except that permits may be issued for constructing or maintaining navigation channels, bypassing sand around obstructions, or artificial beach nourishment. Most development within protective feature areas is prohibited, but docks, piers, wharves, groins, jetties, seawalls, bulkheads, breakwaters, revetments and artificial beach nourishment may be allowed by permit. There are also restrictions or prohibitions of certain activities on beaches, bluffs, primary dunes, and secondary dunes.

Coastal Protection Structures

The Coastal Erosion Section also works with the Army Corps of Engineers on the development and management of certain coastal protective structures, such as groins, beach nourishment, and dune restoration.

The Coastal Erosion Management Section continues its sponsorship of the *Fire Island to Montauk Point (FIMP) Reformulation Study*. The NYS DEC promotes and facilitates partnership with other State, Local, and Federal agencies including the US Army Corps of Engineers New York District, to continue collaboration in the interest of the *FIMP reformulation study*. The reformulation study was initiated in conjunction with the original authorized project which provides for hurricane protection and beach erosion control along five reaches of the south shore of Long Island between the Fire Island Inlet and Montauk Point, a distance of approximately 83 miles. The goal of the study is to identify and evaluate alternative methods of providing for the measures authorized in the original program and develop a strategy and program plan to address issues including coastal hazards and preservation. The following excerpts describe the purpose of the study as excerpted from the FIMP program draft vision statement:

The vision for the Fire Island to Montauk Point Reformulation Study is to prepare an implementable, comprehensive, and long-term regional strategy for the 83 mile portion of the south shore of Suffolk County, Long Island, New York that will reduce risks to human life and property, while maintaining, enhancing, and restoring ecosystem integrity and coastal biodiversity. This will require an assessment of at risk properties within the 71 square mile floodplain, present and future sea level rise, restoration and protection of important coastal landforms and processes, and important public uses of the area. The Reformulation Study will lead to a project that provides New York State and its residents

with lower storm damage risks and a full range of future options for coastal zone management.

The Reformulation Study is taking an innovative approach using the best available analyses tools for addressing coastal storm risk reduction and pre- and post-storm shoreline management along both barrier and mainland shorelines. The U.S. Army Corps of Engineers and the State of New York, in their lead project planning and cost sharing roles, are developing innovative management and restoration measures working with a wide range of stakeholders to establish comprehensive, consensus-based solutions. The final plan will recommend measures for implementation by federal agencies, New York State, Suffolk County and local governments through the exercise of all applicable governmental authorities to the maximum extent practical to achieve national, state and local objectives.

- On-going monitoring will evaluate the effectiveness and impacts of implemented policies. The monitoring results will serve as the basis for adaptations and adjustments to improve the project's effectiveness and respond to the dynamic nature of the FIMP study area.
- Collection, analysis, and independent technical review of scientific data will be conducted to improve understandings of complex and dynamic, regional hydrologic, geomorphic, and ecological factors and interrelationships while simultaneously facilitating the building and sharing of an integrated scientific, economic, and social knowledge base.
- Efforts will be undertaken to reduce mainland and barrier island flooding through site specific measures that address the variety of causes of flooding throughout the study area, consistent with applicable agency laws and missions.
- Priority will be given to measures that reduce risks and provide protection to human life and property, restore and enhance coastal processes and ecosystem integrity and are environmentally sustainable.
- Preference will be given to measures that protect and restore coastal landforms and natural habitats, aid in recovery of threatened and endangered species, enhance public recreation and use, and ensure perpetuation of essential physical and biological processes.
- Measures that avoid or minimize adverse environmental impacts and adequately address long-term demands for public resources will be used wherever and whenever appropriate and required, while continuing to accept and embrace governmental responsibility and accountability under the law.

- Existing shore stabilization structures, inlet stabilization measures, dredging practices, and other coastal area modifications past and present, including bay and estuarine shorelines, will be assessed to examine their impacts and, as appropriate, recommended to be altered, mitigated or removed to help restore important physical and biological processes.
- Dune and beach replenishment will be optimized to balance storm damage reduction and environmental considerations. Sand nourishment will be considered where it will create conditions suitable for restoration of natural processes and where appropriate to protect important uses. Active intervention will be considered where it is possible to achieve balance and synergy between human development, economic activities, and natural systems.

Completed and ongoing work for Project Reformulation consists of data collection including beach profile surveys of the 83-mile shoreline and topographic mapping of flood prone areas. Studies are continuing including coastal processes modeling, storm damage assessments, environmental data collection, plan formulation alternative screening and potential mitigation measures. Based on initial scoping sessions for the reformulation study, an interagency reformulation group was developed as well as several Technical Management Groups to handle specific aspects of the overall study. The cooperating agencies, including the New York State Department of Environmental Conservation, the New York State Emergency Management Office, and the United States Department of Interior, have discussed further revisions to the Reformulation Study plan resulting in the current Project Management Plan and initiatives.

8. Floodplain Management Program

The Floodplain Management Program (established by Article 36, NYS Environmental Conservation Law) is designed to assist local governments in adopting and administering local floodplain management ordinances and to encourage State agencies to comply with the State floodplain management regulations. The regulations are designed to ensure proposed development in identified floodplains is constructed in a manner consistent with NFIP standards. 6 NYCRR Part 502 contains the regulations, which ensure the use of State lands, as well as the siting, construction, administration, and disposition of State-owned and/or financed facilities are consistent with NFIP standards. The regulations require State agencies to evaluate alternative sites located outside of the 100-year floodplain for the development and construction of State-owned and/or financed projects.

Approximately 1,465 of the State's local governments are participating in the NFIP. Annually, the State DEC staff provides training and technical assistance to these communities to enhance their abilities to manage development in their flood plains. Communities violating the NFIP regulations are recommended for sanctions, as appropriate. Only a very few communities in the State are currently sanctioned. For the most part, they do not have extensive Special Flood Hazard Areas, therefore only a limited number of properties are considered at risk.

Flood Plain Mapping Program

While much of the state has flood maps, many with detailed studies, these maps are often out-of-date (average age is about 16-years) and no longer adequately portray the risk from flooding. Due in large part to the density of the stream network, trends in development, and the costs to survey and model hydraulic obstructions, flood mapping, and map revision efforts have not been able to keep pace with the need for flood studies. In the meantime, development continues in unmapped or poorly mapped areas, threatening to continue the cycle of flood losses.

To remedy this situation, New York strongly believes that stewardship of the Map Modernization effort should be placed in the state's hands, for 3 primary reasons:

- The State is in the best position to assess hazard mapping needs for the State
- The State has been successful and is uniquely positioned to develop partnerships between and among Federal agencies, State agencies, and Local communities
- The State has in-place the experience and procedures to easily expand its capacity and to include capabilities for DFIRM production and program management.

In April 2000, FEMA and NYSDEC signed a Memorandum of Agreement, establishing New York State as a full flood hazard mapping partner in the development and dissemination of flood data. New York's efforts have pushed the envelope of flood mapping, utilizing the latest technologies in automated Hydrology and Hydraulics and remote sensing applications. NYSDEC was the first partner to explore the use of laser altimeter technology, a.k.a. *LiDAR*, in developing elevation models, and paved the way for using LiDAR in flood hazard mapping across the nation. New flood hazard data produced by NYS are being developed as interactive, multi-hazard digital maps. Linkages are built into the mapping database that allow access to engineering backup material, such as hydrologic and hydraulic models, flood profiles, data tables, digital elevation models, and structure-specific data, such as digital elevation certificates and even digital photographs of bridges and culverts. The database also has links supporting a wide variety of existing and visionary water resource and environmental applications, including low flow hydrology which can be used for development of the Total Maximum Daily Load (TMDL) of a pollutant burden in water bodies and for drought management. By creating a synergy with other state and federal programs, NYSFMP will continue to develop more cost-effective and higher quality data, tools, and processes that will benefit all the citizens of the State. The data, tools, and processes developed will have significant benefits to other Department of Environmental Conservation programs, including stream restoration, stormwater management, low flow condition assessment, fish and wildlife management, spill response, and others. Other New York State programs, such as the New York State Department of Transportation's (NYSDOT) highway and bridge projects, will also benefit by being able to utilize updated stream, shore, and flood hazard information in protecting the quality and quantity of New York's waterways. In Schoharie County, the NYSDEC worked with local Emergency Management officials to develop a reverse 911 flood evacuation system based on tools from the digital flood

maps that were produced as part of the statewide map modernization program. This system has been used several times and has been credited with saving lives in Schoharie County.

Innovation has been the hallmark of the NYS Flood Mapping Program. NYS has been eager to build on our successes to deliver premier, accurate, and seamless flood hazard data for all New Yorkers through the sharing of data and developing partnerships. An example of the type of partnerships that have been built is that with the New York City Department of Environmental Protection (NYCDEP). As a result of efforts to enhance and improve the quality of NYC's drinking water supplies, the NYCDEP sought out the NYSFMP to help them develop elevation data, new hydrologic and hydraulic analyses, new floodplain mapping, and training and outreach tools in communities within the western portion of New York City's water supply watershed, located west of the Hudson River. NYCDEP is willing to fund these activities and has offered to provide a \$5 million leverage over five years through NYSDEC for FEMA.

When we look at repetitive flood loss properties, New York comes out as a high loss state. There are 999 properties with four or more losses, putting New York fifth in the nation, ahead of Florida and North Carolina. However, only 174 of those properties are post-FIRM properties in A or V zones. It is essential to update our state's flood maps not only to protect older structures whose owners may not be aware of their flood risk, but to make sure that new structures are flood resistant. About one third of all NFIP claims in New York are for areas in B, C, or X zones. More accurate flood mapping is needed to show areas currently outside of A and V zones which clearly have a flooding problem, and to make certain that owners of structures in those areas that are flood prone are protected by a flood insurance policy before they experience a flood.

It is essential to public safety, economic development and environmental protection that New Yorkers have the best possible flood risk information. The new generation of maps and associated data tools will enhance our ability to predict and identify specific hazards and risks and will help to protect and improve water quality and habitat throughout the state.

9. DEC Stormwater Runoff Programs

Problems of flooding and water quality degradation in urbanizing or developing areas can be explained in a relatively straightforward manner. As more and more land becomes covered with buildings, roads, parking lots and sidewalks and other impervious surfaces, stormwater is prevented from percolating into the soil. Instead, it runs off those impermeable surfaces and drains directly and rapidly to the nearest water body. This increases the peak flow, both in terms of volume and flow rate, and the size of the flood plain, resulting in more frequent flooding and accelerated erosion of stream channels. This increased percentage of direct runoff also reduces the quantity of water available for soil moisture replenishment and groundwater recharge. The reduction in groundwater means, in turn, a reduction in the base flow of water available to streams during periods of dry weather to the detriment of fish populations and other aquatic organisms.

Furthermore, as land is cleared and graded and made ready for development, soil becomes exposed and subject to the forces of erosion. Soil particles transported in stormwater runoff can be deposited as sediment in a stream or other water body and can adversely impact fish and wildlife habitat. Also, deposition of sediment in a stream can elevate the bed of the stream channel reducing channel depth and resulting in more frequent flooding.

While the need to manage stormwater runoff for flood prevention purposes has long been acknowledged, pollution problems associated with stormwater runoff have been less widely recognized. In urban areas, paved and roof surfaces collect pollutants which are then rapidly washed into drains and surface waters during storms rather than first being absorbed by vegetative cover and soil. The Environmental Protection Agency has calculated that runoff from the first hours of a moderate-to-heavy storm in a typical U.S. city will contribute more of a pollution load than would the city's untreated sanitary sewage during the same period of time. Studies in New York State conducted as part of the Nationwide Urban Runoff Program (NURP) have confirmed that contaminants contained in urban and suburban runoff such as sediments, phosphorus, nitrates, coliform bacteria, as well as, lead and other heavy metals can impair water quality in streams, lakes, wetlands, and estuaries.

- a. **Stormwater Management: The Concept:** "Stormwater management" may be defined as: (1) quantitative control, as a system of vegetative and structural measures which can be used to control the increased volume and rate of surface runoff caused by man-made changes to the land so as to maintain existing patterns of flood magnitude and frequency, and (2) qualitative control, as a system of vegetative, structural and other measures which can be used to control or treat pollutants carried by surface runoff. The purpose of this section is to elaborate on this definition by providing a conceptual overview of stormwater management.

Traditional approaches of stormwater drainage are aimed at removing stormwater from a site as quickly and as efficiently as possible; this is where the trouble begins. The term "efficient" refers to how quickly water can be concentrated and removed from where it is not wanted. Since pollutants can be transported by stormwater runoff, generally, the more "efficient" the stormwater drainage system, the greater the pollution load to the receiving water body. "Efficient" stormwater drainage systems also increase the rate and volume of runoff thereby contributing to flooding and scouring of stream banks which results in erosion, stream channel enlargement, and sedimentation to the detriment of fish populations. In an ideal stormwater runoff design solution, water falling on a given site should be absorbed or retained on-site to the extent that, after

development, the quantity and quality of water leaving the site would not be significantly different than if the site had remained undeveloped.

- b. **Watershed-wide Management of Stormwater:** Under the watershed-wide approach to stormwater management, studies are undertaken with the aid of simulation models to predict hydrologic and water quality changes in the watershed resulting from anticipated or proposed changes in land use. The predictive capability that watershed modeling provides also enables planners to evaluate cumulative water quality and quality impacts resulting from land development and the effectiveness of alternative control measures.

Under the watershed-wide approach, the control and management of stormwater runoff, whether from areas of existing development or from newly developing areas, will include on-site stormwater management practices, regional systems, or a combination thereof. Stormwater management implemented on a watershed-wide scale ordinarily will require the establishment of a county or regional authority to coordinate multi-jurisdictional land use and development plans to ensure they are consistent with stormwater management plans, goals and objectives.

- c. **Division of Water: Maximizing Wet Weather Operations:** Many communities have to battle operational problems at their wastewater treatment plants (WWTP) that are caused by rain events and high flows due to wet weather and flooding. Plants that are serviced by combined sewers are especially vulnerable to "wet weather woes." For systems with combined sewers, the State Pollution Discharge Elimination System (SPDES) permit requires that a "Wet Weather Operating Plan" be in place to optimize wet weather performance. In severe events, the plant's biological treatment units and other physical treatment units may be upset or damaged and the facility may be "off-line" for an extended period. This loss or reduction of wastewater treatment impacts human health and the natural environment and can cost the community a great deal of money to replace or repair lost or damaged waste water treatment units.

The New York State Department of Environmental Conservation, Division of Water along with the USEPA and the New England Interstate Water Pollution Control Commission have developed a series of wet-weather training programs to assist WWTP operators in dealing with this problem. Operators are trained in developing wet-weather operation plans to mitigate the impacts of excessive flows on the treatment works. These on-line courses provide extensive training materials, including a Power Point slide presentation with accompanying notes.

All of the slides and notes are also provided in PDF format so they may be viewed without the use of the Power Point program.

Actual "Wet Weather Operating Plans" are included to give operators a better sense of what a good plan looks like. For large plants, the Monroe County's Van Lare facility is used as the model plan. Ticonderoga is the model for a small plant.

When the DEC activates for potential high water events, the Division of Water, Operators Assistance Section reaches out via an "e-mail blast" to treatment plant operators who will potentially be impacted by the predicted storm. The operators are notified of the potential for a high water event and are advised to implement their "wet weather operating plans". Questions on the Wet Weather Training Materials can be directed to: Phil Smith at: ptsmith@gw.dec.state.ny.us (Project Officer) or Scott Sellers at scott.sellers@stearnswheler.com (Project Consultant).

10. Coordination between Bureau of Flood Protection and SEMO

This DEC Division/Section and SEMO Mitigation Section continue to work together to integrate initiatives and reciprocate support efforts in the area of flood mitigation planning and program development. Meetings are convened routinely to review program goals and status and to continue partnership development and reaffirm partnership. Ongoing and in-development program and planning partnering and integration efforts include the following:

Technical Assistance Partnership for Workshops

Both agencies, SEMO & DEC reciprocate support in the area of providing *technical assistance workshops* to NYS communities in the interest of promotion and development of flood mitigation programs and planning activity. The DEC participates in SEMO *mitigation planning workshops* providing a unit covering NFIP, including floodplain regulations and enforcement. Similarly, SEMO Mitigation participation in NYS DEC's NFIP and *floodplain program development workshops*, to provide a unit covering flood mitigation measures and funding opportunities, is in development.

Panel Partnership for Review and Prioritization of Mitigation Activity

The DEC administers a "*Community Assistance Visits*" (CAV) program. The program provides an opportunity to assist communities with floodplain management program development and offers a compliance and enforcement assessment check up. The DEC has established a goal to provide 90 CAVs each year. DEC flood prevention and SEMO Mitigation staff continue collaboration to prioritize the visits based on needs assessment.

SEMO convenes a *mitigation project review board* tasked to review, assess, and prioritize mitigation project and planning applications for certain grant funding programs. DEC participation on the Project Review Boards (PRBs) will continue. DEC also provides SEMO with floodplain development regulatory reviews for mitigation projects. DEC and SEMO routinely invite each other to participate in state-wide and regional training workshops and conference opportunities.

DEC- Division of Law Enforcement

Functions of DEC-Division of Law Enforcement

Compliance/Enforcement Programs

Division of Law Enforcement: Proactively and reactively responds to situations and events to document and verify both compliance and non-compliance with Federal statutes, State statutes, and applicable regulations dealing with natural resources, pollution, and hazardous substances. The Division of Law Enforcement (DLE) focuses on coordinating with all applicable DEC programs, Local governmental agencies, State agencies, Federal agencies, etc., to determine and document the root cause and origin of event(s) or sub included event(s) that adversely impact or may adversely impact the State's natural resources. When evaluating these roots causes the DLE is responsible for making initial determinations about criminal and/or civil culpability and interfacing these findings with appropriate Local, State, or Federal prosecutors for determination of formal enforcement proceedings. Accurate and well documented root cause and origin findings are also an essential element to post incident analysis and subsequent preventative measure recommendations.

Monitor Potential Disasters

Division of Law Enforcement: Has numerous personnel and resources that routinely respond to or are dispatched to emergency incidents during their incipient phases. At many emergency events and/or declared disasters, DLE personnel have functioned as forward observers for the Department of Environmental Conservation. DLE members may provide both forward observer information to both the site specific incident command situation unit as well as providing up to date data with in the DEC's chain of command. In keeping with the NIMS ICS goals DLE members are being trained to fulfill the role/s of "forward observer", "situation unit leader", and "planning section chief". Specialized equipment and resources used to fulfill this mission are:

- **Communications:** a State-wide repeater system allowing long-range point-to-point communication between parties. Two to three channel repeater capability depending on specific location in State.

- Officers are issued a multi-agency channeled portable radio which is also mated with the DEC's extensive repeater system. This also allows for long-range point-to-point communication utilizing portable radios over a significant portion of the State. This capability is important for interior operations where vehicle and base radios are impracticable.
- ATV's & Snowmobiles
- Approximately 325 law enforcement vehicles, many of which are 4WD, all equipped with multi-agency and repeater communication ability.
- A large number of boats and qualified operators. Many of these boats are law enforcement vessels with multi-agency communication, repeater capability, and marine radios.
- Hazardous substance response specialists who have ability to assist in chemical risk evaluation, mitigation, and site safety.
- In the fall/winter of 1998 - 1999, the DLE issued all field officers Pentium grade lap top computers, with field printers, and fax/modem abilities. It is planned to additionally use these units to move situation status reports from out in the field up the chain of command utilizing electronic data transfer technologies including cell phone faxing. This technology will include the ability to cell fax/modem digital images of events, containers, situations, etc. to off-site specialists and the State Emergency Coordination Center as necessary.

Prevention/Mitigation Projects

- **Division of Law Enforcement:** Proactively and reactively responds to situations and events to document and verify both compliance and non-compliance with federal statutes, State statutes, and applicable regulations dealing with natural resources, pollution, and hazardous substances. The DLE focuses on coordinating with all applicable DEC programs, Local governmental agencies, State agencies, Federal agencies, etc., to determine and document the root cause and origin of event/s that adversely impact or may adversely impact NYS's natural resources. When evaluating these root causes the DLE is responsible for making initial determinations about criminal and/or civil culpability and interfacing these findings with appropriate Local, State, or Federal prosecutors, for formal enforcement proceedings. Accurate and well documented root cause and origin findings are also an essential element to port incident analysis and subsequent preventative measure recommendations.

DEC- Division of Environmental Permits

Functions of DEC- Division of Environmental Permits

Compliance/Enforcement Programs

Division of Environmental Permits: Administers the Department's 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 different major environmental permit programs of the agency. 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.

Zoning/Land Use Programs

Division of Environmental Permits: Reviews applications for permits

Prevention/Mitigation Projects

Division of Environmental Permits: Through the implementation of the Permit Management System, activities requiring permits under the ECL are reviewed to ensure that proposed activities will not endanger the health, safety, or welfare of the people of the State, and will not cause unreasonable, uncontrolled, or unnecessary damage to the natural resources of the State.

DEC- Forest Protection and Fire Management

DEC - Division of Forest Protection and Fire Mgmt & Division of Land and Forest

Highlights of Existing Mitigation Programs

- Public education and public awareness are key areas in a wildfire prevention program. "Smokey the Bear" and the State Forest Rangers deliver a powerful message to both children and adults regarding forest fire safety and the risks associated with wildfires.
- Current laws and regulations such as the Environmental Conservation Law and the New York State Uniform Fire Prevention and Building Code further aid wildland fire prevention efforts.
- Local fire departments along with the State's Forest Ranger Force are the primary wildfire suppression force in New York State. Mutual aid agreements and the New York State Fire Mobilization and Mutual Aid Plan enhance their firefighting capabilities by providing additional resources when needed. The Office of Fire Prevention and Control

and the State's Forest Rangers provide training programs to firefighters.

Highlights of Mitigation Action Elements

Successful firefighting activities are dependent upon an adequately trained and equipped suppression force. New training courses, enhanced and rewritten courses are offered to firefighters. Courses in Incident Command System, Public Safety Critical Incident Management, Wildland/Urban Interface, and specialized wildfire behavior courses enhance firefighting capabilities and lead to better interagency cooperation at an incident. Interagency cooperation is critical in bringing a multi-jurisdictional incident to a successful conclusion promptly. Other programs to increase communication and cooperation between agencies with wildfire mandates are planned. Efforts to stockpile needed wildfire equipment at regional locations, adequately equipping local fire departments for wildfire and the development of a common statewide radio communication system are proposed.

The public plays an important role in any wildfire mitigation plan. Increasing the use of Public Service Announcements, offering a Wildfire Survival Program and developing a pamphlet on the use and benefit of fire/prescribed fire are planned.

Wildfire investigations and wildfire reporting will be improved to determine where prevention and enforcement efforts should be concentrated. Aerial detection flights will be provided in sites of high concern during periods of high fire potential.

Urban Forestry

A variety of weather related events can cause significant damage to the tree resources of an area. Damaged trees pose a threat to utility lines (power failure) as well as providing additional fuel for wildfires in rural areas.

A comprehensive tree care management system, incorporating planning, maintenance, planting, and removals is important in reducing damage from weather events. Most municipalities lack a clear plan on how to manage their resource. Unfortunately, comprehensive tree care programs are usually not undertaken because of budget constraints. Available funding is now used mainly for dead tree removal. Even in communities which have comprehensive tree care programs, maintenance is still not sufficient to keep the resource in its optimum condition. Municipal budgets typically promote tree planting versus maintenance; both activities are needed, but maintenance does not have the "flashy" appeal planting does. Private funding is also generally targeted for tree planting. It is difficult to get citizens or corporate donors to get excited about funding maintenance of trees, especially when the trees look healthy to their untrained eye.

Maintenance, particularly pruning, can produce the most immediate benefit for the condition of the tree resource. To prevent damage from occurring in the future the urban forest resource of the area needs to be improved. Many of the trees that survived a storm are damaged, and

pruning and maintenance is necessary to improve their structure and strength. Properly pruned and maintained trees are less likely to break in a storm making them less likely to interrupt electric service or threaten public safety. There are three classes of pruning recognized by the National Arborists Association:

- Class I - fine pruning
- Class II - standard pruning
- Class III - hazard pruning.

Most municipalities, if any pruning is done, are only able to do hazard pruning, defined as the removal of dead, diseased, decayed, and obviously weak branches. This increases the safety aspect, and to some extent the tree's vigor, but does not allow for maximum structural benefits. Class II - standard pruning consists of, in addition to Class III - hazard pruning, the removal of interfering, objectionable, obstructing, and weak branches, as well as selective thinning to lessen wind resistance. This helps maintain structural integrity.

Certainly, weather damage would be less if all community trees received a periodic (5 to 10 year) standard pruning operation. Class II, standard pruning, as outlined above, removes weak branches and reduces wind resistance. This becomes more important during summer storms. However, in 1991 some street trees in Rochester had just been pruned and still experienced 100% tree destruction. Not enough limbs remained to provide sufficient food for continued tree survival. Obviously, given a catastrophic event, even the best maintained trees can suffer damage.

The individual tree species is also a major factor in the amount of damage from weather. The community forest is typically older trees of a few species. Common urban street tree species include Norway maple, silver maple, green ash, and sycamore. These species are large, up to 75 feet in height at maturity. Norway and silver maple are particularly associated with poor structural characteristics. Their wood is brittle and limbs tend to fail with less external stress than other trees.

Utility line damage is increased when mature trees grow above the utility lines and then structurally fail. The age and therefore the size of the common species growing in our communities result in this overtopped condition. Utility companies spend millions of dollars per year on line clearance trimming. When a major weather event occurs, limb or whole tree failure damages power lines. Practically, the removal of all trees that could hit power lines, if felled in a storm, is unacceptable. This would require the removal of nearly all large street trees. Periodic replacement with more suitable trees should begin in our communities. This would utilize tree species better adapted to the urban environment and where appropriate, low growing trees under power lines.

The description of the municipal resource also applies to the majority of trees in most of our communities; those owned by private landowners. Street and public park trees are usually less than half the trees in any given community. Private lawn trees, although generally less disruptive to the public infrastructure when they suffer harm, do cause a great deal of damage to private property. The lack of routine maintenance, improper tree species planted, and the delay of pruning contribute to the damage on private lands. Total plant health care is often not practiced.

There are no statewide regulations for urban or community trees. Most larger-sized communities have local laws concerning their public street trees. The scope of local ordinances generally involves the legal authority for tree planting, pruning, removals, and pesticide application on municipal property. Some are strictly street tree ordinances; others incorporate land clearing provisions to control development. The local laws almost always apply only to public trees, not people's lawn trees. No survey has been conducted to determine which communities have ordinances.

The legal ownership of municipal trees can vary; generally it is the area from the street curb to the sidewalk edge, "the tree lawn". It is either owned in fee, or controlled through a public easement. Local governments are then generally responsible for the planting, maintenance, and removal of the trees in these areas. Outside the tree lawn, the local property owner assumes this responsibility. Utility companies have easements which allow them to prune and remove trees to ensure continued services.

The Department of Environmental Conservation (DEC) is granted authority to assist communities in the management of the tree resource through the Article 53 of Environmental Conservation Law (ECL), "Tree Conservation and Urban Forestry" adapted in 1978. DEC provides limited technical assistance to communities requesting such services. The Federal 1990 Farm Bill, Public Law 101-624, "Food, Agriculture, Conservation, and Trade Act of 1990", was signed into law on November 28, 1990. Title XII-State and Private Forestry, Subtitle A-Cooperative Forestry Assistance Act of 1978 has section 1219, Urban and community forestry assistance. This section contains the Urban and Community Forestry legislation, which provides funding to states for urban forestry. This Title also has Subtitle C-America the Beautiful, which creates a National Tree Trust, a private foundation formed to promote tree planting, maintenance and education in community forestry.

The urban and community forestry program has received substantial Federal funding cuts. Due to the cuts the resources of the program are spread very thin. In spite of the cuts the State continues to provide technical assistance and urban forestry education throughout the State.

The private sector has been an important component in urban forestry efforts for over a decade in New York. The federal government's desire to formally foster this relationship in all the States

recognizes its importance to continuing programs. The new direction for community forestry is partnerships -- between Federal, State, and Local government, academia, private business, and volunteers.

The State Community Forestry Plan outlines a direction for DEC's urban forestry program. The interaction with private groups, local governments, "green industries", academia, and the utility companies will be integrated within an overall State plan. Proper planning and implementation of planting and maintenance techniques can have a positive impact on the urban forest and the amount of damage it receives from weather events. The State Forestry plan will form a policy strategy for the implementation of urban forestry by the identified sectors; the DEC has a limited role in actual program delivery. This will be enhanced by the authorizing legislation when backed by continued appropriations to allow increased assistance to communities and local groups.

State Forestry Summary

The problems with the urban forest resource can be summarized into three distinct areas.

- (1) Lack of sufficient maintenance on the existing tree resource,
- (2) Inappropriate planting of trees that will eventually grow into or over power lines, and the common problems associated with this,
- (3) Inadequate technical information exchange to the local communities.

The State Urban and Community Forestry program provides technical information to local officials whose responsibilities include management of the tree resource and to that sector of the general public that have a special interest in trees. The information is provided by the DEC, in conjunction with the other partners identified: advisory council, academia, and interest groups.

Annual New York ReLeaf workshops have been developed to provide a comprehensive training program. With the assistance of regional Urban Forestry advisory committees a series of technical workshops have been offered across the State. The workshops stress the need for a comprehensive tree care program, involving tree planting and maintenance under a developed master plan. These workshops are geared for the tree care "professional" and highly motivated volunteers. These workshops provide the necessary technical information to many of the local implementers of urban forestry in our communities. This, in essence, is the single most important mitigation action we can take, since it has the ability to affect the most people and communities and therefore the tree resource.

Although some communities may have insufficient funds to implement a complete tree care program, this training increases their ability to choose appropriate and "safe" tree species and to

ensure their proper planting and maintenance. This will lower future hazard maintenance needs, thereby maximizing resources devoted to the tree program. It is hoped federal funding will allow continuation of the workshops.

Under the umbrella term "New York ReLeaf", local volunteer organizations are given the necessary basics for forming citizen tree groups. New York State has several citizen tree groups currently in place including: Trees for Rye, ReTree Schenectady, and New York City Street Tree Consortium. Again, partners are being identified that will ensure these workshops continue. The power of people and networks will help keep interest high and a demand for continued information.

The Department of Environmental Conservation in conjunction with the Monroe County Cooperative Extension conducted a pilot project with funding from FEMA 404 grant. In the pilot area the project involved both educational outreach efforts associated with Cooperative Extension and direct technical assistance mitigation activities of the DEC urban forester along with the expertise of utility foresters from the State's major utility companies. Technical assistance, working with communities on managing their urban forest resource, occurred in the thirteen (13) disaster counties of the 1991 Ice Storm. Emphasis was in the eight (8) counties in DEC Region 8 having the most severe damage.

New York ReLeaf Program

New York ReLeaf program brings together the public and private sector in tree planting and maintenance efforts. New York ReLeaf is an educational and technical program focusing on providing the necessary technical expertise to layman volunteers, who are involved in urban/suburban tree planting. This program will increase this volunteer base and also expand the traditional volunteer activity of just planting to include maintenance of new and young trees. The goal is to get more trees maintained and to have the correct tree properly planted in the right place, insuring long term survivability.

Tree care and proper replacement are critical to ensure future damage to trees from weather related stresses is minimized. Past disasters have produced thousands of tons of woody debris. Proper maintenance can reduce the amount of woody debris produced by future storms. After a storm, the remaining trees require pruning to restore and improve structural strength and reduce interference with utility lines. Proper replacement trees should be chosen that will be structurally stronger, of the appropriate mature height for the site, or placed in locations that interfere less with utility lines. Due to past practices or public misconceptions, tree pruning and removal is often opposed by the public. Through proper education of the public and utility workers, a common ground may be found that will clear the way for the required work.

The Department of Environmental Conservation's program focuses on technology transfer to local communities. The efforts are concentrated in the urban/suburban environment. Providing

assistance to communities in the management of their tree resource reduces the number of trees planted that are unsuited for their planting area and improves the quality of the tree resource, so it can better withstand the effects of adverse weather. As outlined above, this collaboration aims at getting the right trees planted in the correct location and maintained, by both the public and private sector. This is the best, most cost efficient way to minimize weather related damage. Trees are biotic species with finite structural strength; these properties however, vary by tree species and therefore can be manipulated for the benefit of the overall community. Through these outreach efforts, the State has formed partnerships with utilities, municipalities and tree care professionals throughout the State

Functions of DEC-Forest Protection and Fire Management

Education/Public Awareness

Forest Protection and Fire Management: A Smokey the Bear fire prevention educational program is carried out by forest rangers in schools throughout the State. Radio and TV messages are provided to news media.

DEC- Division of Fish, Wildlife, and Marine Resources

Functions of DEC-Division of Fish, Wildlife, and Marine Resources

Zoning/Land Use Programs

Division of Fish and Wildlife: Does wetlands planning and wetlands development projects.

Monitor Potential Disasters

Division of Fish and Wildlife: Identifies hazardous materials in the environment and in various species of fish and wildlife.

Prevention/Mitigation Projects

Division of Fish, Wildlife, and Marine Resources: Regulates the development and maintenance of protected wetlands and stream protection (beds, banks and bottom). Responsible for assessment of the reaction of wildlife and habitat (and avoidance of injury) to an oil spill component.

DEC- Division of Operations

Functions of DEC-Division of Operations

Monitor Potential Disasters

Division of Operations: Contracts with stream gage observers to monitor water levels upstream of Southern Tier flood protection projects (the program is under the direction of the Division of Water, Flood Protection section).

Training

Division of Operations: Provides training to other DEC Department program and operations staff in the operation and patrolling of flood protection projects.

2.3.4 – Office of Parks, Recreation, and Historical Preservation (OPRHP)

The Office of Parks, Recreation, and Historic Preservation (OPRHP) has been given the responsibility of providing the public with a safe, enjoyable environment for recreational activities. OPRHP is committed to providing encouragement to all agencies and individuals to identify, evaluate, and protect historic and cultural resources.

Agency Programs

- **Enforcement of National Historic Preservation Act** New York's State Historic Preservation Office (SHPO) helps communities identify, evaluate, preserve, and revitalize their historic, archeological, and cultural resources. The SHPO administers programs authorized by both the National Historic Preservation Act of 1966 and the New York State Historic Preservation Act of 1980.
 - These programs include the Statewide Historic Resources Survey, the New York State and National Registers of Historic Places, the Federal historic rehabilitation tax credit, the Certified Local Government program, the State historic preservation grants program, State and Federal environmental review, and a wide range of technical assistance
 - The SHPO also assists the Federal Emergency Management Agency (FEMA) with historic preservation determinations for Public Assistance Recovery Projects.
- **Navigation Law** The Office of Parks, Recreation, and Historic Preservation (OPRHP) has been given the responsibility of providing the public with a safe, enjoyable environment for recreational boating. The ultimate goal is to assist the boater in developing safe boating habits. Education and enforcement are the tools that will help achieve that goal.
- **Snowmobiles** OPRHP oversees snowmobile use within the State including training and coordination with Local snowmobile clubs and law enforcement agencies.
- **Implements Empire State Games**

Statewide/Regional Hazard Response

Statewide Comprehensive Outdoor Recreation Plan compliments State mitigation objectives via its open space protection plan. 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. Overall monitoring and support for Regional or State-wide emergencies is provided by the Main Office in Albany. Additionally the Agency as a whole participates in Statewide response coordination through the State Emergency Management Office.

2.3.5 – New York State Bridge Authority (NYSBA)

The New York State Bridge Authority is a public benefit corporation created in 1932. The mission of New York State Bridge Authority is to maintain and operate the vehicle crossings of the Hudson River for the economic and social benefit of the people of the State.

Each facility has a site specific Emergency Action and Fire Prevention Plan as required by OSHA 29 CFR 1910.38. Included in the plan are sections regarding hazard communication program, evacuation procedures for buildings and bridge structures, chemical spill response, emergency procedures relating to natural disasters, maintenance, and protection of traffic including bridge closure procedures, spill prevention and control countermeasures, and a listing of our hazardous materials response contractors.

The agency created an Emergency Operations Plan (EOP), to deal with any emergency that occurs which allows for the immediate escalation of an incident for the inclusion of outside agencies for a large scale disaster. The EOP includes appendices for hazard specific plans and is reviewed and updated regularly.

New York State Bridge Authority schedules regular annual inspections of all bridge structures and every other year a major inspection is performed. Every five years an underwater pier inspection is performed which includes all piers that are not based on land. Problem areas, both new and existing are reviewed by the Chief Engineer and are addressed by including specific repair work in the annual bridge maintenance program. The Authority's Chief Engineer reviews problems of a large scope that the Authority's own forces cannot remedy. The Chief Engineer then assigns an engineering consultant to prepare bid documents used to request proposals from qualified contractors for the resolution of the problem.

A Seismic study was undertaken in 1994 at the Kingston-Rhinecliff Bridge in contemplation of asking for Federal highway funds. That bridge was retrofitted concurrent with rehabilitation work that included road deck replacement and was completed in January of 2004 without Federal assistance. Seismic studies of the remaining bridges have been completed and recommendations for retrofit will be considered for implementation with future structural rehabilitation work.

The Authority continues to keep updated with training and new products and procedures relating to winter snow and ice control in preparation for large winter storms.

Critical State facilities are identified by New York State Bridge Authority to help mapping of all State facilities and critical structures. These facilities are Rip Van Winkle Bridge, Kingston-Rhinecliff Bridge, Mid-Hudson Bridge, Newburgh-Beacon Bridge, and Bear Mountain Bridge.

2.3.6 - New York State Department of Agriculture and Markets (AGMKT)

The mission of the New York State Department of Agriculture is set forth in Subdivision One of Section 16 of the Agriculture and Markets Law (AML), which provides that the Department, through the Commissioner, 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 to enforce and carry into effect the provisions of the laws of the State relative to weights and measures.

The Department carries out this mission through the Divisions of Food Safety and Inspection, Milk Control and Dairy Services, Food Laboratory, Animal Industry, Plant Industry, Soil and Water, Agriculture Protection and Development Services, Weights and Measures, Kosher Law Enforcement, Statistics, the State Fair, Counsel's Office, Fiscal Management, Human Resources, and Information Systems.

The Department of Agriculture and Markets administers the following programs/divisions that are involved in preventative measures and response:

- **Division of Food Laboratory:** Provides expert, state-of-the-art analytical testing in support of food safety and security programs via the testing of food, dairy products and beverages for specific health hazards, purity, and accurate labeling. Additionally, animal feed, pet food, fertilizer and lime samples are tested for accurate labeling.
- **Division of Food Safety and Inspection:** Engages in the enforcement of laws, rules, and regulations pertaining to the safety of the food supply from producer to retailer. The Division has 200 employees including 115 food inspectors and has jurisdiction over approximately 28,000 food handling establishments.
- **Division of Milk Control and Dairy Services:** The Division has the dual role of protecting the health and welfare of the general public and to help promote the integrity of the dairy industry. The Division regulates the industry through various sanitation, inspection and economic controls and programs with activities including the issuance of licenses, inspecting fluid, manufacturing and wholesale frozen dessert plants every ninety days and enforcing milk sanitation requirements monthly sampling of milk and milk products.
- **Division of Animal Industry:** The Division includes several veterinarians charged with preventing, controlling, and eradicating diseases of animal health and public health significance. Among the efforts in the past include the elimination of equine infectious

anemia in horses, eradication of brucellosis and tuberculosis in cattle and deer populations, and control of low pathogenic avian influenza in poultry. The Division also has developed and maintains the New York Animal Health Information Systems to identify a livestock production premises.

- **Division of Plant Industry:** The Division is responsible for maintaining plant health, promoting integrated pest management practices and detecting and preventing the spread of invasive species in partnership with USDA/APHIS.
- **New York State Soil and Water Conservation Districts:** The Soil and Water Conservation Districts provide a variety of services to develop and oversee soil and water conservation programs that enhance the quality of lands in New York State. This work has included rehabilitation of streams and stream banks as part of post storm activities.

Statewide/Regional Hazard Response

Division of Animal Industry

A. CART/ESART:

- **County Animal Response Teams (CARTs)** -The New York State Department of Agriculture and Markets (NYSDAM) has worked cooperatively with County Emergency Managers across New York State and New York City to establish County Animal Response Teams (CARTs). These teams are collections of trained volunteers that have an ability to assist Emergency Managers during disasters or emergencies that affect animals as well as humans. In addition to providing general assistance, these volunteers may have additional specialized training with certain types of technical animal rescues and they may have the ability to staff and run temporary housing facilities for animals.
- **Empire State Animal Response Team (ESART)** – ESART is a collaborative endeavor between NYSDAM and the following partners; New York State Veterinary Medical Society, the ASPCA, the New York State Emergency Managers Association, The New York State Emergency Management Office, the Center for Public Health Preparedness of the School of Public Health at the University of Albany, Cornell Cooperative Extension, the Animal Health Diagnostic Center of Cornell University, and the New York City Office of Emergency Management. ESART was developed to coordinate preparedness, response, and recovery efforts for animals affected by disasters.

- B. Low Pathogenic Avian Influenza Control** - Cooperative agreement with the United States Department of Agriculture's (USDA) Animal and Plant Health Inspection Service (APHIS)

- A cooperative agreement between the New York State Department of Agriculture and Markets and the USDA/APHIS/VS is designed to manage the public and animal health implications of the live bird / human population interface associated with the live bird marketing system in New York City has been established. The cooperative agreement supports three NYS Animal Health Inspectors to supplement an additional two Federal Animal Health Inspectors who are fully engaged in program implementation. These inspectors sample birds for evidence of avian influenza, oversee the implementation of biosecurity measures, and assure compliance with animal health requirements.

C. Low Pathogenic Avian Influenza Control in Commercial Flocks (USDA/APHIS Cooperative Agreement):

- A cooperative agreement between the New York State Department of Agriculture and Markets and the USDA/APHIS/VS is designed to support an enhanced surveillance system for avian influenza virus in poultry populations. The program involves the collection of monitoring samples from New York poultry flocks. Samples are analyzed at the Animal Health Diagnostic Center. The objective is to have a sensitive and accurate indicator of the introduction of avian influenza virus to facilitate rapid and effective response.

D. High Pathogenic Avian Influenza - Cooperative agreement with USDA/APHIS:

- A cooperative agreement between the New York State Department of Agriculture and Markets and the USDA/APHIS/VS is designed to provide the infrastructure to support diagnosis for high path avian influenza virus. The program builds appropriate expertise and capacity to manage a high path avian influenza outbreak in New York. The Cooperative Agreement also supports the development and implementation of an electronic data submission and transfer system being developed by the USDA. The system facilitates accurate and efficient data collection and analysis of avian influenza surveillance activities.

E. Salmonella Enteritidis Control Program Shell Eggs - Memorandum of Agreement between New York State Department of Health (DOH) and NYSDAM:

- This is a memorandum of agreement between the Divisions of Animal Industry and Food Safety and Inspection within NYSDAM and the New York State DOH designed to address foodborne infection caused by

Salmonella enteritidis in shell eggs. It supports food safety and food security by promoting biosecurity on farms and improving environmental hygiene. Measures employed in this program are universal precautions for most poultry disease foodborne contaminants.

F. National Animal Identification System - Cooperative Agreement with USDA/APHIS:

- A cooperative agreement between NYSDAM and the USDA/APHIS/VS is designed to support the implementation of a National Animal Identification System has been established. The National Animal Identification System includes three components critical to the effort to detect, respond and recover to natural or intentional introductions of infectious and toxic disease agents. The three components include:
 - Premises Identification
 - Animal Identification
 - Animal Movement Tracking

The objective of the program is to establish a system that facilitates the efficient management of livestock disease outbreaks. Such outbreaks may have significant public health, animal health, and economic impact.

G. Animal Health Diagnostic Center (AHDC)

- The Department contracts with the Animal Health Diagnostic Center at Cornell University to provide the necessary surveillance and diagnostic support for New York State Animal Health and Pre-Harvest food safety programs. Diagnostic Services support informed management on farms, early detection of livestock pathogens, and track the outcome of control methods. The AHDC is also part of the National Animal Health Laboratory System resulting in a nationwide network of diagnostic resources. Data from this system is used to tailor disease control resources to emerging health threats.
- The AHDC performs the testing to support disease prevention programs in New York State. The New York State Cattle Health Assurance program and the New York State Horse Health program are two examples of statewide programs designed to reduce the risk of disease introduction, amplification, and dissemination of infectious agents on New York State livestock operations.

Division of Food Safety and Inspection

The Division of Food Safety and Inspection has a number of cooperative agreements with Federal agencies. All were effective prior to the 2005 Plan update.

- Food and Drug Administration (FDA) - Integrated Food Safety System Partnership Agreement (this covers food recall activities)
- Food and Drug Administration (FDA) - Food Inspection Contract
- Food and Drug Administration (FDA) – Bovine Spongiform Encephalopathy (BSE)/Medicated Feed Inspection Contract
- USDA Animal and Plant Health Inspection Service (APHIS) - Custom Exempt Establishment Inspection Cooperative Program
- USDA Agricultural Marketing Service (AMS) – Cooperative Agreement for Microbiological Data Program and Pesticide Data Program
- USDA Agricultural Marketing Service (AMS) – Cooperative Agreement for Voluntary Grading of Shell Eggs, Poultry and Rabbits
- USDA Agricultural Marketing Service (AMS) – Cooperative Agreement for Fresh Fruits, Vegetables and Other Products
- USDA Agricultural Marketing Service (AMS) – Cooperative Agreement for Country of Origin Labeling
- USDA Agricultural Marketing Service (AMS) – Cooperative Agreement for Meat Grading and Certification Service
- United States Department of Commerce – Cooperative Agreement for Seafood Inspection

Food Laboratory

The New York State Food Laboratory has Federal cooperative agreements with the following agencies:

- USDA Agricultural Marketing Service (AMS) – Microbiological Data Program (MDP): The MDP is a national food-borne pathogen database program implemented in 2001.

Through cooperation with State Agriculture departments and other Federal agencies, MDP manages the collection, analysis, data entry, and reporting of food-borne pathogens on selected agricultural commodities.

- USDA Agricultural Marketing Service (AMS) – Pesticide Data Programs (PDP): The PDP is a national pesticide residue database program. Through cooperation with State agriculture departments and other Federal agencies, PDP manages the collection, analysis, data entry, and reporting of pesticide residues on agricultural commodities in the U.S. food supply with an emphasis on those commodities highly consumed by infants and children.
- USDA Food Safety and Inspection Service (FSIS) – Food Emergency Response Network (FERN). In 2005, FSIS established its FERN Division to create an integrated network of laboratories across America that can quickly respond to food-related emergencies. The Division works with the Food and Drug Administration (FDA) to expand and manage an existing group of more than 90 Federal, State, and Local laboratories with the capability to detect and identify biological, chemical, and radiological agents in food. Homeland Security Presidential Directive 9 (January 2004) outlined the need to develop a plan to protect the nation’s food and agriculture industries from attacks and emergencies. One of the directive's recommendations was to expand Federal cooperation to develop a national network of food, veterinary diagnostic, and plant and public health laboratories. As a FERN laboratory, the New York State Food Lab analyzes surveillance samples, validates new methods used to detect threat agents in food products and meets a list of guidelines to ensure the security and safety of their facilities and employees.

In addition, the Food Lab has begun the process of establishing a comprehensive Continuity of Operations Plan (COOP), which will entail cooperation with a number of public and private entities. Thus far, staff has identified private, university, and other public sector laboratories having similar facilities and testing programs, with an eye toward identifying potential surge capacity resources and positioning the lab to redirect essential sample testing should our facility become inoperable at some level.

Soil and Water Conservation Committee

Since the summer of 2006, the State Soil and Water Conservation Committee has provided guidance for Local soil and water conservation districts as it relates to disaster preparedness and assistance. This action was initiated as a result of the severe flooding and damage during that year. Committee staff is currently in the process of updating this guidance. It is expected that the final document will cover day-to day roles and functions during possible disruptions of routine services (such as the milking of animals) due to disaster. The Committee’s goal is to have this available by the end of the year.

Division of Plant Industry

Currently NYSDAM's Division of Plant Industry has a cooperative agreement with USDA's Animal and Plant Health Inspection Service (APHIS) to implement the Cooperative Agricultural Pest Survey (CAPS). This agreement provides for the early detection of exotic plant pests which would include "select agents." Select agents are those biologicals (plant pathogens, insects, nematodes and weeds deemed hazardous to our regional agricultural and natural ecosystems) that could be introduced intentionally to create economic hardship/disaster. The Survey is crucial in safeguarding New York's and our nations agricultural and natural resources by detecting early pest infestations or introductions. The ultimate goal is to protect New York's food production infrastructure and natural resources from exotic invasive pests and bioterrorism.

2.3.7 - New York State Division of Housing and Community Renewal (DHCR)

The New York State Division of Housing and Community Renewal (DHCR) is responsible for the supervision, maintenance, and development of affordable low- and moderate-income housing in New York State. The DHCR performs a number of activities in fulfillment of its mission to make New York State a better place to live by supporting community efforts to preserve and expand affordable housing, home ownership and economic opportunities, and by providing equal access to safe, decent, and affordable housing through:

- **Housing Operations:** Provides oversight and regulation of the State's public and publicly assisted rental housing. Housing Operations supervises DHCR's portfolio of developments built under the Mitchell- Lama, Limited Dividend, Public Housing, Housing Trust Fund, Turnkey and Low-Income Housing Credit programs. In addition to its regulatory functions, Housing Operations is also responsible for administration of HUD Section 8 Program, which provides rental assistance to very low-income families across NYS.
- **Community Development:** Oversees administration of housing development and community preservation programs, including State and Federal grants and loans for housing developers to partially finance construction or renovation of affordable housing.
- **Rent Administration** – The office of Rent Administration is responsible for regulating rents in approximately 1.2 million privately owned rental units statewide under the Emergency Housing Rent Control Law, the Local Emergency Tenant Control Act, the Rent Stabilization Law, and the Emergency Tenants Protection Act (ETPA). These four laws are the foundation of the rent regulation systems commonly known as Rent Control & Rent Stabilization.

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 Sheltering/Housing Task Force and is responsible for the corresponding section in the CEMP, which is currently being drafted.

2.3.8 – Department of Transportation (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.

The following highlights some of DOT's many routine engineering and operations management activities that could be considered hazard mitigation.

ENGINEERING DIVISION ACTIVITIES

Seismic

- New bridges are designed for earthquakes with an average return interval of at least 500 years.
- The design provides 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.
- Design based on USGS seismic zone maps - Zone A = least severe; Zone D = most severe. Most of New York is in Zone A; a portion is in Zone B.
- NYSDOT conservatively designs according to 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 continuous 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 likely to occur in a 50-year interval.
- 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 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.

Bridge Inspection

- Inspection is hazard mitigation.
- Inspect nearly 10,000 bridges per year (state and non-state) - all bridges are inspected at least once every two years.
- Underwater inspections of substructures are done at a maximum of interval of five (5) years
- Have 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 - bridge owners are notified of safety or structural problems
 - Structural
 - Red = imminent hazard and prompt action required
 - Yellow = not an imminent hazard
- Conducting a gap analysis to streamline inspection of culverts with spans ranging from 5 to 20 feet

Bridge Safety Assurance

- Proactive effort to identify bridges that are vulnerable to failure due to causes other than condition.
- Have identified six (6) major failure modes or vulnerabilities:
 - hydraulics (scour)
 - overloads
 - steel detail deficiencies
 - collision
 - concrete detail deficiencies

- earthquakes
- Developing program to assess a bridge's relative vulnerability to one or more of the six (6) modes of failure.
- Almost all bridges have been assessed for Hydraulics.
- Nearly all State-owned bridges assessed for Steel, Overload, and Collision.
- Concrete and Earthquake assessments beginning for State bridges.
- Flood watch program in place - monitor bridges during potential or actual flood events to ensure public safety. Will close bridge if unsafe.
- Post-flood inspection - inspect bridges that have been exposed to a flood event, look at substructure elements. Determine safety.
- Preparing individual plans-of-action for scour critical bridges.
- Updating load ratings of bridges every two years.
- Have bridge vertical clearance and load posting policies.
- Conducting a detailed overview of over-height, over-width, and overload policies.
- Developing post-seismic inspection guidelines to be better prepared in case of an earthquake of high magnitude affecting bridges in New York State.
- Plan to initiate a project to conduct a comprehensive investigation of bridges subject to impact to find mitigative efforts to reduce the frequency.
- Working with Federal Highway Administration (FHWA) on long-term bridge performance program to identify factors affecting bridge performance in order to improve the durability and functional performance.
- 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).

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 or near the toe;
- Design treatments to strengthen the slope for new loads (walls, soil re-enforcement), or repair the slope with special buttress design
- 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 amount of settlement embankment will cause in 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 down hill due to gradual erosion at the bottom or "springs" breaking out on the slope (during the Spring, of course, or 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);
 - when major settling of the embankment is done so the road can be paved without experiencing any major settling in the future.

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 location in the State (for wind speeds), the height and shape of the sign, and gust effects.

Location	Design Wind Low Signs	Design Winds for High Signs (Overhead)
Regions 5, 4, 3, 7, 10 & 11 High winds: Lakes and Ocean	113 km/h (70 mph)	129 km/h (80 mph)
Regions 1, 2, 6, 8 & 9 Low winds: Interior areas	97 km/h (60 mph)	113 km/h (70 mph)

- Sign structures are also inspected on a four-year cycle to mitigate hazards associated with them.
- 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 "Scoping and Design Procedure Manual" and its "Highway Design Manual." These manuals document the requirements for all projects. The State standards are based on/follow AASHTO standards.

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. Analysis 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 can not 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 it's "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.

Environmental Considerations

-All of our environmental assessments include an analysis of the following environmental consequences:

- Surface Waters/Wetlands
- Water Source Quality
- General Ecology and Wildlife
- Historical and Cultural Resources
- Visual Resources
- Parks and Recreational Facilities
- Farmland Assessment
- Air, Noise and Energy
- Contaminated Materials Assessment
- Construction Impacts
- Indirect/Secondary and Cumulative Impacts

-DOT also analyzes Social Consequences (population, local planning, community cohesion, school districts, travel patterns, police, fire, rescue, social groups, etc.) and Economic Consequences (regional, local economy, business districts, relocations, etc.).

-For most of the issues listed above DOT has additional detailed guidance and processes for analyzing, i.e., "Environmental Procedures Manual."

-Under the Department's Environmental Initiative/Ethic and Context Sensitive Solutions Philosophy we go beyond minimizing impacts, but attempt to improve whenever it is reasonable.

-In summary, DOT takes a lot of actions to reduce the risk to people and property from natural hazards and often improve the area by minimizing or eliminating the hazard. (Examples could include drainage - flooding improvements - design for 100 year storms, replacing undersize culverts, wider bridge openings; wetland restoration or mitigate impacts at least 2 acres for every 1 acre affected/impacted; erosion and sediment control plans; protecting water resources from roadway runoff and spills in the highway right of way [ROW]).

The Engineering Division programs also conduct conferences, such as the Annual Local Bridge Conference conducted by its Office of Structures, and other meetings with Local government officials to share the most current information on engineering topics.

OPERATING DIVISION ACTIVITIES

Snow and Ice Control

Snow Schools – Each year DOT runs these schools to train all employees in any new policies/procedures for the control of snow or ice on its highways. Additional hands-on

instruction is provided on how to properly install wings, plows, material spreaders, tire chains; equipment pre-op; etc. Every two years, specialized schools are run for supervisor and management personnel. For both of these schools DOT reaches out first to our municipal contractors, then to other municipalities to send personnel to our schools. In addition to this, DOT staff has organized and conducted snow schools for Local municipalities upon request.

Guideline Development – In April 2006, the Department revised its Snow and Ice Control Guidelines (first time since 1993) to reflect current thinking on types of materials, application rates of those materials, plowing procedures, after-storm cleanup, etc. Our guidelines are shared with municipalities, so they have the most current information on proper snow and ice control.

Best Practices – DOT has a Snow and Ice Community of Practice made up of managers, supervisors, and equipment specialists from within DOT along with similar representatives from the Thruway Authority who meet several times a year to discuss policies, procedures, best practices, and lessons learned in the area of snow and ice control and related areas. Related areas would include equipment, technology (Automatic Vehicle Location [AVL], Maintenance Decision Support System [DSS], and CLARUS [a Latin term for “clear roads;” is a consortium looking to standardize weather related data]), and anything else that touches on snow and ice.

Snow Fences/Shelter Belts – The Department worked with the University of Buffalo to develop a computer based system to help in the design of snow fences to reduce snow on the pavement and the need to send trucks out repeatedly to high drift areas. In 2007, we are seeking an RFP to do follow up research on Shelter Belts. Shelter Belts are “snow fences” that are built of trees, scrubs or other types of vegetation. Both of these techniques reduce the amount of snow on the pavement, thus making the road safer for traffic. Once these techniques are finalized DOT will share them with the Locals.

Drainage

Culvert Inspection – Taking a proactive approach to reduce culvert failures which can lead to serious accidents, the Department began an inspection program for large culverts over 15 years ago. All culverts greater than 5’ are inspected every two years. A rating scale similar to bridges is used. Due to the success of this program and failures of small culverts (less than 5’), in 2006 the Department began a program to inventory and inspect all culverts. DOT is currently working on determining what cycle to inspect these smaller culverts, determine vulnerability, etc.

Trees

Hazardous Tree Inspection – Annually each Residency conducts an inspection of its highways looking for dead and/or dying trees which could present a hazard to motorists, bicyclists, pedestrians, or property owners. The location, size, and nature of the problem for each tree is noted. A plan is then developed for removing the most critical of these trees each year through a combination of State Forces Tree Crews and Work Order Contracts.

Traffic Control

Pavement Markings – DOT's goal is to have quality pavement markings on all of their highways all year round. These markings include both center line and edge (fog) line markings. Quality pavement markings are probably the single most effective traffic control device available to the motorist for the reduction of accidents.

Traffic Signs – DOT staff continually monitor our highways for damaged signs, so they can be repaired/replaced as soon as possible. Additionally every two years, staff conducts night time reflectivity inspections to identify signs that no longer adequately function at night. Besides inspection and repair efforts, department staff conducts hundreds of traffic studies each year to determine the need for additional or replacement signing to respond to changing needs. Signing when coupled with pavement markers are effective tools in keeping motorists on the highway.

Bridge Safety Assurance

Flood Watch – During periods when the potential for flooding has been announced by NOAA, Maintenance Personnel are assigned to bridges that could be subject to scour to monitor those bridges. They monitor the rise of the water, debris and any signs of movement of the bridge and are capable of closing the bridge at the first sign of any problem. Two-way radio communication allows them to call for assistance when necessary.

General Inspection of the Right of Way (ROW)

Staff routinely inspects the overall condition of DOT highways and bridges looking for any deficiencies which would negatively impact the public. When deficiencies are found, they are noted and reported to the appropriate manager for correction.

Transportation Management Centers (TMC)

Transportation Management Centers operate to monitor, evaluate, and convey real-time road information, deploy HELP vehicles, support law enforcement, dispatch road repair crews, and communicate road information to emergency and other agency stakeholders.

Statewide Transportation Information and Coordination Center (STICC)

The Statewide Transportation Information and Coordination Center (STICC) monitors transportation system conditions from a centralized location on a 24/7 basis.

Transportation Systems Operations

- Pre-planned Maintenance and Protection of Traffic plans have been developed for emergency use to effectively restrict and detour traffic.
- Some traffic signals are equipped with battery back-up or generator hook-up capability to keep signals functioning during power outages. All new signals and signal rehabs will include a provision for a transfer switch, which will allow for an easy generator hook-up.
- Traffic control devices such as cones, drums, barricades, variable display boards, and portable traffic signals are stored in pre-planned staging areas around the State for quick deployment during an emergency.
- Traffic signal equipment, support poles, and related attachment hardware are designed and tested to withstand all weather conditions. Same for roadside and overhead signs, posts and hardware.
- Highway Advisory Radio (HAR) systems are available for deployment.
- Traffic diversion plans have been developed for most Interstate exits.

2.3.9 – Office of General Services (OGS)

The Office of General Services (OGS) was created in 1960 to provide essential support services for the operations of State government. Since then, OGS has grown significantly in size, scope, and complexity. Today, The Office of General Services is a large, diversified organization providing a broad spectrum of services to State agencies, Local governments, and the public. Since its inception, OGS has developed expertise in centralizing certain support and service functions leading to more cost effective government. Some of the services OGS provides in fulfilling its mission are:

- Facilitating the work of New York State agencies, the Legislature and Judiciary.
- Supporting Local governments and Public authorities; and, provide services through the development and management of efficient, responsive, and cost effective programs and activities
- Architectural, engineering, and construction management services involving approximately 10,000 State buildings at more than 850 locations Statewide.
- Providing management of the State's real property inventory, including disposal of underutilized parcels by sale at public auction or private sale under special legislation.

- Building management, energy saving operations, and maintenance services to 50 major office complexes and buildings statewide.
- Providing a variety of support and distribution services including management of the State government's vehicle fleet, interagency mail, and intercity courier services.
- Providing visitor assistance, tours and maintenance of architectural, historical, and art treasures at the Empire State Plaza, the Executive Mansion, and the State Capitol.
- As well as, managing the procurement of more than \$2 billion worth of supplies, materials, and equipment annually. Also, providing service and technology contracts for all State agencies, participating Local governments, and others authorized by law.

On a day-to-day basis, the Office of General Services coordinates with many State agencies. Numerous State agencies are in close proximity to OGS's main facility, which facilitates constant communication and cooperation between the State's agencies. The NYS Division of Police and the Office Fire Prevention and Control maintain sub-stations within the downtown complex and provide varying degrees of services to OGS. OGS maintains a very good working relationship with NY State Emergency Management Office and is a member of NY's Disaster Preparedness Commission

In regards to hazard mitigation strategies, The Office of General Services continues to explore areas to incorporate Geographical Information Systems technology as an effective mitigation tool. The use of GIS technology is a key component to an effective and reliable assessment of the critical infrastructure vulnerable to the natural hazards that affect the State of New York. OGS, in concert with the New York State Emergency Management Office, is dedicated to implementing and incorporating current technology to accurately assess vulnerability of critical infrastructure located throughout the State of New York. OGS maintains an extensive database of critical facilities located throughout the State, which will aid in the development and implementation of an accurate assessment of vulnerable critical facilities.

To increase awareness of vulnerable NYS critical facilities, OGS has completed a Comprehensive Emergency Management Plan (CEMP, 2005), which focuses on risk reduction, evacuation and response, and recovery from an emergency within the agency. OGS has conducted workshops on the implementation of the CEMP, as well as training exercises to test the effectiveness of the plan. In the past year, OGS has hired full-time employees and established the Security and Operations Risk Management Unit to administer the CEMP, security projects, and all aspects of the Office of General Services' emergency management. Other initiatives 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); promotion of new building designs to protect critical facilities structures' resistance to natural hazards; and a analysis of retrofitting components of the Binghamton State Office Building to

mitigate against future flood events, a hazard which is prevalent throughout the State of New York.

In addition to the mitigation strategies implemented by the Office of General Services, several response programs have been created to aid in the event of an emergency. Most notable of these emergency response initiatives are, the Emergency Standby Services Contract which provides a myriad of goods and services, such as water, food, generators, lighting equipment, toilets, living accommodations 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. Programs administered under the Food Distribution and Warehousing include the National school Lunch Program, Child and Adult Care Feeding, Emergency Feed Assistance Program, Area Agency on aging, Special Milk program, Summer Feed, and Summer Camps.

2.4 – Consolidation of Planning Requirements for All State Mitigation Programs

New York State has approximately 1465 communities currently participating in the National Flood Insurance Program (NFIP). At this time, approximately 45 communities have completed flood mitigation plans. The State has performed outreach to the communities with flood mitigation plans and encouraged the communities to expand their plans to all-hazard mitigation plans as part of their regular plan review and updating process. Currently, ten communities are in the process of updating and expanding their flood mitigation plans into all-hazard mitigation plans.

In addition, SEMO has adopted a strategy encouraging all communities interested in developing a flood mitigation plan to expand their efforts to the development of an all-hazard mitigation plan. This policy includes direct funding support for plan preparation, providing direct technical assistance to those communities who are interested in preparing plans but for which funding is not available and development of a model all-hazard mitigation plan as a guide for those communities capable of developing plans with minimal assistance.

2.4.1 - 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 SEMO 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 SEMO 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. In 1995, the DPC Member Agencies held a Hazard Mitigation Policy Summit. The Summit was organized by SEMO 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. The DPC holds semi-annual meetings and has a yearly conference where statewide mitigation efforts are discussed. In addition to efforts by the DPC, SEMO has a Long Island/New York City Conference held once a year at which statewide mitigation activities are discussed. The Mitigation Section of SEMO holds meetings with numerous jurisdictions and agencies to further the goals of hazard mitigation.

In addition to the new and expanded programs that are administered by SEMO, other programs are administered by or in conjunction with other agencies (e.g. NFIP by DEC, Coastal Program and State Building Codes by DOS). SEMO will continue to work with the various agencies and organizations across the State to explore methods of integrating mitigation into the daily 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)

The National Flood Insurance Program (NFIP)

The National Flood Insurance Program (NFIP) is designed to help communities obtain information regarding flood hazard areas and act to prevent flood disasters at the local level, as well as provide low cost flood insurance for buildings and their contents that are located in flood prone areas. In exchange for being made eligible 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. *(In NYS, 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, 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 1994 amendment to the National Flood Insurance Program (The National Flood Insurance Reform Act of 1994) has set the framework for a more effective program. New compliance and mitigation elements, especially the Flood Mitigation Assistance (FMA) Program, should help to significantly reduce future losses from floods. Since the last statewide Hazard Mitigation Plan Update in 2004, the State of New York has taken advantage of the FMA program through the allocation of more than one (\$1) million to communities to reduce the damage from floods for

repetitive loss structures in the State. Another provision of the National Flood Insurance Reform Act of 1994 is the Increased Cost of Compliance (ICC), which provides a certain amount of funding 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 buyout match requirement if they choose to sell the damaged structures.

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. Those who refuse mitigation offers would then pay full actuarial rates on flood 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. SEMO is working with DEC to help implement the program.

Community Rating System Program of the NFIP

The Community Rating System (CRS) is a voluntary program for National Flood Insurance Program (NFIP) – participating communities. The National Flood Insurance Reform Act of 1994 codified the Community Rating System in the NFIP. The CRS has been developed to encourage and provide incentives for communities to go beyond the minimum floodplain management requirements to develop extra measures to provide protection from flooding. The incentives are in the form of flood insurance premium discounts. 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 start out 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. Credit points are assigned to each activity. The 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. This classification 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 2-6** 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, <http://www.fema.gov/nfip/crs.shtm>, and for more information on the CRS program go to the web site at the following link, <http://training.fema.gov/EMIWeb/CRS/>.

**Table 2-6
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	9
360464	Freeport, Village of	Nassau	8
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
360506	Niagara Falls, City of	Erie	8
360801	Northport, Village of	Suffolk	9
360667	Oneonta, City of	Otsego	9
360932	Scarsdale, Village of	Westchester	8
365342	Southampton, Town of	Suffolk	9
360156	Southport, Town of	Chemung	9
360595	Syracuse, City of	Onondaga	9
360056	Union, Town of	Broome	9
360157	Wellsburg, Village of	Chemung	9

Hazard Mitigation Grant Program

Section 404 of the Stafford Act provides for the Hazard Mitigation Grant Program (HMGP). 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 and Public Assistance. Under the new DMA 2000 regulations, States with an approved Enhanced Mitigation Plan can receive up to 20% of total FEMA payments for

Individual Assistance and Public Assistance. Approved hazard mitigation measures are generally funded on a 75/25% cost share basis as provided for in the Stafford Act. 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**.

The Major Disasters that have provided the mitigation funding are:

- FEMA 898 DR-NY (March '91 Ice Storm)
- FEMA 918-DR-NY (Hurricane Bob)
- FEMA 974 DR-NY (December '92 Nor'easter)
- FEMA 1095 DR-NY (January '96 Floods)
- FEMA 1146 DR-NY (October '96 Nor'easter)
- FEMA 1148 DR-NY (November '96 Floods)
- FEMA 1196 DR-NY (January 1998 Ice Storm)
- FEMA 1222 DR-NY ('98 Tornado)
- FEMA 1233 DR-NY ('98 Floods)
- FEMA 1244 DR-NY (September '99 Windstorm and Floods)
- FEMA 1296 DR-NY (Hurricane Floyd)
- FEMA 1335 DR-NY (Flooding)
- FEMA 1391 DR-NY (September 11, 2001 World Trade Center Attacks)
- FEMA 1404 DR-NY (Western New York Snowstorm)
- FEMA 1415 DR-NY (North Country Earthquake)
- FEMA 1467 DR-NY (Flooding, Storms)
- FEMA 1486 DR-NY (Severe Storms)
- FEMA 1534 DR-NY (Severe Storms)
- FEMA 1564 DR-NY (Severe Storms and Flooding)
- FEMA 1565 DR-NY (Tropical Depression Ivan)
- FEMA 1589 DR-NY (Severe Storms and Flooding)
- FEMA 1650 DR-NY (Severe Storms and Flooding)
- FEMA 1665 DR-NY (Severe Storms and Flooding)
- FEMA 1670 DR-NY (Severe Storms and Flooding)
- FEMA 1692 DR-NY (Severe Storms and Inland and Coastal Flooding)
- FEMA 1710 DR-NY (Severe Storms and Flooding)

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 as well as reducing the extent of subsequent losses. FEMA has expanded its National Hurricane Program to include the provision of financial and technical assistance to

State and Local governments to support their efforts to mitigate the damaging effects of these storms. 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. Rules for implementing this program are found in 44 CFR. SEMO 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, the National Science Foundation administer NEHRP. The NEHRP provides a variety of earthquake hazard mitigation assistance projects.

National Mitigation Strategy

In December 1995, at the first Biennial National Mitigation Conference, then FEMA Associate Director for Mitigation, Richard T. Moore, unveiled the National Mitigation Strategy. It is noted in the strategy document that the strategy was “developed to provide a conceptual framework to reduce...losses.” These losses include lives, personal property, real property, immeasurable psychological impact, and social dislocation. The quantifiable costs have run in the billions of dollars. The mitigation strategy document also notes 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)

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, which 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, twelve (12) CBRA units have been designated, all on Long Island. The act influences development in these areas by insuring that the public costs supporting development previously provided by the Federal government are no longer provided and must be paid for by State and Local governments or 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.

2.5.3– United States Army Corps of Engineers (USACE)

During a typical year, the Corps of Engineers responds to more than 30 Presidential disaster declarations, plus numerous State and Local emergencies. Emergency responses usually involve cooperation with other military elements and Federal agencies in support of State and Local efforts. The Corps of Engineers 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.

The Corps of Engineers 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.

Corps 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, the Corps has found that Federal shore protection projects have had no measurable effect on encouraging more development. 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.

The Corps of Engineers 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 Corps projects provide benefits such as shoreline protection, habitat protection and renewal, and the generation of tax dollars associated with that recreation, the primary purpose is always the protection of life and property.

Flood Control

The Corps of Engineers also has authorities to address flooding along rivers and streams. In the past and most recently with the wide spread flooding in the Catskills in 2005, Congress has funded so called General Investigations (GIs). These GIs allow the Corps to undertake 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, along with Local officials often participate in providing information and developing flood mitigation recommendations for the final GI report that is produced by the Corps. 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

The Corps of Engineers is a leader in developing engineering criteria for safe dams and conducts an active inspection program of its own dams. The Corps, at the request of the State, has also carried out inspections at dams built by others – Federal, State, and Local agencies and private interests. As an example, after the June 2006 floods, NYS asked the Corps to assist the DEC Dam Safety Section in completing the inspection of all high hazard dams in the flood impacted areas. Information on dams in NYS can be accessed through the National Inventory of Dams website

2.5.4 – Natural Resource Conservation Service (NRCS)

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 assisting owners of America's private land with conserving their soil, water, and other natural resources. Local, State, and Federal agencies

and policymakers rely on the NRCS expertise. NRCS provides technical assistance 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 Service.

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 has been and will be carried out at the private citizen and Local government levels. 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. Mitigation Coordinators

To promote coordinated Inter-municipal mitigation planning at the Local level, the State strongly encourages the designation of a County Mitigation Coordinator in all Counties.

Immediately following the FEMA-1095-DR-NY disaster, SEMO implemented the designation of a mitigation coordinator for each County. Through correspondence from the Director of SEMO, the Chief Elected Official of each County was asked to designate an individual to assist with the coordination of mitigation activities in his or her County. To-date, all of the State's counties have designated Mitigation Coordinators.

An outgrowth of the County Mitigation Coordinator Program was the initiation of yearly Mitigation Conferences as a method to increase participation of Local officials in mitigation training and awareness activities, to keep the Coordinators informed of the various mitigation efforts taking place throughout the State, as well as providing updates on pertinent regulations or grant opportunities.

C. Soil and Water Conservation Districts - Soil and Water Conservation Committee (SWCC)

The SWCC is responsible for the administration of the United States Department of Agriculture/Natural Resource Conservation Service programs and funds for technical assistance to the State's 57 Soil and Water Conservation Districts. In the aftermath of recent disasters, many districts have implemented streambank protection and flood prevention projects. Even in the absence of disasters, many districts have existing prevention and protection projects on the drawing board, which have not yet been funded. Technical assistance such as surveying, design, layout, and supervision of projects are also provided through the program. As an example of the array of programs and services that the County Soil and Water Conservation Districts perform; Greene County Soil and Water Conservation District (GCSWCD) has undertaken the following mitigation activities:

1. All Hazard Mitigation Planning -GCSWCD secured SEMO funds and was able to get matching dollars from Greene County and NYCDEP. The GCSWCD will play a key role in development of the final planning document.
2. HMGP - Since 1997, the GCSWCD has been the lead on two major HMGP projects in Greene County. The GCSWCD raised the funds, coordinated the design, did all permitting and oversaw the construction of both projects. Over 1 million in HMGP funds were secured.
3. The GCSWCD has been working with NYCDEP and municipalities in the NYC watershed to develop detailed Stream Management Plans. These plans have a strong focus on flood hazard mitigation.

4. The GCSWCD provides technical assistance to Town and Village highway departments on sizing of culverts and standards for stabilizing drainage features. This activity is especially strong after major flood events.

5. The GCSWCD has taken the lead in Greene County on the review and adoption of the new digital flood maps. The GCSWCD coordinated public meetings, communications with NYSDEC and FEMA as well as an aggressive outreach effort to have landowners come and review the draft maps.

6. The GCSWCD has started to work on the development of several new initiatives that will be implemented in 2008 and beyond

a. Development of a countywide flood damage data base to track and document flood damage costs as well as repetitive problems

b. Development of a notification system that will see all landowners notified on a 3-5 year cycle that they have flood zones present and directing them to web based information on flood zones. The availability of new digital flood maps will allow the GCSWCD to use the power of GIS to accomplish this.

D. Zoning and other Land Use Regulations

While historically, many of the programs cited under the State and Federal Sections above have often not been coordinated with each other, with respect to hazard mitigation, this still remains a goal. Local communities are encouraged to incorporate mitigation standards directly into zoning and land use ordinances. New approaches are being sought to limit the economic development pressures and shortage of economic incentives, which often affects the Local incorporation of mitigation planning.

Many of the programs discussed would work well to protect coastal areas except that a shortage of resources such as personnel and program funding has prevented their most effective enforcement at the Local level. Further, while mitigation-related, they do not generally incorporate hazard mitigation as an explicit goal and fail to capture substantial mitigation benefits which might be obtained with some modification of their operating procedures.

The plan will seek to maximize State and Federal programs, which provide funding and resources that can be assigned to the host of mitigation-related issues present in the State. Current trends at the national level bode well for effective mitigation planning and project implementation at the State and Local levels.

2.6.1 - Environmental Emergency Services, Inc. (EES): Chemung & Steuben Counties, www.highwater.org

Chemung and Steuben and most recently Schuyler Counties have jointly helped to found a private not-for-profit organization to provide flood protection information and assistance. This is a unique arrangement in New York, fostered by devastating floods that the region experienced in the 1970's. The Southern Tier region 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. In addition, 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:

A. 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.

B. Communication System: Through the efforts of EES, a communication facility has been established at the operations center of EES located at the Corning fire station. This facility includes communication networks for emergency management for both Steuben and Chemung Counties, both County area/RACES (ham) radio communications as well as the DEC Flood Administrative Radio System. This facility allows the flood warning operations center to monitor and contact whomever necessary to impart the information that they may need. EES, by coordinating this communication system, has improved the capability of the emergency management systems for the entire area. By developing this facility, they have also demonstrated a need for cross communication that has been recognized by all the agencies involved in flood management. Through these efforts, the Emergency Managers for both Counties can monitor or call directly the NWS, the USACE, DEC Dam Safety Section, the DEC flood crews and engineers, SEMO, and individual rain and stream readers.

C. Volunteer Recruitment and Training: EES operates its services with an all volunteer staff and as such continually recruits personnel to participate. This group of volunteers for the most part is separate from the volunteer staff which supports the emergency management offices. In addition, EES provides training to all the volunteers and provides semi-annual exercises in flood emergencies.

D. Public Education: Since the inception of the flood warning service, one of the primary goals has been in the area of public education. EES commissioned the acquisition of complete sets of flood stage maps covering the entire area. EES produced a flood awareness brochure, which has recently been reviewed and improved, and which has been provided to Municipalities and the

public at no cost. The brochure describes the flood hazards in the area and provides information as to what actions should be taken in the event of flooding.

E. Flood Protection Library: EES has recently provided a flood protection library to the Southern Tier library system which includes books on flood prevention techniques for the homeowner, for 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.

F. NFIP-Community Rating System: When the Community Rating System (CRS) was initiated in 1990, EES found that it was already providing some of the steps which qualify a community for reduced flood insurance rates. The CRS was developed to provide benefits to communities that took steps to reduce the flood hazards in their communities. Since EES was already providing some of these steps, by coordinating these efforts with the communities, the residents of the communities 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.

G. Collection System Enhancement. EES has received grant funding over the past 5 years to enhance the data collection capabilities of the alert system. Through this enhancement, data is now being collected on temperature, barometric pressure, relative humidity, wind speed and direction, and additional rainfall sensors at 7 sites. This data has not previously been available on a Local scale throughout most of the area. This is in addition to approximately 30 rainfall data sites currently operating. Another key enhancement to this grant activity has been to incorporate IP data collection directly to the NWS at national headquarters, as well as the Local NWS Office in Binghamton. This addition has provided information directly into the hands of 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.

H. Local, State, & Federal Agency Coordination & Cooperation: With the creation of the “Chemung River Basin Flood Warning Service”, now known as “EES”, the need for a cooperative effort to “self-help” flood protection became apparent. Therefore the original charter of EES was developed with memorandums of understanding between the entire Local, State, and Federal agencies, as to their 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 two County areas. It is this interrelationship that has resulted in the excellent level of inter-agency cooperation that exists

today. Recently, Schuyler County has joined EES to form a 3 county operation intended to enhance the regions coordination and cooperation

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

The Hudson River-Black River Regulating District was created to reduce flooding in these two major watersheds, and to augment river flow during times of drought.

The District: Origin & Objective. The Hudson River-Black River Regulating District was created in 1959, when 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. Both were created to regulate the flow of the waters of New York State's two great neighboring watersheds.

The Black River flows from the Adirondacks northwest to Lake Ontario. 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 one of the world's famous harbors - metropolitan New York.

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 this mission, including the authority to build and operate reservoirs, issue bonds and apportion costs on its beneficiaries to finance construction, maintenance, and operation.

The idea of flood protection in New York State through dams and reservoirs was first suggested in 1895, and gained support due to the Hudson Valley floods around the turn of the century

When the two Regulating Districts were first organized to address flooding problems, they began operations by formulating detailed, comprehensive plans. The 1920 general plan for regulating the Black River and the 1924 plan for regulating the Hudson proposed several dams and reservoirs. These reservoirs would impound excess spring run-off to prevent flooding, and then release this water gradually to provide sufficient flow to power downstream industries and provide for optimum navigation and sanitation.

The Black River Regulating District undertook the operation of dams at Old Forge and Sixth Lake, originally built in 1880 to provide water for the Black River Canal. Then, in 1924, the

Black River District enlarged Stillwater Reservoir to 10.5 square miles at a cost of \$2,100,000 apportioned among its downstream beneficiaries; principally industries which depended on the Black River for power.

In 1930, the Hudson River Regulating District completed the Conklingville Dam on the Sacandaga River, creating a 42 square mile reservoir, the largest in the State. The \$12,000,000 construction cost was apportioned among its downstream beneficiaries including the cities of Albany, Rensselaer, Troy, Watertown, and Watervliet, and the villages of Carthage, Green Island and West Carthage, as well as 26 corporations who derive power from the regulated flows.

The design, construction and operation of Regulating District projects were financed totally by downstream beneficiaries.

Indirect benefits of the dams and reservoirs include improved navigation, recreation, waste assimilation, and domestic water supplies.

A. Operations

Management of the District is vested in a board appointed by the Governor. The Board reports annually to the Department of Environmental Conservation and its financial operations are reviewed by the State Comptroller. 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 Department of Environmental Conservation an annual report covering operations, personnel, petitions, reservoir conditions, and finances.

B. 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 industry and business on the river to continue their operation.

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 planning to provide a means of reducing losses by the citizens and jurisdictions impacted by drought and flood hazards.

If a hazardous condition or event, which is directly related to the statutory obligation of the Regulating District, is identified or deemed likely to occur, the Regulating 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 Regulating District's river regulating reservoirs include procedures to minimize flood and drought hazards. Each reservoir operating plan establishes procedures for reducing flooding through the storage of water, and reducing drought conditions by maintaining minimum river flow through the release of water. River conditions in each watershed are continually monitored and evaluated several times daily by the Regulating District. Weather and river forecasts are used to establish reservoir operating schedules and the timing and quantity of water releases. Regulating District staff is available around the clock to respond to changing operating conditions. At least two staff members are available via pager at all times.

The Regulating District maintains Emergency Action Plans for all of its dams which establish response procedures in the event of an actual or imminent dam failure. This EAP includes notification procedures for affected parties, Local and State emergency response agencies, and interested State and Federal agencies.

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

The NYCDEP has provided a watershed based plan for stream management. They are using this approach in the watersheds that drain into New York City's reservoirs.

A. The Geomorphic Approach to Stream Management

1. 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.

2. Geomorphic stream assessment is the measurement of stream system geometry, on a stream reach by stream reach basis throughout a sub-watershed, to classify the reach, to determine if the reach is stable or unstable, and to determine the source of the instability if necessary. With this geomorphic assessment, a management strategy can be designed to treat the source of the instability whenever possible rather than the symptom. 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.

3. 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. 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 will require 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.

B. Reservoir Operations

Although all of New York City's Water Supply Reservoirs, by nature of their design serve to attenuate peak downstream flows during flood events, elected officials for communities situated below the New York City (NYC) water supply reservoirs on the upper Delaware (the Cannonsville, Pepacton, and Neversink reservoirs) have recently (interested developed in late 1996 at Pepacton) expressed their concern that the way in which these reservoirs were operated, potentially exacerbated flooding below the reservoirs during high-water events.

In order to help increase the flood protection the reservoirs already provide, and manage river habitats, while preserving the primary water supply purpose of the NYC's reservoirs, the New York City Department of Environmental Protection (NYCDEP) and the NYSDEC have been working with localities and the other Parties to the 1954 U.S. Supreme Court Decree (the states of Delaware, New Jersey, New York, Pennsylvania, and the City of New York) to reduce flood risks through various means. 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, NYSDEC and NYCDEP, in cooperation with the Decree Parties, established a temporary spill reduction program for the Cannonsville, Neversink, and Pepacton reservoirs. By making supplemental releases when the combined storage (including an amount of water which is contained in any snowpack that may exist within the watersheds of the reservoirs) in the three reservoirs is above normal from July 1 through March 31, this temporary program is intended to reduce the likelihood that the three NYC reservoirs in the upper Delaware River Basin could be full and spilling coincident with a major storm.

In order to minimize impacts to areas immediately downstream of the reservoirs, the program requires that the spill mitigation releases will be ceased when the rivers below the reservoirs are above the action stage for flooding, or forecast to be above the action stage within 48 hours of a planned spill mitigation release.

The program will not prevent flooding; however, it could add a small measure of seasonal peak flow reduction, particularly in the tailwaters immediately below the dams.

The NYCDEP has also instituted similar spill mitigation programs at the Schoharie Reservoir using temporary siphons that were installed as part of the first phase of the Gilboa Dam reconstruction project.

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

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 exceeding 1,199,000 residents. There are 32 voting members of the Council representing 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. These Councils provide a forum for member Counties to discuss land-use issues which has a broadening impact in the regions. The primary functions of G/FLRPC include Local, Regional and Water Resources Planning, Regional Economic Development, Strategic Planning, Program and Grant Development, Surveys, Data, Technology, and Resource Center.

As one component of its services to member Counties, G/FLRPC took on the role of hazard mitigation planners to assist interested member Counties and Local municipalities with the preparation of all-hazard mitigation plans. G/FLRPC prepares its 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 NYSEMO 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 countywide 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. The Town and Village prepared their plan

several years before Wyoming County started its plan. Arcade officials have been successful in securing project grant funds through NYSEMO and FEMA and implementing several flood mitigation projects. The Wayne County all-hazard mitigation plan was approved by FEMA early in 2007 and since then Wayne County officials and municipalities have begun working on the implementation of mitigation projects.

2.6.5 - Earthquake Engineering to Extreme Events (formerly the Multidisciplinary Center for Earthquake Engineering Research (MCEER))

MCEER, a multidisciplinary Engineering Research Center established by the National Science Foundation, has headquarters located at the University at Buffalo, State University of New York (<http://mceer.bufflo.edu>). MCEER, through its funded research and education programs which are carried out at a consortium of institutions around the U.S., focuses on the development and implementation of innovative and integrated solutions to enhance the resilience of infrastructure against extreme events (natural disasters, technological disasters, and acts of terrorism) helping the State and Federal agencies which are charged with the protection of the citizenry.

Agency's Programs

As funding is made available by sponsors, MCEER is able to assemble multidisciplinary teams of researchers to engage in studies related to bridges and highways, disaster resilience, emergency response and recovery, hospital functionality after disaster, lifelines, and remote sensing, among others. Its research findings are widely disseminated to other researchers, practitioners, government agencies, non-governmental organizations, industry, and the general public.

MCEER was chosen by the University at Buffalo (UB) to lead a major initiative to further develop UB's existing strength in the area of *Extreme Events: Mitigation and Response* (<http://www.buffalo.edu/ub2020/strengths/extreme.html>). The UB 2020 Strategic Strength on Extreme Events encompasses research activities at UB in earthquake engineering, terrorism resistant construction, fire engineering, multi-hazard engineering, risk assessment, remote sensing, human performance in disaster situations, post-disaster response and recovery, exposure to chemical, biological and nuclear agents, GIS science, medicine, and many others. It brings together experts from various departments at UB and benefits from the availability of unique state-of-art experimental facilities, experience in national, Federal-funded multi-campus and multidisciplinary engineering and social science research management, and a demonstrated capability to bring research results into practice in a speedy manner.

Statewide/Regional Hazard Response

When a specific disaster takes place which is within MCEER's scope of work and which can provide useful information, to the extent funding is available, MCEER quickly assembles a

multidisciplinary team of researchers for a reconnaissance mission to collect perishable data for inclusion in its research and education projects, for the ultimate benefit of society.

2.7 – Inter-State Agreements

2.7.1 - Delaware River Basin Commission (DRBC)

The Delaware River Basin Commission (DRBC) was created on October 27, 1961, by the Delaware River Basin Compact, marking the first time in the nation's history that the federal government and a group of States had joined together as equal partners in a river basin planning, development, and regulatory agency.

The members of the Commission are the Governors of the four basin States (Pennsylvania, Delaware, New York, and New Jersey) and a Federal member appointed by the President of the United States. Traditionally, the Federal member has been the U. S. Secretary of the Interior. The President also appoints an alternate commissioner, as do the four Governors, selecting high-ranking officials in the four State environmental regulatory agencies.

Commission programs include water quality protection, water supply allocation, regulatory review, water conservation initiatives, regional planning, drought management, flood control, and recreation.

The commission is funded by the five signatory parties, receiving additional revenue from project review fees, water use charges, fines, and Federal, State, and private grants.

A. Flooding

Information and flood maps produced as a result of the Federal Flood Insurance Program have defined those areas of the Basin where the risk of flooding is high. Based on this information, the flood plain regulations of the Delaware River Basin Commission and those of the four Basin States have placed limitations on development within the 100-year flood plain. In addition, reservoirs and water control structures sponsored by the U.S. Army Corps of Engineers (USACE), U.S. Soil Conservation Service and the Basin States have significantly reduced flood damage potential at some locations. However, because major development occurred along many streams prior to flood plain regulations and because much development still occurs within and adjacent to the 100-year flood fringe, flood plains remain areas of substantial development. Accordingly, flood damage and flood damage potential continue to be problems in the Delaware River Basin. The USACE estimated that damage from a repeat of the record flood of 1955 would exceed \$275 million (1984 dollars) on the main-stem Delaware alone.

Both nationally and in the Delaware River Basin, the focus of flood loss reduction efforts continues to evolve from structural flood prevention to non-structural means of flood

mitigation. The losses from Hurricane Andrew and the 1993 Midwest flooding focused national attention on this process. The Commission has recognized the importance of such relatively low cost tools as flood warning systems and flood stage forecast maps in reducing flood losses and is working with other Basin agencies to develop these products for the Delaware River Basin. In addition, the Commission's Flood Plain Regulations continue to be an effective means for prohibiting construction of reviewable projects in the 100 year floodway. There continues to be a need for public education regarding flood plain issues and better coordination among the many Delaware Basin agencies with responsibilities in flood loss reduction.

B. Flood Loss Reduction

The Commission's Flow Management Technical Advisory Committee (FMTAC) has been investigating the potential for reducing levels in the New York City Delaware Basin Reservoirs to provide flood storage during winter periods of high flood potential. For the short term, FMTAC has agreed to proceed on a year-to-year basis to evaluate the need to lower storage and

to use a procedure suggested by the DRBC staff for lowering based on accumulated snowpack and potential runoff. However, it is recognized that additional information on flood stages and associated damages below the NYC reservoirs is needed to evaluate the benefits of reservoir level lowering. FMTAC will seek to obtain this information. The Corps of Engineers - Philadelphia District, has begun a reconnaissance phase of a study to examine water related needs, including flood loss reduction, in the New York portion of the Delaware Basin. The Commission has requested that flood storage issues be considered in this effort.

The Commission's work in making flood information available to the public took a major step forward with the establishment of the new DRBC World Wide Web page and its links to real time streamflow, weather, and river forecast information provided by the U.S. Geological Survey and the National Weather Service, respectively. Although other means of flood warning such as National Oceanic and Atmospheric Administration (NOAA) weather radio and the media, are still vitally important, the Internet makes flood warning information available to all computer users with Internet access and the knowledge to interpret the flood warnings and river forecasts.

In September 2004, April 2005, and June 2006, three major floods caused devastation along the main stem Delaware River, repeatedly damaging property and disrupting tens of thousands of lives. These were the worst floods to occur on the main stem since the flood of record in 1955. The last occurrence of three main stem floods of comparable magnitude within so short a time span was the period from 1902 to 1904. Thankfully, during the 2004, 2005, and 2006 floods, advances in flood warning technology minimized loss of life. Nine deaths are attributed to these past three events; one was attributed to main stem flooding, whereas the remaining eight were attributed to tributary flooding. Though tragic, this number compares favorably with the

approximately 100 lives lost during the record event a half-century ago. However, encroachments by the built environment into the flood plain continue to create new threats, including the increased potential for property damage, personal injury or death, and an increased potential for harm to the riverine environment.

Reducing flood loss is a responsibility shared by Federal, Interstate, State, and Local agencies throughout the Basin. Recognizing this, the governors of the four basin states – Delaware, New Jersey, New York, and Pennsylvania – directed the executive director of the Delaware River Basin Commission, Carol Collier, to convene an interstate task force to develop a set of recommended measures for mitigating and alleviating flooding impacts along the Delaware and its tributaries.

The Delaware River Basin Interstate Flood Mitigation Task Force was assembled in October 2006. It is comprised of 31 members from a geographically diverse array of government agencies (Legislative, Executive, Federal, State, and Local) and not-for-profit organizations. The group has identified a total of 45 consensus recommendations for a proactive, sustainable, and systematic approach to flood damage reduction. The recommendations are based upon a set of six guiding principles concerning floodplain restoration, floodplain protection, institutional and individual preparedness, Local stormwater management and engineering standards, and the use of structural and non-structural measures. They are grouped within six priority management areas as follows:

- **Reservoir operations:** Included among the recommendations is a slate of actions for regulation and control of reservoir releases. The Task Force calls for an evaluation of reservoir spill and discharge mitigation programs along with development of a flood analysis model to evaluate alternative reservoir operating plans and to assess the downstream effect of reservoir voids of different magnitudes. These recommendations call for releases that would reduce the likelihood and volume of spills from some basin reservoirs during storm events to help mitigate flooding.
- **Structural and non-structural measures:** The Task Force calls on policy-makers to assign higher priority and allocate greater funding to the acquisition of property and elevation and/or flood-proofing of structures within the floodplain. It offers strong support for State dam safety programs and recommends improved maintenance of other flood control structures. An evaluation of mitigation measures basinwide by the U.S. Army Corps of Engineers is recommended, to include an analysis of the ecological, economic, long-term operation and maintenance, and social costs and benefits of all flood mitigation options.
- **Stormwater management:** The Task Force calls for minimizing stormwater runoff from new development and reducing runoff from existing development through the implementation of watershed stormwater management plans, long-term maintenance

of stormwater infrastructure (including detention ponds, inlets, catch basins, outfalls, and other devices), the use of non-structural stormwater management options, expanded incentives for achieving stormwater management objectives, stronger enforcement of stormwater management regulations, and the development of stream restoration and debris removal guidelines.

- **Floodplain mapping:** Because the Delaware River is an interstate waterway, coordination is needed for development of a seamless floodplain map that is consistent throughout the basin. The Task Force calls upon the States to coordinate flood study and mapping updates, incorporate existing and planned development and residual risk zones into new maps, and re-define and re-map the floodway along the main stem and its tributaries.
- **Floodplain regulation:** Currently, the regulations applicable to floodplain areas in the Delaware Basin vary widely. The Task Force urges that existing floodplain regulations be catalogued, evaluated, and updated and that uniform regulation of floodplains within the basin be established. It further recommends that a coordinated education, outreach, and training program about floodplain protection and regulation be undertaken, that a flood hazard disclosure requirement be imposed, that a repetitive loss reduction strategy be adopted and that riparian zones be defined in accordance with uniform standards basinwide.
- **Flood warning:** The task force recommends that development of an advanced basinwide flood warning system proceed in a coordinated fashion. The existing system is comprised of flow gages, flash flood and flood forecasting, and education and outreach components. It is coordinated and funded by multiple organizations at the Federal, State, and Local levels. The Task Force urges that the river gage network and its forecast points be evaluated, that rating tables be extended, that gages be flood hardened (i.e., able to withstand larger flood events), that flash flood forecasting be improved, that flood inundation maps be developed, that up-to-date Dam Emergency Action Plans be maintained, that a coordinated flood education and outreach program be developed and that a comprehensive program be undertaken to address coastal flooding.

During the public review phase of the draft recommendations, there was a broad based request for immediate action to mitigate future flooding impacts. To address this sense of urgency the Task Force has identified several core recommendations to enhance the basin's resiliency—its capacity to prepare for and recover from flooding. The following immediate actions are proposed:

- Establish areas of priority funding for acquisition, elevation, and flood proofing.
- Develop an interoperable reservoir operating plan.

- Develop and implement a consistent set of comprehensive floodplain regulations beyond minimum NFIP standards across the entire Delaware River Basin.
- Enable stormwater utilities – This approach benefits both water quality and quantity. In addition it reinforces the States’ existing momentum for stormwater management and control of nonpoint source pollution.

The Interstate Flood Mitigation Task Force has concluded that no set of mitigation measures will entirely eliminate flooding along the Delaware River or its tributaries. However, the members believe that the combination of measures advocated in this report constitute a significant step in helping the Basin’s increasingly vulnerable riverine and coastal communities to prepare for, respond to, and rebound from natural disasters.

2.7.2 - Susquehanna River Basin Commission (SRBC)

A. The Susquehanna River

The Susquehanna River, sixteenth largest river in America, is the largest river lying entirely in the United States that flows into the Atlantic Ocean. The Susquehanna and its hundreds of tributaries drain 27,500 square miles, an area nearly the size of South Carolina, spread over parts of the states of New York, Pennsylvania, and Maryland.

The river meanders 444 miles from its origin at Otsego Lake near Cooperstown, N.Y., until it empties into the Chesapeake Bay at Havre de Grace, Md. The Susquehanna contributes one-half of the freshwater flow to the Bay.

The river basin borders the major population centers of the east coast, and although relatively undeveloped, has experienced problems of water pollution and over usage. Because the Susquehanna River flows through three States and is classified as a navigable waterway by the Federal government, there are State, Regional, and National interests involved. There is a need to coordinate the efforts of three States and the agencies of the Federal government, as well as a need to establish a management system to oversee the use of the water and related natural resources of the Susquehanna.

B. The Compact

The Susquehanna River Basin Compact was signed into law on December 24, 1970. The Compact, as adopted by the Congress of the United States, and the legislatures of New York State, Pennsylvania, and Maryland, provides the mechanism to guide the conservation, development, and administration of the water resources of the vast river basin.

C. The Susquehanna River Basin Commission

The Compact established the Susquehanna River Basin Commission (SRBC) as the agency to coordinate the water resources efforts of the three States and the Federal government.

Each signatory party is represented by a commissioner who serves as the spokesperson for the government that he or she represents. 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 periodically to consider approval of projects using water; adopt regulations, direct planning, and chart management of the river basin resources. Each of the four commissioners has a single vote. A staff of technical, administrative, and clerical personnel under the leadership of an Executive Director supports the daily operations of the Commission.

D. Responsibilities of the SRBC

The Commission staff develops and implements the 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 two major areas of the Comprehensive Plan that deal with flood concerns, and specific Commission functions within them are listed below:

1. Flood Plain Management & Protection

- Approves flood control projects.
- Assists in establishing flood warning systems.
- Establishes community self-help flood warning programs.
- Advises individuals, communities, businesses, and industries on flood loss reduction.
- Produces flood plain mapping and other information utilized for flood plain management.

2. Water Supply

- Inventories available water resources.
- Administers and manages interstate water resources.
- Determines the basin's storage needs and allocates water as needed.
- Assists in planning, developing, and financing water resources projects.
- Develops water supply storage and release plans.
- Regulates consumptive water uses.
- Develops data on flow conditions.
- Institutes emergency actions.

E. Flooding in the Susquehanna River Basin

The Susquehanna River Basin 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 30,000 miles of streams are some of the contributing factors. The following are two distinct ways that the basin's topography and geology can cause 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.

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.

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.

The weather pattern persisted through the end of June when a stalled front characterized by low pressure centered over the Midwest and high pressure centered off the Atlantic Coast south of New Jersey affected the Northeast for about a week. The opposing rotation of the two pressure systems channeled tropical moisture directly over the Susquehanna River Basin. The National Weather Service (NWS) projected record flooding based on this weather

pattern and the rainfall it was expected to produce.

Localized flash flooding began June 25. The heaviest widespread rainfall occurred from June 26 to June 28, and by the time the storm moved out of the basin on June 29, some areas had received 8 to 15 inches or more of rain.

As a result of widespread heavy rainfall, record flooding occurred in the Upper Susquehanna subbasin, moderate to major flooding occurred in the Middle Susquehanna subbasin, and minor to moderate flooding occurred in the Lower Susquehanna subbasin. The storm's track spared the Chemung, West Branch, and Juniata subbasins, resulting in only minor flooding. Low contributions of flow from the western subbasins allowed the middle and lower mainstem Susquehanna River to accommodate excessive flows from the Upper and Middle Susquehanna subbasins without causing major flooding.

The most severe flooding occurred in New York along the Susquehanna and Chenango Rivers, devastating many communities including Binghamton, Conklin, Greene, Oneonta, Owego, Sidney, Unadilla, Union, Vestal, and Waverly. Preliminary results from the U.S. Geological Survey (USGS) indicate that discharges along the Susquehanna River in New York were greater than the 100-year flood and in some locations exceeded the 500-year flood - breaking long-standing records in several locations by as much as 4 feet.

USGS GAGE RECORD CREST JUNE 06

RIVER NAME	Previous Crest (YEAR)	2006 CREST (ft)
Chenango Sherburne, NY	11.20 (1914)	11.35
Susquehanna Unadilla, NY	16.60 (1936)	17.73
Susquehanna Bainbridge, NY	23.10 (1914)	27.03
Susquehanna Conklin, NY	20.83 (1948)	25.02
Susquehanna Vestal, NY	30.50 (1936)	33.50
Susquehanna Waverly, NY	21.40 (1936)	22.52

The flood impacted 11 Counties within the New York portion of the Susquehanna River Basin. In each of these Counties a disaster declaration was made at either the State or Federal level, making those Counties eligible for disaster relief funding. At the time of this report, estimated damages in New York Counties exceed \$200 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.

Flood forecasts prompted emergency response in many Counties, including activation of evacuation plans, flood control levee closures, and installation of temporary berms and other flood control measures. 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 Delaware County

The initial forecast for the June 2006 flood event predicted a storm track that would have concentrated significantly more precipitation in the Susquehanna River Basin. The storm's final track shifted 50 to 75 miles eastward and brought considerably less precipitation and runoff to the basin than initially anticipated. While the shift spared the Western and Lower portions of the basin from major flooding, it caused significant variability in predicted flood levels,

No significant problems were reported at any of the USACE Baltimore District flood damage reduction projects. Preliminary damage prevention estimates total \$950 million in the Susquehanna basin (\$850M prevented by levees and flood walls; \$100M prevented by dams). Reductions in flood stage were estimated at 2 to 2.5 feet on the Chenango and Upper Susquehanna Rivers, and 1 to 1.5 feet on the Chemung, Lackawanna, and mainstem Susquehanna below the confluence with the Chemung River.

The East Sidney and Aylesworth dams stored record volumes of water; use of the spillway at East Sidney for the first time in the 56-year history of the project prompted erroneous reports of dam failure. The Whitney Point, Aylesworth, and Stillwater reservoirs reached 70 to 75 percent of flood storage capacity.

The capacity of the levees in the Vestal-Johnson City-Binghamton area was slightly exceeded and some minor overtopping occurred. Estimated Damages Prevented by Federal Flood Damage Reduction Projects (provided by the Baltimore District of the U.S. Army Corps of Engineers)

- \$130 million by the Binghamton system in Johnson City-Vestal levee system in Broome County, N.Y.
- \$230 million by the Endicott-levee Broome County, N.Y.
- \$45 million by East Sidney Lake in Delaware County, N.Y., along the Upper Susquehanna River
- \$35 million by Whitney Point Lake in Broome County, N.Y., along the Tioughnioga River
- A forecast for flood levels at the top of Binghamton's levee prompted an evacuation of 3,000 people from the city.

F. Flood Loss Reduction

Of the 1,400 communities in the Susquehanna basin, about 1,160 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 avoid 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 Susquehanna River Basin Commission (SRBC) has been involved in flood management and protection since the early 1970s. The agency provides a wide range of services, including:

1. Flood forecast and warning system

Since the mid-1980s, SRBC has coordinated the inter-agency committee that maintains and updates the basin's flood forecast and warning system. The committee members are: SRBC, National Weather Service, U.S. Geological Survey, U.S. Army Corps of Engineers, N.Y. State Dept. of Environmental Conservation, Pa. Dept. of Environmental Protection, Pa. Emergency Management Agency, and Pa. Dept. of Community and Economic Development. SRBC also helps communities establish Local self-help flood warning programs.

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 flood plain areas and give flood profiles to show the areas that will be inundated as flood waters reach designated flood stages.

4. Flood education and training

SRBC produces educational brochures and other publications on flooding and flood management. 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.

5. Recent planned upgrades to the flood forecasting network

After the record flooding in 2006, SRBC and Local elected officials identified a number of improvements that could be made to the existing flood forecasting system that would allow greater response time and more accurate forecasting of flood inundation levels. A State grant for \$500,000 was announced in June of 2007, by New York State Senator Thomas W. Libous's office, that will allow the installation and upgrade of a number of stream gages in the New York portion of the Susquehanna River basin and provide funding to develop flood inundation maps that will identify the depth and extent of flooding anticipated based on river stages (elevation) during a flood.

2.7.3 – Northeastern Forest Fire Protection Compact (NFFPC)

The Department of Environmental Conservation and the Division of Forestry and Fire Management represent New York State in the Northeastern Forest Fire Prevention Compact (NFFPC). The international compact is comprised of 7 U.S. States, 3 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.