

Section 3.0 – Risk Assessment

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

- *§201.4(c)(2): [The State plan must include a risk assessment] that provides the factual basis for activities proposed in the strategy portion of the mitigation plan. Statewide risk assessments must characterize and analyze natural hazards and risks to provide a statewide overview. This overview will allow the State to compare potential losses throughout the State and to determine their priorities for implementing mitigation measures under the strategy, and to prioritize jurisdictions for receiving technical and financial support in developing more detailed local risk and vulnerability assessments.*
- **Requirement §201.4(c)(2)(i):** *[The State risk assessment shall include an overview of the] location of all natural hazards that can affect the State, including information on previous occurrences of hazard events, as well as the probability of future hazard events, using maps where appropriate*
- **Requirement §201.4(c)(2)(ii):** *[The State risk assessment shall include an] overview and analysis of the State’s vulnerability to the hazards described in this paragraph (c)(2), based on estimates provided in local risk assessments as well as the State risk assessment. The State shall describe vulnerability in terms of the jurisdictions most threatened by the identified hazards, and most vulnerable to damage and loss associated with hazard events. State owned critical or operated facilities located in the identified hazard areas shall also be addressed*
- **Requirement §201.4(c)(2)(iii):** *[The State risk assessment shall include an] overview and analysis of potential losses to the identified vulnerable structures, based on estimates provided in local risk assessments as well as the State risk assessment. The State shall estimate the potential dollar losses to State owned or operated buildings, infrastructure, and critical facilities located in the identified hazard areas.*

3.1 – New York State Hazard Identification

In its role as the staff arm of the State's DPC and coordinator of Federal Emergency Management Programs in the State, SEMO has identified many natural, technological and human-caused hazards which have impacted, or could impact, New York State. However, given the scope of this plan, only relevant natural hazards are addressed. These hazards and their operational definitions are described below in **Table 3-1**.

**Table 3-1
Hazard Definitions**

Hazard Type	Definition
Natural Hazards	
Drought	A prolonged period with no rain, particularly during the planting and growing season in agricultural areas. Limited winter precipitation accompanied by moderately long periods during the Spring and Summer months can also lead to drought conditions.
Earthquake	The sudden motion or trembling of the ground produced by abrupt displacement of rock masses, usually within the upper 10-20 miles of the earth’s surface.
Hurricanes	Tropical cyclones, formed in the atmosphere over warm ocean areas, in which wind speeds reach 74 miles per hour or more and blow in a large spiral around a relatively calm center or "eye". Circulation is counterclockwise in the Northern Hemisphere.

Hazard Type	Definition
Natural Hazards	
Landslide	The downward and outward movement of slope-forming materials reacting to the force of gravity. Slide materials may be composed of natural rock, soil, artificial fill, or combinations of these materials. The term landslide is generalized and includes rockfalls, rockslides, block glide, debris slide, earth flow, mud flow, slump, and other such terms.
Winter Storm (Severe)	Includes ice storms, blizzards and can be accompanied by extreme cold. The National Weather Service characterizes blizzards as being combinations of winds in excess of 35 miles per hour with considerable falling or blowing snow, which frequently reduces visibility.
Flood	A general and temporary condition of partial or complete inundation on normally dry land from the following: <ul style="list-style-type: none"> • Riverine flooding, including overflow from a river channel, flash floods, alluvial fan floods, and ice-jam floods. • Riverine flooding including dam-break floods; • Local drainage or high groundwater levels; • Fluctuating lake levels; • Coastal Flooding; • Coastal erosion
Subsidence	Depressions, cracks, and sinkholes in the earth's surface which can threaten people and property. Subsidence depressions, which normally occur over many days to a few years, may damage structures with low strain tolerances such as dams, factories, nuclear reactors, and utility lines. The sudden collapse of the ground surface to form sinkholes, many yards wide and deep within the span of a few minutes to a few hours poses immediate threat to life and property.
Tornado	A local atmospheric storm, generally of short duration, formed by winds rotating at very high speeds, usually in a counterclockwise direction. The vortex, up to several hundred yards wide, is visible to the observer as a whirlpool-like column of winds rotating about a hollow cavity or funnel. Winds have been estimated to be in excess of 300 miles per hour.
Wildfire	Any instance of uncontrolled burning in grasslands, brush, or woodlands.
Extreme Heat	Temperatures that hover 10 degrees or more above the average high temperature for the region and last for several weeks are defined as extreme heat. Humid or muggy conditions, which add to the discomfort of high temperatures, occur when a "dome" of high atmospheric pressure traps hazy, damp air near the ground.
Hail Storm	Showery precipitation in the form of irregular pellets or balls of ice more than 5 mm in diameter, falling from a cumulonimbus cloud.
Technological Hazards	
Table 3-1	
Power Failure	Any interruption or loss of electrical service due to disruption of power generation or transmission caused by accident, sabotage, natural hazards, equipment failure, or fuel shortage. A significant power failure is defined as any incident which would require the involvement of the local emergency management organization to coordinate provision of food, water, heating, shelter, etc.
Dam Failure	An uncontrolled release of impounded water resulting in downstream flooding

The previously listed hazards that are defined in **Table 3-1** are the hazards that have been determined to be of concern for New York State and its citizens. Through extensive research and evaluation these hazards have proven the need for State and Local assessment. Again these hazards are: Drought, Earthquake, Hurricane, Landslide, Winter Storm, Flood, Dam Failure, Subsidence, Tornado, Wildfire, Coastal Erosion, Extreme Heat, Hail Storm, and Power Failure.

It is the requirement of any Jurisdiction to accurately profile these hazards to the extent of their vulnerability of such hazards.

It is recommended that when conducting a risk assessment a Jurisdiction evaluate (1) the likelihood of an event occurring, (2) the impact on the population, and (3) the impact on property within the Jurisdiction. Jurisdictions should also take into account the affect that climate change may have on their vulnerability to each hazard, for example increased frequency of occurrence and/or severity.

3.2 - Risk Analysis

3.2.1 – U.S. Census Local Population & Housing Data

Table 3-2 shows the populations and percent population changes between the 2000 Census and 2005 Census Estimate, also shown is the number of housing units in 2005 per county. This information is very valuable in terms of assessing the potential vulnerability of population and housing.

**Table 3-2
U.S. Census Local Population and Housing Data**

County	2000	2005	00-2005 Change	%Change 00-2005	Housing Units 2000	Housing Units 2005
Albany	294565	297,414	2,849	1.0	129972	129972
Allegany	49927	50,602	675	1.4	24505	27783
Bronx	1,332,650	1,357,589	24,939	1.9	490,659	497321
Broome	200536	196,947	-3,589	-1.8	88817	88817
Cattaraugus	83955	82,502	-1,453	-1.7	39839	39975
Cayuga	81963	81,454	-509	-0.6	35477	35477
Chautauqua	139750	136,409	-3,341	-2.4	64900	64900
Chemung	91070	89,512	-1,558	-1.7	37745	37745
Chenango	51401	51,755	354	0.7	23890	23890
Clinton	79894	82,047	2,153	2.7	33091	33091
Columbia	63094	63,622	528	0.8	30207	30207
Cortland	48599	48,622	23	0.0	20116	20116
Delaware	48055	47,534	-521	-1.1	28952	28952
Dutchess	280150	294,849	14,699	5.2	106103	106103
Erie	950265	930,703	-19,562	-2.1	415868	427079
Essex	38851	38,676	-175	-0.5	23115	23115
Franklin	51134	51,033	-101	-0.2	23936	23936
Fulton	55073	55,625	552	1.0	27787	27787
Genesee	60370	59,257	-1,113	-1.8	24190	24190
Greene	48195	49,682	1,487	3.1	26544	26544
Hamilton	5379	5,228	-151	-2.8	7965	7965
Herkimer	64427	63,780	-657	-1.0	32026	32026
Jefferson	111738	116,384	4,646	4.2	54070	130384
Kings	2,465,326	2,486,235	20,710	0.8	930,866	930866
Lewis	26944	26,571	-373	-1.4	15134	15134
Livingston	64328	64,205	-123	-0.2	24023	24023
Madison	69441	70,337	896	1.3	28646	28646
Monroe	735343	733,366	-1,977	-0.3	304388	304388
Montgomery	49708	48,968	-740	-1.5	22522	22522
Nassau	1,334,544	1,333,137	-1,407	-0.1	458,151	497032

New York	1,537,195	1,593,200	55,828	3.6	798,144	809238
Niagara	219846	217,008	-2,838	-1.3	95715	110347
Oneida	235469	234,105	-1,354	-0.6	102803	102803
Onondaga	458336	458,053	-283	-0.1	196633	196633
Ontario	100224	104,461	4,237	4.2	42647	42647
Orange	341367	372,893	31,526	9.2	122754	125427
Orleans	44171	43,387	-784	-1.8	17347	17347
Oswego	122377	123,373	996	0.8	52831	55438
Otsego	61676	62,746	1,070	1.7	28481	28481
Putnam	95745	100,507	4,664	4.9	35030	35030
Queens	2,229,379	2,241,600	12,221	0.5	817,250	823394
Rensselear	152538	155,251	2,713	1.8	66120	66120
Richmond	443,728	464,573	20,845	4.7	163,993	164414
Rockland	286753	292,916	6,163	2.1	94973	94973
Saratoga	200635	111,380	-539	-0.5	86701	89170
Schenectady	146555	214,859	14,224	7.1	65032	65032
Schoharie	31582	149,078	2,523	1.7	15915	15915
Schuyler	19224	32,277	695	2.2	9181	9181
Seneca	33342	19,342	118	0.6	14794	14794
St. Lawrence	111931	34,855	1,513	4.5	49721	116429
Steuben	98726	98,632	-94	-0.1	46132	46132
Suffolk	1,419,369	1,474,927	55,558	3.9	522,323	671090
Sullivan	73966	76,539	2,573	3.5	44730	44730
Tioga	51784	51,475	-309	-0.6	21410	21410
Tompkins	96501	100,018	3,517	3.6	38625	38625
Ulster	177749	182,693	4,944	2.8	77656	77656
Warren	63303	65,548	2,245	3.5	34852	34852
Washington	61042	63,024	1,982	3.2	26794	26794
Wayne	93765	93,609	-156	-0.2	38767	45521
Westchester	923459	940,807	17,446	1.9	349445	365549
Wyoming	43424	42,693	-731	-1.7	16940	16940
Yates	24621	24,756	135	0.5	12064	12064

New York State's large size, varying climate, and large population make hazard mitigation essential for sustained quality of life for the citizen of the State. Hazard mitigation begins with *hazard identification*.

the community with a basis for prioritizing the community's resources to respond to the hazards that pose the greatest risk to the community. The five categories covered in the Hazard Analysis Workshop are: **Scope, Frequency, Impact, Onset, and Duration.**

Scope indicates the size of the area that would be impacted by a potential hazard event. For each hazard analysis category workshop participants are also asked if the hazard in question has the capability of triggering additional hazards—cascading effect. The area of impact of the hazard itself and its cascading effects, where they exist, are analyzed. For example, since ice storms often result in power failure, when analyzing this hazard, the potential area of impact of power failure would also be considered.

Frequency is defined as a prediction of how often a hazard has occurred in the past and could occur in the future.

Impact analyses how the hazard will impact people and private and public property. Specifically, impact is concerned with the hazard's ability to seriously injure or kill people, create private economic impact as well as impact on public facilities.

Onset inquires about warning time that is, how much time is there between the initial recognition of the approaching hazard and when the hazard will impact the community in question.

Duration seeks information on how long the expected hazard will remain active that is, over what period of time does the hazard occur, or how long will it take the community to recover from the event.

It should be noted that the HAZNY program is a *hazard identification* program which assists local governments in identifying and ranking hazards. As mentioned above, FEMA's regulations relating to Multi-Hazard Mitigation Plans are only concerned with natural hazards, so when utilizing the HAZNY, do not invest extensive effort in profiling the human caused hazards if the goal is to receive approval of your local plan. However, local jurisdictions may wish to exercise the option to include human caused hazards, but these hazards will not count toward receiving plan approval. HAZNY is not a detailed loss estimation tool. For detailed risk assessment, the HAZNY results must therefore be supplemented at the Municipal level by tools that analyze past and potential future occurrences of disasters, assessment of vulnerabilities, and risks, and the quantification of potential losses. The information contained in the various tables and sections of this plan can assist in guiding the research into a full profiling and description of hazards that may impact an area or jurisdiction.

Should a hazard be ranked "Low" for a jurisdiction, it does not waive the requirement to provide a full hazard profile for that jurisdiction. Within the boundaries of the same County, some Towns, Villages, or Cities may not have a threat of coastal flooding or landslide, yet others may have a great vulnerability to these specific hazards. Likewise, while earthquakes are infrequent, they do occur throughout most of New York State and they should be fully profiled in local plans unless a jurisdiction can make a rationale for not profiling based on accurate data for their area. It must be emphasized that HAZNY does not fully address the FEMA requirements for hazard mitigation plan development.

GIS and the Hazard Mitigation Plan

A statistic that is often associated with the growth of Geographic Information Systems (GIS) technology is that an estimated 80% of all government data is “geographic information”, meaning the data relates to real world locations. For instance, a highway department’s pavement maintenance records; chemicals released from a toxic spill and recorded by an environmental agency; property records from a town assessor and crime scenes from a police department are all examples of geographic information. The GIS revolution is characterized by widespread adoption of these systems at the federal, state and local level with significant percentages of government’s data now managed within a GIS.

The central value of a GIS is that it enables spatial analysis. This includes the spatial relationships between data of the same type, such as population distribution, as well as the relationships between disparate data, such as population distribution and toxic chemicals released into the environment. Importantly, a GIS provides for the ability to see or visualize data in the form of a map, providing an effective way to comprehend information in a way that tabular or text based information alone can not provide.

Like many activities of government, successful hazard mitigation requires an understanding of geography, including knowledge of the spatial relationships between hazards and the population and property at risk. On the one hand, GIS can be used to help define the location and extent of hazardous areas, which is a requirement of the hazard mitigation plan (§201.4(c)(2)(i)). An example of using GIS to for hazard identification is demonstrated by the “Landslide Susceptibility Pilot Study of Schenectady County, NY”, which is found in Section 3.13 of this document. On the other hand, the technology can be used to identify and estimate potential damages to the property and populations exposed in these hazardous areas, which is another requirement of the hazard mitigation plan (§201.4(c)(2)(ii)). An example of the use of GIS for natural hazard vulnerability analysis is demonstrated in this plan’s “100-Year Floodplain Property Exposure Analysis”.

The role of GIS in the hazard mitigation plan is primarily in the Risk Assessment Section (Section 3). In addition to the landslide hazard identification example and the 100-year floodplain property vulnerability analysis example, additional examples of GIS can be found in the Risk Assessment Section for earthquakes, hurricanes, winter storms, hail storms, and extreme heat.

While state level agencies are more likely to have GIS resources available to support the Hazard Mitigation Plan, the level and extent of GIS resources available at the county and municipal level for plan development is less certain. There are varying levels of GIS resources (staff, hardware, software, and data) within county and local government. It is important for local governments that have limited GIS resources to maximize the resources they do have. GIS staff and the various agencies they are associated with need to be brought into the planning process and become members of the planning team. For instance, a county may have considerable GIS resources within its assessor’s office but not within the emergency management agency or other department that has the specific charge to prepare the Hazard Mitigation Plan. The requirement for partnerships and collaboration between agencies that is called for in the planning guidance is particularly acute in these instances.

As many municipal governments have insufficient GIS resources available to support the Hazard Mitigation Plan, a multi-jurisdictional plan approach that leverages the GIS resources at the county level should be considered as a viable option. Additional options include support from university GIS departments. Many institutions will recognize the valuable educational

opportunity for students and faculty that participating in the local plan can provide. There are also a number of regional planning entities in New York State with GIS capabilities that view hazard mitigation planning consistent with their mission. Bringing these organizations into the planning team can provide not only access to GIS but also a wealth of expertise in areas of relevance to the Hazard Mitigation Plan. Still another option is to consider contracting with a private sector firm. A number of firms provide GIS services, including some that specifically contract for hazard mitigation plan development.

Regardless of where local governments seek GIS support or what organizations they establish partnerships with for their Hazard Mitigation Plan, there are two critical GIS resources that all hazard mitigation planners should be aware of:

1) New York State GIS Coordination Program and the associated New York State GIS

Clearinghouse: <http://www.nysgis.state.ny.us/>

2) HAZUS-MH, FEMA's GIS based software program for estimating potential losses to earthquakes, wind and floods:

<http://www.fema.gov/plan/prevent/hazus/index.shtm>

<http://www.hazus.org/>

The New York State GIS Coordination Program provides access to an extensive repository of useful GIS data as well as a host of technical resources, references and training opportunities that can facilitate the Hazard Mitigation Plan. It is strongly recommended, if a county or local government is not currently a member of the New York State GIS Data Sharing Cooperative, it consider joining as this will expand the data and resources it will be able to access through the NYS GIS Clearinghouse. For instance, several of the datasets used in this plan are accessible through this site. These include, among other datasets, the NYS Office of Real Property (RPS) property parcels and the FEMA Q3 digital floodplain data used in the 100-year floodplain property exposure analysis.

FEMA has developed HAZUS-MH as its primary, nationally standardized tool, for hazard mitigation risk assessment. The use of HAZUS in a Hazard Mitigation Plan is encouraged by FEMA and can be considered a plus in plan evaluation and approval. The software enables both deterministic (e.g. user determines scenario earthquake location) and probabilistic modeling (e.g. annualized earthquake losses based on USGS seismic map probabilities). While the software provides for more advanced modeling requiring greater GIS background and engineering knowledge, HAZUS is known for the ease of use in the default mode. Consequently, this tool can be used by individuals with little or no GIS experience.

HAZUS-MH training opportunities are available at FEMA's Emergency Management Institute in Emmitsburg, Maryland: <http://training.fema.gov/> (As funding for staff training is limited, it should be noted that applicants accepted into EMI courses will have their travel costs reimbursed and lodging is provided).

3.2.3- FEMA Profiling Requirements

The FEMA requirements call for a full profiling of all natural hazards that impact the jurisdiction. Specifically, the Risk Assessment regulation (201.6. (c)(2)(i)) requires that "the plan include a description of all natural hazards that affect the jurisdiction."

There are FEMA requirements for plans to specifically address the following in their risk assessment: Location, Extent, Previous Occurrences, and Probability of Future Events. The FEMA "How to Guide: Understanding Your Risks" (FEMA 386-2) must be consulted throughout development of the risk assessment development phase of your plan. In addition,

FEMA Region II has a “Tool Kit” which provides numerous tables and formats to assist in meeting requirements for plan approval. The FEMA requirements relating to the hazard profile/description section of a plan are provided in the following paragraphs to help guide jurisdictions toward full compliance with the requirements.

The description of each hazard **shall** include the following information:

- The **location** or geographical areas in the community that would be affected.
- The hazard **extent** (i.e., magnitude or severity) of potential hazard events. For those hazards not geographically determined, plans **shall** indicate their applicable intensity. For example, in areas where tornadoes occur, plans *should* indicate the recorded intensities of previous events.
- The **probability**, likelihood, or frequency that the hazard event would occur in an area.

The plan **shall** also provide a discussion of **past occurrences** of hazard events in or near the community. This discussion *should* include:

- Information on the damages that occurred (e.g., costs of recovery, property damage, and lives lost) to the extent practicable.
- Level of severity (i.e., flood depth or extent, wind speeds, earthquake intensity, etc.).
- Duration of event.
- Date of occurrence.
- Sources of information used or consulted for assembling a history of past occurrences.

When appropriate, the hazard analysis *should* also identify on a map the areas affected by each identified hazard. Additionally, a composite map (i.e., a map showing combined information from different thematic map layers) *should* be provided for hazards with a recognizable geographic boundary (i.e., hazards that are known to occur in particular areas of the jurisdiction, such as floods, coastal storms, wildfires, and landslides).

The characterization of hazards *should* describe the conditions, such as topography, soil characteristics, meteorological conditions, etc., in the area that may exacerbate or mitigate the potential effects of hazards. The hazard analysis *should* be detailed enough to allow identification of the areas of the jurisdiction that are most severely affected by each hazard.

The plan *should* describe the analysis or sources used to determine the probability, likelihood, or frequency of occurrence as well as the severity or magnitude of future hazard events. The plan *should* note any data limitations and create mitigation strategy actions for obtaining the limited data to improve future risk analysis efforts.

As mentioned above, planning jurisdictions are strongly encouraged to utilize the “How to Guides” and the Region II “Tool Kit” as they prepare their mitigation plan. In addition, the plan will have a greater likelihood of receiving FEMA approval if a specific effort is made to review the plan approval criteria in detail using the Local *Hazard Mitigation Plan Review Crosswalk* Form, and assuring that each element of the requirement is fully addressed in the plan.

3.2.4 - Description of State Facilities

The State of New York owns and operates more than 16,000 building facilities Statewide representing more than 210 million gross square feet of space. State owned buildings are located in every County of the State and all of New York’s major cities. Albany, New York’s State Capital, is located on the Hudson River, approximately 150 miles north of New York City. The largest, single concentration of State-owned and operated facilities are located in the City of Albany and its environs. **Table 3-3**, provides a list of the various State agencies that utilize State

owned and leased space throughout the State of New York. Agencies in **bold** directly manage State owned and leased properties.

Table 3-3 New York State Entities
Adirondack Park Agency
Advocate for Persons with Disabilities, Office of
Aging, Office for the
Agriculture and Markets, Department of
Alcoholism and Substance Abuse Services, Office of
Attorney General, Office of the
Banking, Department of
Battery Park City Authority
Board of Elections
Board of Regents
Budget, Division of the
Central Pine Barrens Joint Planning and Policy Commission, The
Civil Service, Department of
Children and Family Services, Office of
Commission of Correction
Commission on Quality of Care for the Mentally Disabled
Consumer Protection Board
Correctional Services, Department of
Correctional Services, Division of Industries (Corcraft), Department of
Council on Children and Families, The New York State
Council on the Arts
Crime Victims Board
Criminal Justice Services, Division of
Dormitory Authority
Education, Department of
Emergency Management, Office of (SEMO)
Empire State Development
Energy Research and Development Authority
Environmental Conservation, Department of
Family Assistance, Department of
General Services, Office of
GIS Clearing House
Governor George E. Pataki, Office of
Governor's Office of Employee Relations
Governor's Office of Regulatory Reform
Governor's Office for Small Cities, The
Governor's Traffic Safety Committee
Health, Department of
Higher Education Services Corporation
Housing and Community Renewal, Division of
Hudson River Park Trust
Hudson River Valley Greenway
Human Rights, Division of

Table 3-3 New York State Entities
Insurance, Department of
Labor, Department of
Lieutenant Governor, Office of the
Liquor Authority
Lobbying, State Commission on
Lottery, Department of
Metropolitan Transportation Authority
Military and Naval Affairs, Division of
Motor Vehicles, Department of
New York Power Authority
New York State Canal System
New York State Council on Children and Families
New York State Bridge Authority
NYS Developmental Disabilities Planning Council
New York State Chief Information Officer
New York State Division of Probation and Correctional Alternatives
New York State Employee Assistance Program
New York State Law Revision Commission
New York State Office for the Prevention of Domestic Violence
New York State Public Employment Relations Board
New York State Employees Resource and Information Center, The
New York State Environmental Facilities Corporation
New York State Housing Finance Agency
New York State Government Information Locator Service
New York State Office of Science, Technology and Academic Research
New York State Racing and Wagering Board
Office of Mental Health
Office Of Mental Retardation and Developmental Disabilities
Organization of NYS Management Confidential Employees, The
Parks, Recreation and Historic Preservation, Office of
Power Authority
Public Service Commission
Real Property Services, Office of
Roosevelt Island Operating Corporation of the State of New York
Senate
State, Department of
State Assembly
State Comptroller, Office of
State Employees Federated Appeal
State Ethics Commission, The
State Insurance Fund
State Lottery
State of New York Mortgage Agency
State Office for Technology
State Police
State University Construction Fund

Table 3-3 New York State Entities
State University of New York
Tax Appeals, Division of
Taxation and Finance, Department of
Temporary and Disability Assistance, Office of
Thruway Authority
Transportation, Department of
Unified Court System
Veterans' Affairs, Division of
Women, Division for
Workers' Compensation Board

3.3 – Profiling Hazard Events, Assessing Vulnerability, and Estimating Loss

Each of the following hazard specific sections include an overview of the location of natural hazards that can affect the State, maps provided when available and appropriate, and includes information on previous occurrences of hazard events and the probability of future hazard events. Additionally, these sections describe locations of jurisdictions most threatened and vulnerable to previously identified hazards and possible potential losses.

3.3.1 – Past Major Disaster Events

From 1956 through the present, all but five of the disasters, or emergencies, that were declared major disasters or emergencies have been the result of damages from severe floods, hurricanes, coastal storms, and severe winter storms. The five disaster declarations that do not fall into those categories are: the Love Canal, the World Trade Center bombing in 1993, the Long Island wildfires in 1995, the September 11, 2001 Terrorist Attacks, and the April 2002 Earthquake.

Table 3-4 and Figure 3-2 provide a listing of New York's disaster and emergency declarations. The disaster history demonstrates the wide variety of disaster types and locations where disasters have occurred in the State. Following many of these disasters, especially since 1996, post-disaster strategy reports have been prepared. These reports, among other things, identify the hazards which caused the disasters or emergencies, assess the severity of the events and the factors contributing to the severity, and make recommendations for the implementation of mitigation and other emergency management actions. As appropriate, elements of these reports were used in the development of the State's Hazard Mitigation Plan. The losses that are attributed to the listed events range from minor property damage such as streambank erosion and basement flooding, to catastrophic and devastating losses, such as loss of human life and destruction of many homes and businesses resulting in severe Regional and State economic impact.

**Table 3-4
FEMA Historical Disaster Declarations**

Disaster #	Type/Location/Date Declared/Damages
DR-702	Flooding, Southeastern N.Y.S., declared 4/17/84 Total Eligible Damages: \$11.9 million
DR-725	Flooding, Western N.Y.S., declared 9/25/84 Total Eligible Damages: \$3.3 million
DR-733	Flooding, Northern N.Y.S., declared 3/21/85 Total Eligible Damages: \$1.6 million

Disaster #	Type/Location/Date Declared/Damages
DR-734	Flooding, Buffalo/Niagara Falls Area, declared 3/22/85 Total Eligible Damages: \$1.1 million
DR-750	Hurricane Gloria, Long Island, declared 10/18/85 Total Eligible Damages: \$48.5 million
DR-792	Flooding, East Central N.Y.S., declared 5/15/87 Total Eligible Damages: \$3.6 million
DR-801	Snowstorm, East Central N.Y.S., declared 11/10/87 Total Eligible Damages: \$13.5 million
DR-898	Ice storm, West Central N.Y.S., declared 3/18/91 Total Eligible Damages: \$52,441,937
DR-918	Hurricane Bob, Long Island, declared 9/16/91 Total Eligible Damages: \$11,786,640
DR-974	Winter storm, Southeast N.Y.S., declared 12/21/92 Total Eligible Damages: \$31,229,797
DR-984	World Trade Center Bombing, NYS, declared 4/2/93 Total Eligible Damages: \$4,036,035
EM-3107	Statewide Blizzard, declared 3/17/93 Total Eligible Damages: \$8,473,684
FSA-2115	Long Island Wildfires, declared 8/24/95 Total Eligible Damages: \$5 million
DR-1083	Southern New York Blizzard, declared 1/12/96 Total Eligible Damages: \$21,368,854
DR-1095	Severe Flooding, declared 1/24/96 Total Eligible Damages: \$160,048,147
DR-1146	Severe coastal flooding and storm water back-up, declared 11/19/96 Total Eligible Damages: \$16,173,532
DR-1148	Severe Flooding, declared 12/9/96 Total Eligible Damages: \$25,628,778
DR-1196	North Country Ice Storm, declared 1/10/98 Total Eligible Damages: \$68,139,916
DR-1222	Tornado, declared 6/16/98 Total Eligible Damages: \$6,990,031
DR-1233	Severe flooding, declared 7/7/98 Total Eligible Damages: \$27,835,187
DR-1244	Labor Day Wind Storm, declared 9/11/98 Total Eligible Damages: \$36,061,845
DR-1296	Tropical Storm Floyd, declared 9/19/99 – Eastern NYS Total Eligible Damages: \$62,201,000
DR-1335	Flooding, declared 7/21/00 – Statewide Total Eligible Damages: \$34,687,797
DR-1391	Terrorist Attack, declared 9/11/01 - NYC Total Eligible Damages: \$6,052,138,000

Disaster #	Type/Location/Date Declared/Damages
DR-1404	Snowstorm, declared 3/1/02 – Western NYS Total Eligible Damages: \$8,175,000
DR-1415	Earthquake, declared 5/16/02 – Northeastern NYS Total Eligible Damages: \$2,947,653
DR-1467	April Ice Storm, declared 5/12/03 – Central NYS Total Eligible Damages: \$41,451,943
EM-3138	To Be Determined
EM-3157	To Be Determined
EM-3186	New York Power Outage, declared 8/23/03 – Statewide
DR-1486	Severe Storms, Tornadoes and Flooding, declared 8/29/03-Cent&WNYS Total Eligible Damages: \$23,238,095
DR-1534	Severe Storms and Flooding, declared 8/3/04 Central and Western NYS Total Eligible Damages: \$14,000,000
DR-1564	Severe storms and flooding , declared 10/01/04 Western, Central and Northern NYS Total Eligible Damages \$18,027,000
DR-1565	Tropical Depression Ivan, declared 10/1/04 Southern Tier and Catskills Total Eligible Damages \$15,099,000
DR-1589	Severe Storms and flooding, declared 4/19/05 Southern Tier, Capital District, Catskills Total Eligible Damages \$66,210,000
DR-1650	Severe Storms and flooding, declared 7/1/06 Southern Tier, Central, Catskills NYS Total Eligible Damages \$246,325,000
DR-1665	Severe Storms and flooding, declared 10/24/06 Western NYS Total Eligible Damages \$141,579,000
DR-1670	Severe Storms and flooding, declared 12/12/06 Southern Tier, Central, Catskill NYS Total Eligible Damages \$32,587,000
DR-1692	Severe Storms and inland and coastal flooding, declared 4/27/07 Catskill & Lower Hudson Valley NYS Total Eligible Damages - \$12,760,000
DR-1710	Severe Storms and flooding, declared 7/2/07 Delaware Co. NYS Total Eligible Damages – not yet available

Figure 3-2



