

This resource defines terms that are used in or support the risk assessment document. These definitions were based on terms defined in documents included in the reference section, with modifications as appropriate to address the City of New Rochelle specific definitions and requirements.

100-year flood – A flood that has a 1-percent chance of being equaled or exceeded in any given year. This flood event is also referred to as the base flood. The term "100-year flood" can be misleading; it is not the flood that will occur once every 100 years. Rather, it is the flood elevation that has a 1- percent chance of being equaled or exceeded each year. Therefore, the 100-year flood could occur more than once in a relatively short period of time. The 100-year flood, which is the standard used by most federal and state agencies, is used by the National Flood Insurance Program (NFIP) as the standard for floodplain management to determine the need for flood insurance.

500-year flood – A flood that has a 0.2-percent chance of being equaled or exceeded in any one year.

Aggregate Data – Data gathered together across an area or region (for example, census tract or census block data).

Annualized Loss – The estimated long-term value of losses from potential future hazard occurrences of a particular type in any given single year in a specified geographic area. In other words, the average annual loss that is likely to be incurred each year based on frequency of occurrence and loss estimates. Note that the loss in any given year can be substantially higher or lower than the estimated annualized loss.

Annualized Loss Ratio – Represents the annualized loss estimate as a fraction of the replacement value of the local building inventory. This ratio is calculated using the following formula: Annualized Loss Ratio = Annualized Losses / Exposure at Risk. The annualized loss ratio gauges the relationship between average annualized loss and building value at risk. This ratio can be used as a measure of relative risk between hazards as well as across different geographic units

Asset – Any man-made or natural feature that has value, including but not limited to people, buildings, infrastructure (such as bridges, roads, and sewer and water systems), and lifelines (such as electricity and communication resources or environmental, cultural, or recreational features like parks, dunes, wetlands, or landmarks).

At-Risk – Exposure values that include the entire building inventory value in census blocks that lie within or border the inundation areas or any area potentially exposed to a hazard based on location.

Base Flood – Flood that has a 1-percent probability of being equaled or exceeded in any given year. It is also known as the 100-year flood.

Base Flood Elevation (BFE) – Elevation of the base flood in relation to a specified datum, such as the National Geodetic Vertical Datum of 1929. The BFE is used as the standard for the National Flood Insurance Program.

Benefit – Net project outcomes, usually defined in monetary terms. Benefits may include direct and indirect effects. For the purposes of conducting a benefit-cost analysis of proposed mitigation measures, benefits are limited to specific, measurable, risk reduction factors, including a reduction in expected property losses (building, content, and function) and protection of human life.

Benefit-cost analysis (BCA) – Benefit-cost analysis is a systematic, quantitative method of comparing the projected benefits to projected costs of a project or policy. It is used as a measure of cost effectiveness.

Building – A structure that is walled and roofed, principally aboveground and permanently fixed to a site. The term includes a manufactured home on a permanent foundation on which the wheels and axles carry no weight.

Building Codes – Regulations that set forth standards and requirements for construction, maintenance, operation, occupancy, use, or appearance of buildings, premises, and dwelling units. Building codes can include standards for structures to withstand natural disasters.

Buildup Index – Cumulative numerical index derived from daily weather data, presumably indicates the moisture content in medium-driving forest fuels.

Capability Assessment – An assessment that provides a description and analysis of a community or state’s current capacity to address the threats associated with hazards. The capability assessment attempts to identify and evaluate existing policies, regulations, programs, and practices that positively or negatively affect the community or state’s vulnerability to hazards or specific threats.

Community Rating System (CRS) – CRS is a program that provides incentives for National Flood Insurance Program communities to complete activities that reduce flood hazard risk. When the community completes specific activities, the insurance premiums of these policyholders in communities are reduced.

Comprehensive Plan – A document, also known as a “general plan”, covering the entire geographic area of a community and expressing community goals and objectives. The plan lays out the vision, policies, and strategies for the future of the community, including all of the physical elements that will determine the community’s future development. This plan can discuss the community’s desired physical development, desired rate and quantity of growth, community character, transportation services, location of growth, and siting of public facilities and transportation. In most states, the comprehensive plan has no authority in and of itself, but serves as a guide for community decision-making.

Critical Facility – Facilities that are critical to the health and welfare of the population and that are especially important following a hazard. Critical facilities include essential facilities, transportation systems, lifeline utility systems, high-potential loss facilities, and hazardous material facilities. As defined for the Village of Briarcliff Manor risk assessment, this category includes police stations, fire and/or EMS stations, major medical care facilities and emergency communications.

Debris – The scattered remains of assets broken or destroyed during the occurrence of a hazard. Debris caused by a wind or water hazard event can cause additional damage to other assets.

Digital Elevation Model (DEM) – U.S. Geological Survey (USGS) Digital Elevation Model (DEM) data files that are digital representations of cartographic information in a raster form. DEMs include a sampled array of elevations for a number of ground positions at regularly spaced intervals. These digital cartographic/geographic data files are produced by USGS as part of the National Mapping Program.

Digital Flood Insurance Rate Maps (DFIRMs) – These maps are used to calculate the cost insurance premiums, establish flood risk zones and base flood elevations to mitigate against potential future flood damages to properties.

Displacement Time – After a hazard occurs, the average time (in days) that a building’s occupants must operate from a temporary location while repairs are made to the original building due to damages resulting from the hazard.

Disaster Mitigation Act of 2000 (DMA 2000) – Law that requires and rewards local and state pre-disaster planning, promotes sustainability as a strategy for disaster resistance, and is intended to integrate state and local planning with the aim of strengthening state-wide mitigation planning.

Drought – A period of time without substantial rainfall that persists from one year to the next. Droughts can affect large areas and can impact areas that range from a few counties to several states. Along with decreasing water supplies for human consumption and use, droughts can kill crops, livestock, grazing land, edible plants, and even in severe cases, trees.

Duration – The length of time a hazard occurs.

Erosion Hazard Area – Area anticipated to be lost to shoreline retreat over a given period of time. The projected inland extent of the area is measured by multiplying the average annual long-term recession rate by the number of years desired.

Essential Facility – A facility that is important to ensure a full recovery of a community or state following the occurrence of a hazard. These facilities can include: government facilities, major employers, banks, schools, and certain commercial establishments (such as grocery stores, hardware stores, and gas stations). For the Village of Briarcliff Manor risk assessment, this category was defined to include schools, colleges, shelters, adult living and adult care facilities, medical facilities and health clinics, hospitals.

Exposure – The number and dollar value of assets that are considered to be at risk during the occurrence of a specific hazard.

Extent – The size of an area affected by a hazard or the occurrence of a hazard.

Extra Tropical Cyclone – A group of cyclones defined as synoptic scale, low pressure, weather systems that occur in the middle latitudes of the Earth. These storms have neither tropical nor polar characteristics and are connected with fronts and horizontal gradients in temperature and dew point otherwise known as “baroclinic zones”. These cyclones produce impacts ranging from cloudiness and mild showers to heavy gales and thunderstorms.

Flood Depth – Height of the flood water surface above the ground surface.

Flood Elevation – Height of the water surface above an established datum (for example, the National Geodetic Vertical Datum of 1929, North American Vertical Datum of 1988, or mean sea level).

Flood Hazard Area – Area shown to be inundated by a flood of a given magnitude on a map.

Flood Information Tool (FIT) – Hazard U.S. Multi-Hazard (HAZUS-MH)- related tool designed to process and convert locally available flood information to data that can be used by the HAZUS-MH Flood Module. The FIT is a system of instructions, tutorials and geographic information system (GIS) analysis scripts. When provided with user-supplied inputs (such as ground elevations, flood elevations, and floodplain boundary information), the FIT calculates flood depth and elevation for river and coastal flood hazards.

Flood Insurance Rate Map (FIRM) – Map of a community, prepared by the FEMA that shows both the special flood hazard areas and the risk premium zones applicable to the community.

Flood Insurance Study (FIS) – A study that provides an examination, evaluation, and determination of flood hazards and, if appropriate, corresponding water surface elevations in a community or communities.

Flood Mitigation Assistance (FMA) Program – A program created as a part of the National Flood Insurance Report Act of 1994. FMA provides funding to assist communities and states in implementing actions that reduce or eliminate the long-term risk of flood damage to buildings, manufactured homes, and other NFIP insurance structures, with a focus on repetitive loss properties.

Floodplain – Any land area, including a watercourse, susceptible to partial or complete inundation by water from any source.

Flood Polygon – A geographic information system vector file outlining the area exposed to the flood hazard. HAZUS-MH generates this polygon at the end of the flood computations in order to analyze the inventory at risk.

Frequency – A measure of how often events of a particular magnitude are expected to occur. Frequency describes how often a hazard of a specific magnitude, duration, and/or extent typically occurs, on average. Statistically, a hazard with a 100-year recurrence interval is expected to occur once every 100 years on average, and would have a 1-percent chance of happening in any given year. The reliability of this information varies depending on the kind of hazard being considered.

Fujita Scale of Tornado Intensity – Rates tornadoes with numeric values from F0 to F5 based on tornado wind speed and damage sustained. An F0 (wind speed less than 73 mph) indicates minimal damage such as broken tree limbs or signs, while an F5 (wind speeds of 261 to 318 mpg) indicated severe damage sustained.

Goals – General guidelines that explain what you want to achieve. They are usually broad policy-type statements, long term in nature, and represent global visions.

Geographic Information Systems (GIS) – A computer software application that relates data regarding physical and other features on the earth to a database to be used for mapping and analysis.

GIS Shape Files – A type of GIS vector file developed by ESRI for their ArcView software. This type of file contains a table and a graphic. The records in the table are linked to corresponding objects in the graphic.

Hazard – A source of potential danger or an adverse condition that can cause harm to people or cause property damage. For this risk assessment, priority hazards were identified and selected for the pilot project effort. A natural hazard is a hazard that occurs naturally (such as flood, wind, and earthquake). A man-made hazard is one that is caused by humans (for example, a terrorist act or a hazardous material spill). Hazards are of concern if they have the potential to harm people or property.

Hazards of Interest – A comprehensive listing of hazards that may affect an area.

Hazards of Concern – Those hazards that have been analytically determined to pose significant risk in an area, and thus the focus of the particular mitigation plan for that area (a subset of the Hazards of Interest).

Hazard Identification – The process of identifying hazards that threaten an area.

Hazardous Material Facilities – Facilities housing industrial and hazardous materials, such as corrosives, explosives, flammable materials, radioactive materials, and toxins.

Hazard Mitigation – Sustained actions taken to reduce or eliminate the long-term risk and effects that can result from the occurrence of a specific hazard. For example, building a retaining wall can protect an area from flooding.

Hazard Mitigation Grant Program (HMGP) – Authorized under Section 404 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, HMGP is administered by FEMA and provides grants to states, tribes, and local governments to implement hazard mitigation actions after a major disaster declaration. The purpose of the program is to reduce the loss of life and property due to disasters and to enable mitigation activities to be implemented as a community recovers from a disaster.

Hazard Mitigation Plan – A collaborative document in which hazards affecting the community are identified, vulnerability to hazards assessed, and consensus reached on how to minimize or eliminate the effects of these hazards.

Hazard Profile – A description of the physical characteristics of a hazard, including a determination of various descriptors including magnitude, duration, frequency, probability, and extent. In most cases, a community can most easily use these descriptors when they are recorded and displayed as maps.

Hazard Risk Gauge – The graphic icon used during the initial planning process to convey the relative risk of a given hazard in the study area. The scale ranges from green indicating relatively low or no risk to red indicating severe risk.

Hazard Analysis New York (HAZNY) - Developed by the American Red Cross and the New York State Emergency Management Office (NYSEMO) on October 2, 2003. It is an automated interactive spreadsheet that asks specific questions on potential hazards in a community and records and evaluates the responses to these questions.

Hazards U.S. (HAZUS) – A GIS-based nationally standardized earthquake loss estimation tool developed by FEMA. HAZUS was replaced by HAZUS-MH (see below) in 2003.

Hazards U.S. – Multi-Hazard (HAZUS-MH) – A GIS-based nationally standardized earthquake, flood, and wind loss estimation tool developed by FEMA. The purpose of this pilot project is to demonstrate and implement the use of HAZUS-MH to support risk assessments

HAZUS-MH Risk Assessment Methodology – This analysis uses the HAZUS-MH modules (earthquake, wind--hurricane and flood) to analyze potential damages and losses. For this pilot project risk assessment, the flood and hurricane hazards were evaluated using this methodology.

HAZUS-MH-Driven Risk Assessment Methodology – This analysis involves using inventory data in HAZUS-MH combined with knowledge such as (1) information about potentially exposed areas, (2) expected impacts, and (3) data regarding likelihood of occurrence for hazards. For this risk assessment, a HAZUS-Driven Risk Assessment Methodology could not be used to estimate losses associated with any hazards because of a lack of adequate data. However, the methodology was used, based on more limited data to estimate exposure for the dam failure, urban fire, fuel pipeline breach, and HazMat release hazards.

High Potential Loss Facilities – Facilities that would have a high loss associated with them, such as nuclear power plants, dams, and military installations.

Hydraulics – That branch of science, or of engineering, which addresses fluids (especially, water) in motion, its action in rivers and canals, the works and machinery for conducting or raising it, its use as a prime mover, and other fluid-related areas.

Hydrology – The science of dealing with the waters of the earth (for example, a flood discharge estimate is developed through conduct of a hydrologic study).

Infrastructure – The public services of a community that have a direct impact on the quality of life. Infrastructure includes communication technology such as phone lines or Internet access, vital services such as public water supplies and sewer treatment facilities, transportation system (such as airports, heliports; highways, bridges, tunnels, roadbeds, overpasses, railways, bridges, rail yards, depots; and waterways, canals, locks, seaports, ferries, harbors, dry docks, piers and regional dams).

Intensity – A measure of the effects of a hazard occurring at a particular place.

Inventory – The assets identified in a study region. It includes assets that can be lost when a disaster occurs and community resources are at risk. Assets include people, buildings, transportation, and other valued community resources.

Level 1 Analysis – A HAZUS-MH analysis that yields a rough estimate or preliminary analysis based on the nationwide default database included in HAZUS-MH. A Level 1 analysis is a great way to begin the risk assessment process and prioritize high-risk communities without collecting or using local data.

Level 2 Analysis – A HAZUS-MH analysis that requires the input of additional or refined data and hazard maps that will produce more accurate risk and loss estimates. Assistance from local emergency management personnel, city planners, GIS professionals, and others may be necessary for this level of analysis.

Level 3 Analysis – A HAZUS-MH analysis that yields the most accurate estimate of loss and typically requires the involvement of technical experts such as structural and geotechnical engineers who can modify loss parameters based on the specific conditions of a community. This level analysis will allow users to supply their own techniques to study special conditions such as dam breaks and tsunamis. Engineering and other expertise is needed at this level.

Lifelines – Critical facilities that include utility systems (potable water, wastewater, oil, natural gas, electric power facilities and communication systems) and transportation systems (airways, bridges, roads, tunnels and waterways).

Loss Estimation – The process of assigning hazard-related damage and loss estimates to inventory, infrastructure, lifelines, and population data. HAZUS-MH can estimate the economic and social loss for specific hazard occurrences. Loss estimation is essential to decision making at all levels of government and provides a basis for developing mitigation plans and policies. It also supports planning for emergency preparedness, response, and recovery.

Lowest Floor – Under the NFIP, the lowest floor of the lowest enclosed area (including basement) of a structure. For the HAZUS-MH flood model, this information can be used to assist in assessing the damage to buildings.

Magnitude – A measure of the strength of a hazard occurrence. The magnitude (also referred to as severity) of a given hazard occurrence is usually determined using technical measures specific to the hazard. For example, ranges of wind speeds are used to categorize tornados.

Major Disaster Declarations – Post-disaster status requested by a state’s governor when local and state resources are not sufficient to meet disaster needs. It is based on the damage assessment, and an agreement to commit state funds and resources to the long-term recovery. The event must be clearly more than the state or local government can handle alone.

Mean Return Period (MRP) – The average period of time, in years, between occurrences of a particular hazard (equal to the inverse of the annual frequency of exceedance).

Mitigation Actions – Specific actions that help you achieve your goals and objectives.

Mitigation Goals – General guidelines that explain what you want to achieve. They are usually broad policy-type statements, long term, and represent global visions.

Mitigation Objectives – Strategies or implementation steps to attain the identified goals. Unlike goals, objectives are specific and measurable.

Mitigation Plan – A plan that documents the process used for a systematic evaluation of the nature and extent of vulnerability to the effects of natural hazards typically present in a state or community. The plan includes a description of actions to minimize future vulnerability to hazards. This plan should be developed with local experts and significant community involvement.

National Flood Insurance Program (NFIP) – Federal program created by Congress in 1968 that makes flood insurance available in communities that enact minimum floodplain management regulations in 44 Code of Federal Regulations (CFR) §60.3.

Objectives – Objectives define strategies or implementation steps to attain the identified goals. Unlike goals, objectives are specific and measurable.

Occupancy Classes – Categories of buildings used by HAZUS-MH (for example, commercial, residential, industrial, government, and “other”).

Ordinance – A term for a law or regulation adopted by local government.

Outflow – Associated with coastal hazards and follows water inundation creating strong currents that rip at structures and pound them with debris, and erode beaches and coastal structures.

Parametric Model – A model relating to or including the evaluation of parameters. For example, HAZUS-MH uses parametric models that address different parameters for hazards such as earthquake, flood and wind (hurricane). For example, parameters considered for the earthquake hazard include soil type, peak ground acceleration, building construction type and other parameters.

Planimetric – Maps that indicate only man-made features like buildings.

Planning – The act or process of making or carrying out plans; the establishment of goals, policies and procedures for a social or economic unit.

Post-disaster mitigation – Mitigation actions taken after a disaster has occurred, usually during recovery and reconstruction.

Presidential Disaster Declaration – A post-disaster status that puts into motion long-term federal recovery programs, some of which are matched by state programs, and designed to help disaster victims, businesses, and public entities in the areas of human services, public assistance (infrastructure support), and hazard mitigation. If declared, funding comes from the President’s Disaster Relief Fund and disaster aid programs of other participating federal agencies.

Preparedness – Actions that strengthen the capability of government, citizens, and communities to respond to disasters.

Priority Hazards – Hazards considered most likely to impact a community based on frequency, severity, or other factors such as public perception. These are identified using available data and local knowledge.

Provided Data – The databases included in the HAZUS-MH software that allow users to run a preliminary analysis without collecting or using local data.

Probability – A statistical measure of the likelihood that a hazard event will occur.

Public Education and Outreach Programs – Any campaign to make the public more aware of hazard mitigation and mitigation programs, including hazard information centers, mailings, public meetings, etc.

Recovery – The actions taken by an individual or community after a catastrophic event to restore order and lifelines in the community.

Regulation – Most states have granted local jurisdictions broad regulatory powers to enable the enactment and enforcement of ordinances that deal with public health, safety, and welfare. These include building codes, building inspections, zoning, floodplain and subdivision ordinances, and growth management initiatives.

Recurrence Interval – The average time between the occurrences of hazardous events of similar size in a given location. This interval is based on the probability that the given event will be equaled or exceeded in any given year.

Repetitive Loss Property – A property that is currently insured for which two or more National Flood Insurance Program losses (occurring more than ten days apart) of at least \$1,000 each have been paid within any 10-year period since 1978.

Replacement Value – The cost of rebuilding a structure. This cost is usually expressed in terms of cost per square foot and reflects the present-day cost of labor and materials to construct a building of a particular size, type and quality.

Resolutions – Expressions of a governing body’s opinion, will, or intention that can be executive or administrative in nature. Most planning documents must undergo a council resolution, which must be supported in an official vote by a majority of representatives to be adopted. Other methods of making a statement or announcement about a particular issue or topic include proclamations or declarations.

Resources – Resources include the people, materials, technologies, money, etc., required to implement strategies or processes. The costs of these resources are often included in a budget.

Risk – The estimated impact that a hazard would have on people, services, facilities, and structures in a community; the likelihood of a hazard occurring and resulting in an adverse condition that causes injury or damage. Risk is often expressed in relative terms such as a high, moderate or low likelihood of sustaining damage above a particular threshold due to occurrence of a specific type of hazard. Risk also can be expressed in terms of potential monetary losses associated with the intensity of the hazard.

Risk Assessment – A methodology used to assess potential exposure and estimated losses associated with priority hazards. The risk assessment process includes four steps: (1) identifying hazards, (2) profiling hazards, (3) conducting an inventory of assets, and (4) estimating losses. This pilot project report documents this process for selected hazards addressed as part of the pilot project.

Risk Factors – Characteristics of a hazard that contribute to the severity of potential losses in the study area.

Riverine – Of or produced by a river (for example, a riverine flood is one that is caused by a river overflowing its banks).

Saffir-Simpson Scale – This scale categorizes or rates hurricanes from 1 (Minimal) to 5 (Catastrophic) based on their intensity. It is used to give an estimate of the potential property damage and flooding expected along the coast from a hurricane landfall. Wind speed is the determining factor in the shape of the coastline, in the landfill region.

Scale – A proportion used in determining a dimensional relationship; the ratio of the distance between two points on a map and the actual distance between the two points on the earth's surface.

Scour – Removal of soil or fill material by the flow of floodwaters. This term is frequently used to describe storm-induced, localized, conical erosion around pilings and other foundation supports where the obstruction of flow increases turbulence.

Special Flood Hazard Area (SFHA) – An area within a floodplain having a 1-percent or greater chance of flood occurrence in any given year (that is, the 100-year or base flood zone); represented on FIRMS as darkly shaded areas with zone designations that include the letter "A" or "V."

Stafford Act – The Robert T. Stafford Disaster Relief and Emergency Assistance Act, Public Law (PL) 100-107 was signed into law on November 23, 1988. This law amended the Disaster Relief Act of 1974, PL 93-288. The Stafford Act is the statutory authority for most Federal disaster response activities, especially as they pertain to FEMA and its programs.

Stakeholder – Stakeholders are individuals or groups, including businesses, private organizations, and citizens, that will be affected in any way by an action or policy.

State Hazard Mitigation Officer (SHMO) – The representative of state government who is the primary point of contact with FEMA, other state and Federal agencies, and local units of government in the planning and implementation of pre- and post-disaster mitigation activities.

Structure – Something constructed (for example, a residential or commercial building).

Study Area – The geographic unit for which data are collected and analyzed. A study area can be any combination of states, counties, cities, census tracts, or census blocks. The study area definition depends on the purpose of the loss study and in many cases will follow political boundaries or jurisdictions such as city limits.

Substantial Damage – Damage of any origin sustained by a structure in a SFHA, for which the cost of restoring the structure to its pre-hazard event condition would equal or exceed 50 percent of its pre-hazard event market value.

Topographic – Map that shows natural features and indicate the physical shape of the land using contour lines based on land elevation. These maps also can include man-made features (such as buildings and roads).

Transportation Systems – One of the lifeline system categories. This category includes: airways (airports, heliports, highways), bridges, tunnels, roadbeds, overpasses, transfer centers; railways (tracks, tunnels, bridges, rail yards, depots), and waterways (canals, locks, seaports, ferries, harbors, dry docks, piers).

Utility Systems – One of the lifeline systems categories. This category includes potable water, wastewater, oil, natural gas, electric power facilities and communication systems.

Vulnerability – Description of how exposed or susceptible an asset is to damage. This value depends on an asset's construction, contents, and the economic value of its functions. Like indirect damages, the vulnerability of one element of the community is often related to the vulnerability of another. For example, many businesses depend on uninterrupted electrical power. If an electric substation is flooded, it will affect not only the substation itself, but a number of businesses as well. Often, indirect affects can be much more widespread and damaging than direct affects.

Vulnerability Assessment – Evaluation of the extent of injury and damage that may result from a hazard event of a given intensity in a given area. The vulnerability assessment should address impacts of hazard occurrences on the existing and future built environment.

Watershed – Area of land that drains down gradient (from areas of higher land to areas of lower land) to the lowest point; a common drainage basin. The water moves through a network of drainage pathways, both underground and on the surface. Generally, these pathways converge into streams and rivers, which become progressively larger as the water moves downstream, eventually reaching an estuary, lake, or ocean.

Zone – A geographical area shown on a National FIRM that reflects the severity or type of flooding in the area.

Zoning Ordinance – Designation of allowable land use and intensities for a local jurisdiction. Zoning ordinances consist of two components: a zoning text and a zoning map.

- Alaska Division of Homeland Security and Emergency Management. Alaska All-Hazard Risk Mitigation Plan. Oct. 2007. Accessed Mar. 2009
<http://ready.alaska.gov/plans/pdf_docs/StateHazardMitigationPlan07/2007%20SHMP%20Master.pdf>.
- Association of State Floodplain Managers (ASFPM). National Flood Insurance Program (NFIP): Floodplain Management Requirements, a Study Guide and Desk Reference for Local Officials, FEMA 480. Feb. 2005. Accessed 2010 <http://www.floods.org/Certification/FEMA_480.asp>.
- Barron, J. “After a Slow Start, a Snowstorm That Exceeds Expectations.” New York Times 10 Feb. 2010. Accessed 2010 <<http://www.nytimes.com/2010/02/11/nyregion/11snow.html?pagewanted=2>>.
- Bramson, N. “March Storm Disrupts Electricity for Thousands.” New Rochelle News. 27 April 2010. Accessed 2010 <<http://noambramson.org/news/001472.html>>.
- Brown, W. et al. USGS. Hazard Maps Help Save Lives and Property. 25 Sept. 1996. Accessed 2010 <<http://quake.usgs.gov/prepare/factsheets/RiskMaps/>>.
- Buettner, R. “Rain and Wind Created a Deadly Storm”. The New York Times 14 March 2010. Accessed 2010 <<http://www.nytimes.com/2010/03/15/nyregion/15storm.html?src=me>>.
- Canadian Hurricane Centre (CHC). Glossary of Hurricane Terms. 10 July 2003. Accessed 2010 <<http://www.atl.ec.gc.ca/weather/hurricane/hurricanes9.html>>.
- Cashin Associates, P.C. City of New Rochelle Harbor Management Plan. February 1998.
- Center for Information Development and Service. Geographic Terminology. Date Unknown. Accessed 2010 <<http://www.semcc.org/cids/cids/terminology.html>>.
- Committee on Coastal Erosion Zone Management et al. Managing Coastal Erosion. Washington D.C.: National Academy P, 1990. 26. The National Academies Press. Accessed 2010 <http://books.nap.edu/openbook.php?record_id=1446&page=26>.
- Davis, B. “Brief History of New Rochelle.” E-mail to Cynthia Bianco. 17 June 2010.
- Demographia. U.S. Urbanized Areas 1950-2000: Contents. 2001. Accessed 2010 <<http://www.demographia.com/dm-uaix.htm>>.
- Dorrego, R. “Astronomy Resources and Links.” Rick’s Home Page. Date Unknown. Accessed 2010 <<http://www.dorrego.net/>>.
- Canadian Hurricane Centre (CHC). Glossary of Hurricane Terms. 10 July 2003. Accessed 2010 <<http://www.atl.ec.gc.ca/weather/hurricane/hurricanes9.html>>.
- Centers for Disease Control and Prevention (CDC). Emergency Preparedness and Response - Extreme Cold: A Prevention Guide to Promote Your Personal Health and Safety. Last Modified 22 Mar. 2005. Accessed 2010 <<http://www.bt.cdc.gov/disasters/winter/guide.asp#def>>.
- City of Sacramento Development Service Department. City of Sacramento General Plan Update: Technical Background Report. Jun. 2005. Accessed 2010

- http://www.sacgp.org/GP_Documents/TBR/Public-Draft/TBR_Section_7-2_Flood-Hazards.pdf>.
- Climate Prediction Center (CPC). National Weather Service (NWS). U.S. Climate Divisions with Counties: New York State. Last Modified on 6 Jan. 2005. Accessed 2010 <http://www.cpc.noaa.gov/products/analysis_monitoring/regional_monitoring/CLIM_DIVS/new_york.gif>
- “Day 2 of the Nor’Easters Power.” Washington Township Fire Department Official News. Date Unknown. Accessed 2010 <<http://www.wtfd.org/eventspress/2007/April/4162007day2noreaster.htm>>.
- Department of Civil and Environmental Engineering (DCEE). Stanford University. National Performance of Dams Program (NPDP) Dams Directory (Database). Date Unknown. Accessed 2010 <<http://npdp.stanford.edu/npdp/home/damdir.htm>>.
- Dinicola, K. U.S. Geological Survey (USGS). The “100-Year Flood”. Last Modified 22 July 2009. Accessed 2010 <<http://pubs.usgs.gov/fs/FS-229-96/>>.
- Dombroski, D. R. New Jersey Geological Society (NJGS). Earthquake Risk in New Jersey. 1998. Accessed 2010 <<http://www.state.nj.us/dep/njgs/enviroed/eqrisk.htm>>.
- Donnelly, C. et al. U.S. Army Corps of Engineers (USACE). Coastal Overwash: Part One Overview of Process. Sept. 2004. <<http://www.wes.army.mil/rsm/pubs/pdfs/rsm-tn-14.pdf>>.
- Earth System Research Laboratory (ESRL)-Physical Sciences Division (PSD). National Oceanic and Atmospheric Administration (NOAA). Locations of US Climate Division. Date Unknown. Accessed 2010 <<http://www.cdc.noaa.gov/USclimate/map.html#New%20York>>.
- Energy Information Administration. Details of U.S. Climate Zones. 13 Jul. 2005. Accessed 2010 <http://www.eia.doe.gov/emeu/cbecs/climate_zones_explanation.html>.
- Enloe, J. National Climate Data Center (NCDC). National Oceanic and Atmospheric Administration (NOAA). The Northeast Snowfall Impact Scale - NESIS. Last Updated 4 Dec. 2007. Accessed 2009. <<http://www.ncdc.noaa.gov/oa/climate/research/snow-nesis/#rankings>>.
- Edwards, R. Storm Prediction Center (SPC). The Online Tornado FAQ. Last Modified 9 Jan. 2009. Accessed 2010 <[http://www.spc.noaa.gov/faq/tornado/#The %20Basics](http://www.spc.noaa.gov/faq/tornado/#The%20Basics)>.
- Emanuel, K. Massachusetts Institute of Technology. Is Climate Change Increasing Hurricane Activity?. Date Unknown. Accessed 2010 <http://www.esi.utexas.edu/outreach/ols/lectures/ppts/44_files/frame.html>.
- Estrin, J. “Storm Sweeps Through Metropolitan Region”. The New York Times 14 March 2010. Accessed 2010 <http://www.nytimes.com/slideshow/2010/03/14/us/20100314_STORM_4.html>.
- Federal Alliance for Safe Homes, Inc (FAST). Hail. 2006. Accessed 2010 <<http://www.blueprintforsafety.org/hail/hintro.aspx>>.

- Federal Emergency Management Agency (FEMA). Answers to Questions About the NFIP: Repetitive Loss Properties Strategy. Last Modified 8 Jun. 2006. Accessed 2010 <<http://www.fema.gov/business/nfip/replps.shtm#96>>.
- Federal Emergency Management Agency (FEMA). Answers to Questions about the NFIP: Flood Hazard Assessments and Mapping Requirements. Last Modified 8 Jun. 2006. Accessed 2010 <<http://www.fema.gov/business/nfip/fhamr.shtm#77>>.
- Federal Emergency Management Agency (FEMA). Disaster Information: Why Dams Fail. Last Modified 17 Apr. 2006. Accessed 2010 <<http://www.fema.gov/hazard/damfailure/why.shtm>>.
- Federal Emergency Management Agency (FEMA). DRAFT New York MMMS Business Plan Summary. Mar. 2006. Accessed 2010 <<http://www.fema.gov/library/viewRecord.do?id=2705>>.
- Federal Emergency Management Agency (FEMA). FEMA Are You Ready Guide: Flood Preparedness. Last Modified 11 Aug. 2010. Accessed 2010 <<http://www.fema.gov/areyouready/flood.shtm>>.
- Federal Emergency Management Agency (FEMA). Federal Guidelines for Dam Safety: Glossary of Terms (FEMA 148). Last Modified 11 Aug. 2010. Accessed 2010 <<http://www.fema.gov/plan/prevent/damfailure/fema148.shtm>>.
- Federal Emergency Management Agency (FEMA). Flood Insurance Study: Westchester, New York. 27 Sept. 2007.
- Federal Emergency Management Agency (FEMA). Frequently Asked Questions: Floodways. 5 Apr. 2006. Accessed 2010 <http://www.fema.gov/plan/prevent/fhm/fq_fld03.shtm>.
- Federal Emergency Management Agency (FEMA). HAZUS-MH Risk Assessment and User Group Series - Using HAZUS-MH for Risk Assessment: How-To Guide (FEMA 433) – Appendix B Glossary of Terms. Aug. 2004. Accessed 2010 <http://www.fema.gov/pdf/plan/prevent/hazus/fema433_appxb.pdf> or <<http://www.fema.gov/pdf/plan/prevent/hazus/fema433>>.
- Federal Emergency Management Agency (FEMA). Hazardous Materials. Last Modified 29 Mar. 2006. Accessed 2010 <<http://www.fema.gov/hazard/hazmat/index.shtm>>.
- Federal Emergency Management Agency (FEMA). How to Read a Flood Insurance Rate Map Tutorial. Developed Sept. 2000. Modified Jun. 2003. Accessed 2010 <http://www.fema.gov/pdf/fhm/ot_frmsb.pdf>.
- Federal Emergency Management Agency (FEMA). Multi-Hazard Identification and Risk Assessment (MHIRA). January 1997. Accessed 2010 <<http://www.fema.gov/library/viewRecord.do?id=2214>>.
- Federal Emergency Management Agency (FEMA). NFIP Manual: Community Rating System (CRS). Page CRS-1 through CRS-28. 1 May 2008. Accessed 2010 <<http://www.fema.gov/pdf/nfip/manual200805/19crs.pdf>>.
- Federal Emergency Management Agency (FEMA). National Flood Insurance Program: Frequently Asked Questions - Repetitive Loss. Oct. 2005. Accessed 2010 <http://www.fema.com/txt/rebuild/repetitive_loss_faqs.txt>.

- Federal Emergency Management Agency (FEMA). National Flood Insurance Program (NFIP): Summary of Coverage. Date Unknown. Accessed 2010
<http://www.fema.gov/pdf/nfip/summary_cov.pdf>.
- Federal Emergency Management Agency (FEMA). NFIP Manual: Special Procedures For Targeted Repetitive Loss Properties. Page RL-1 through RL-5. 1 May 2005. Accessed 2010
<<http://www.fema.gov/pdf/nfip/manual200510/20rl.pdf>>.
- Federal Emergency Management Agency (FEMA). New York Disaster History (1954 to 2010). Last Modified 12 July 2010. Accessed 2010 <http://www.fema.gov/news/disasters_state.fema?id=36>.
- Federal Emergency Management Agency (FEMA). News Release 1692-087: Disaster Assistance in New York's Westchester County Tops \$30 Million. 23 Jul. 2007. Accessed 2010
<<http://www.fema.gov/news/newsrelease.fema?id=38069>>.
- Federal Emergency Management Agency (FEMA). News Release 1692-097: New York Disaster Assistance Tops \$61 Million. 13 Aug. 2007. Accessed 2010
<<http://www.fema.gov/news/newsrelease.fema?id=38669>>.
- Federal Emergency Management Agency (FEMA). President Declares Major Disaster for The State of New York. 16 April 2010. Accessed 2010
<<http://www.fema.gov/news/newsrelease.fema?id=50972>>.
- Federal Emergency Management Agency (FEMA). Special Flood Hazard Areas (SFHA). 20 Apr. 2007. Accessed 2010 <<http://www.fema.gov/plan/prevent/floodplain/nfipkeywords/sfha.shtm>>.
- Federal Emergency Management Agency (FEMA). The National Flood Insurance Program. Last Modified 30 May 2008. Accessed 2010
<<http://www.fema.gov/about/programs/nfip/index.shtm>>.
- Federal Emergency Management Agency (FEMA). Federal Insurance and Mitigation Administration. National Flood Insurance Program Description. 1 Aug. 2002. Accessed 2010
<<http://www.fema.gov/library/viewRecord.do?id=1480>>.
- Federal Emergency Management Agency (FEMA). National Flood Insurance Program (NFIP): Flood Insurance Statistics. Country-Wide Loss Statistics 1978 Through 2010. Last Modified 30 June 2010. Accessed 2010 <<http://bsa.nfipstat.com/reports/1040.htm>> or
<<http://bsa.nfipstat.com/reports/1040.htm#34>>.
- Foster, S. A. The Kentucky Climate Center. Natural Hazards and Their Impacts on Agricultural and Urban Development in the Barren River Area. Date Unknown. Accessed 2010
<<http://kyclim.wku.edu/BRADD/>>.
- Frankenberg, D. "Hurricanes on sandy shorelines: Lessons for development." Carolina Environmental Diversity Explorations. Date Unknown. Accessed 2010
<http://www.learnnc.org/lp/editions/cede_hurricanes>.
- George Washington University (GWU). Institute for Crisis, Disaster, and Risk Management Web Newsletter. Dec. 2001. Accessed 2010 <<http://www.seas.gwu.edu/~emse232/emse232book>>.

- Governor Cuomo's Coastal Erosion Task Force Final Report Volume II. Suffolk County, New York. September 1994.
- Graham, W. J. U.S. Bureau of Reclamation. A Simple Procedure for Estimating Loss of Life From Dam Failure. Sept. 1999. Accessed 2010
<<http://www.environment.fi/download.asp?contentid=16864&lan=en>>.
- Groves, R. "N.J. is not immune to quakes". Lamont-Doherty Earth Observatory. 02 Mar. 2001. Accessed 2010 <http://www.ldeo.columbia.edu/news/2001/03-02-01_nj_quakes.html>.
- Harris, T. "How Floods Work". Howstuffworks.com. 2008. Accessed 2010
<<http://science.howstuffworks.com/flood.htm>>.
- Hauser, C. "Big Snowstorm Sets Record in New York and Disrupts Travel". New York Times 12 Feb. 2006. Accessed 2010 <http://www.nytimes.com/2006/02/12/nyregion/12cnd-storm.html?_r=2&oref=slogin&oref=slogin>.
- Hazards & Vulnerability Research Institute. University of South Carolina (USC), Department of Geology, Columbia, SC. Spatial Hazard Events and Losses Database for the United States (SHELDUS): Version 5.1. 12 Sept. 2007. Accessed 2010 <<http://www.cas.sc.edu/geog/hrl/SHELDUS.html>>.
- "Historical Snowstorms Impacting New York City." Weather 2000. Last Modified 31 May 2010. Accessed 2010 <http://www.weather2000.com/NY_Snowstorms.html>.
- "How Do Hurricanes Work?". Miami Museum of Science. 2000. Accessed 2010
<<http://www.miamisci.org/hurricane/howhurrwork.html>>.
- Hughes, C. "Scientists Seek Insight in Earthquake's Wake". Albany Times Union 22 April 2002. Custom Newspaper. Gale. Sussex County Library System. Accessed 2010.
- Ice Engineering Research Group, Cold Regions Research and Engineering Laboratory (CRREL). U.S. Army Corps of Engineers (USACE). Ice Jam Database, Bulletins and Surveys. Date Unknown. Accessed 2010 <<https://rsgis.crrel.usace.army.mil/icejam/>>.
- Intergovernmental Panel on Climate Change (IPCC). Working Group II to the Fourth Assessment Report - Climate Change Impacts, Adaptation and Vulnerability. Cambridge University Press. 2007. Accessed 2010 <<http://www.ipcc-wg2.org/>>.
- Intergovernmental Panel on Climate Change (IPCC). Working Group I: The Physical Science Basis of Climate Change. Cambridge University Press. 5 Sept. 2007. Accessed 2010 <<http://ipcc-wg1.ucar.edu/wg1/wg1-report.html>> or <<http://www.gtp89.dial.pipex.com/chpt.htm>>.
- Kim, W. "Largest Earthquakes Near New York City." Lamont-Doherty Earth Observatory of Columbia University. 1999. Accessed 2010 <<http://www.ldeo.columbia.edu/LCSN/big-ny-eq.html>>.
- Kocin, P. J., and Uccellini, L. W. National Oceanic and Atmospheric Administration (NOAA) National Climate Data Center (NCDC). A Snowfall Impact Scale Derived From Northeast Storm Snowfall Distributions. Original Version - 14 Oct. 2003. Provided by the American Meteorological Society, February 2004, Volume 85, P. 177-194. Accessed 2010
<<http://www.ncdc.noaa.gov/oa/climate/research/snow-nesis/kocin-uccellini.pdf>>.

- Lamontagne, M. and Halchuck, S. Geological Survey of Canada. An overview of damage due to the eastern Canadian earthquakes of 1925, 1929, 1935, 1944 and 1938. 2001. Accessed 2010 <http://earthquakescanada.nrcan.gc.ca/historic_eq/20th/1944_e.php>.
- Leonard Jackson Associates. Hydraulic Analyses of the Hutchinson River and Potential Improvements. 25 March 2008.
- Lehigh Earth Observatory. Earthquakes in Pennsylvania? Lehigh University. 2006. Accessed 2010 <<http://www.leo.lehigh.edu/projects/seismic/pennquakes.html>>.
- “Long Island Sound Watershed.” Green-CT. Date Unknown. Accessed 2010 <<http://www.greenct.org/LONGIS~1.HTM>>.
- Lott, N. Research Customer Service Group. National Climate Data Center (NCDC). The Big One! A Review of the March 12-14, 1993 "Storm of the Century" 14 May 1993. Accessed 2010 <<ftp://ftp.ncdc.noaa.gov/pub/data/techrpts/tr9301/tr9301.pdf>>.
- Louie, J. N. Nevada Seismological Laboratory. University of Nevada, Reno. The Modified Mercalli Scale of Earthquake Intensity. 10 Oct. 1996. Accessed 2010 <<http://www.seismo.unr.edu/ftp/pub/louie/class/100/mercalli.html>>.
- Mandia, S. A. . State University of New York (SUNY). Department of Physical Sciences. “The Great Hurricane of 1938 – The Long Island Express.” Professor Mandia. Last Modified 16 June 2010. Accessed 2010 <<http://www2.sunysuffolk.edu/mandias/38hurricane/>>.
- McNoldy, B. Multi-Community Environmental Storm Observatory, Inc (MESO) 1998-2007. Date Unknown. Accessed 2010 <<http://www.mcwar.org/>>.
- Michigan Tech University. "Modified Mercalli Intensity Scale." UPSeis. Last Modified 16 Apr. 2007. Accessed 2010 <<http://www.geo.mtu.edu/UPSeis/Mercalli.html>>.
- Miller, K. Special Reports: Storms of the Century - #3 - 1993 Superstorm: Part 1-3. The Weather Channel Interactive, Inc. 1995-2007. Accessed 2010 <<http://www.weather.com/newscenter/specialreports/sotc/storm3/page1.html>>.
- Multi-Community Environmental Storm Observatory (MESO). Nor'Easters: Comprehension, Preparation, Survival. Oct. 2002. Accessed 2010 <<http://www.mcwar.org/articles/noreasters/NorEasters.html>>.
- National Atlas of the United States. Historical Tropical Cyclone Tracks. Last Modified 17 Sept. 2009. Accessed 2010 <<http://nationalatlas.gov/mld/huralll.html>>.
- National Aeronautics and Space Administration (NASA). Earth Observatory. Professor Develops Classification System for Eastern and Central U.S. Winter Storms. 7 Jan. 2002. Accessed 2010 <<http://earthobservatory.nasa.gov/Newsroom/view.php?id=22128>>.
- National Climate Data Center (NCDC). National Oceanic and Atmospheric Administration (NOAA). Billion Dollar U.S. Weather Disasters. Last Modified 3 Feb. 2010. Accessed 2010 <<http://www.ncdc.noaa.gov/oa/reports/billionz.html#chron>>.

- National Climatic Data Center (NCDC). National Oceanic and Atmospheric Administration (NOAA). National Environmental Satellite, Data, and Information Service (NESDIS). National Climatic Data Center Climate Monitoring. Last Modified 17 Aug. 2010. Accessed 2010 <<http://www.ncdc.noaa.gov/oa/climate/research/monitoring.html>>.
- National Climatic Data Center (NCDC). National Oceanic Atmospheric Administration (NOAA), National Environmental Satellite, Data, and Information Service (NESDIS). NCDC Storm Event Database (by State) January 1950 Through May 2010. 2010. Accessed 2010 <<http://www4.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwEvent~Storms>>.
- National Hurricane Center (NHC). National Oceanic and Atmospheric Administration (NOAA). The Saffir-Simpson Hurricane Scale. Last Modified 17 Feb. 2010. Accessed 2010 <<http://www.nhc.noaa.gov/aboutsshs.shtml>>
- National Severe Storms Laboratory (NSSL). National Oceanic Atmospheric Administration (NOAA). Hail Climatology: What areas have the most hail? Date Unknown. Accessed 2010 <http://www.nssl.noaa.gov/primer/hail/hail_climatology.html>.
- National Severe Storms Laboratory (NSSL). National Oceanic Atmospheric Administration (NOAA). Severe Weather Primer: Questions and Answers About Winter Weather: Damages and Impacts. 10 Oct. 2006. Accessed 2010 <http://www.nssl.noaa.gov/primer/winter/ww_damage.html>.
- National Weather Service (NWS). National Oceanic Atmospheric Administration (NOAA). Blizzard of '96. Dec. 1996. Accessed 2010 <<http://www.nws.noaa.gov/om/assessments/pdfs/bz-mrg.pdf>>.
- National Weather Service (NWS). National Oceanic Atmospheric Administration (NOAA). Albany, NY. Major Winter Storms. Date Unknown. Accessed 2010 <<http://www.erh.noaa.gov/aly/Past/WINTER.htm>>.
- National Weather Service (NWS). National Oceanic and Atmospheric Administration (NOAA). Winter Storm - the Deceptive Killer: a Preparedness Guide. Dec. 2001. Accessed 2010 <<http://www.nws.noaa.gov/om/winterstorm/winterstorms.pdf>>.
- National Weather Service (NWS). National Oceanic Atmospheric Administration (NOAA). Tornadoes...Nature's Most Violent Storms. Feb. 1995. Accessed 2010 <<http://www.nssl.noaa.gov/edu/safety/tornado.pdf>>.
- National Weather Service (NWS). National Oceanic Atmospheric Administration (NOAA). National Weather Service Glossary. Last Modified 25 June 2009. Accessed 2010 <<http://www.weather.gov/glossary/>>.
- National Weather Service (NWS). National Oceanic Atmospheric Administration (NOAA). New York, NY. Public Information Statement. 16 April 2007. Accessed 2010 <<http://www.erh.noaa.gov/er/okx/readtext.php?file=pns/04162007.txt>>.
- National Weather Service (NWS). National Oceanic Atmospheric Administration (NOAA). Windchill: Frequently Asked Questions, Terms and Definitions. Last Modified 17 Dec. 2009. Accessed 2010 <<http://www.weather.gov/om/windchill/>>.

- National Weather Service (NWS). National Oceanic Atmospheric Administration (NOAA). Flood Safety. Last Modified 9 Sept. 2009. Accessed 2010
<<http://www.weather.gov/floodsafety/floodsafe.shtml>>.
- National Weather Service (NWS). National Oceanic Atmospheric Administration (NOAA). Tornado Watch. 10 June 2008.
- New Jersey State Office of Emergency Management (NJOEM). Building a Safer New Jersey: The State of New Jersey Hazard Mitigation Plan (NJ HMP). Apr. 2005. Accessed 2010
<<http://www.njmit.net/njshmp/>>.
- “New Rochelle Facts.” Downtown Business District New Rochelle. 2010. Accessed 2010
<<http://www.newrochelledowntown.com/facts/>>.
- New York City. “Hurricanes and New York City.” What If New York City... Date Unknown. Accessed 2010 <<http://www.nyc.gov/html/whatifnyc/html/purpose/hurricanes.shtml>>.
- New York City Office of Emergency Management (NYCOEM). NYC Hazards: Coastal Storm Basics. 2008. Accessed 2010 <http://www.nyc.gov/html/oem/html/hazards/storms_terms.shtml>.
- New York State Climate (NYSC) Office. The Climate of New York. Date Unknown. Accessed 2010
<http://nysc.eas.cornell.edu/climate_of_ny.html>.
- New York State Department of Environmental Conservation (NYSDEC). Article 34 Environmental Conservation Law – Coastal Erosion Hazard Areas (Chapter 841, Laws of 1981; Effective Date July 27, 1981) including 1985 amendments.
- New York State Department of Environmental Conservation (NYSDEC). “Coastal Erosion Management.” 6 NYCRR 505.2. 1988. Accessed 2010
<<http://www.dec.ny.gov/regs/4470.html>>.
- New York State Department of Environmental Conservation (NYSDEC). Information for Applicants and Application for State Assistance Payments for Dam Safety Projects. 11 May 2006. Accessed 2010 <<ftp://ftp.dec.state.ny.us/dow/wqip/damapp6111.doc>>.
- New York State Department of Environmental Conservation (NYSDEC). Watersheds, Lakes, Rivers. Date Unknown. Accessed 2010 <<http://www.dec.ny.gov/lands/26561.html>>.
- New York State Department of Environmental Conservation (NYSDEC). Unified Watershed Assessment and Watershed Protection and Restoration. 1998. Accessed 2010
<<http://www.dec.ny.gov/lands/34488.html#Unified>>.
- New York State Department of Labor. Metropolitan and Micropolitan Areas in New York State. 2003. Accessed 2010 <http://www.labor.ny.gov/stats/PDFs/Metro_Micro_Areas_NYS.pdf>.
- New York State Department of Transportation. Urban Area Boundaries. Date Unknown. Accessed 2010
<<https://www.nysdot.gov/divisions/policy-and-strategy/darb/dai-unit/ttss/urban-area-boundaries>>.
- New York State Disaster Preparedness Commission (NYSDPC). Draft New York State Comprehensive Emergency Management Plan (Volume 1). New York State Standard Multi-Hazard Mitigation

- Plan. New York State Emergency Management Office (NYSEMO). 2008. Accessed 2010 <<http://www.semo.state.ny.us/programs/planning/hazmitplan.cfm>>.
- New York State Emergency Management Office (NYSEMO). History of Declared Federal Emergencies and Disasters in New York State. 2009. Accessed 2010 <<http://www.semo.state.ny.us/programs/recovery/history.cfm>>.
- New York State Emergency Management Office (NYSEMO). NYC Hazards: Coastal Storm Basics. 2010. Accessed 2010 <http://www.nyc.gov/html/oem/html/hazards/storms_terms.shtml>.
- New York Sea Grant. Theme Areas - Coastal Processes & Hazards. Date Unknown. Accessed 2010 <<http://www.seagrant.sunysb.edu/article.asp?ArticleID=69>>.
- Northern Virginia Regional Commission (NVRC). Northern Virginia Regional Hazard Mitigation Plan. March 2006. Accessed 2010 <<http://www.novaregion.org/HMPFinal/>>.
- North Shore Wx. Climate: North Shore and Regional Climate Statistics. 11 May 2008. Accessed 2010 <<http://www.northshorewx.com/ClimateStatistics.asp>>.
- Office of the Federal Coordinator for Meteorology. National Severe Local Storms Operation Plan. May 2001. Accessed 2010 <<http://www.ofcm.gov/slso/pdf/slsofdwpt.pdf>>.
- O'Brien, D. New York State Emergency Management Office. "Suffolk County NEHRP Soil Data". E-mail to Jonathan Raser (Tetra Tech EM Inc.). 25 July 2008.
- O'Neill, C. R. New York Sea Grant. The New York State Coastal Erosion Hazard Act. 1989. <<http://www.nysgextension.org/glhabitat/epacd/pages/regulations/erosionactpdf.pdf>>.
- Pacific Disaster Center. "All About Tropical Cyclone." Web log post. All About Tropical Cyclone. 5 Dec. 2006. Accessed 2010 <<http://allabouttropicalcyclone.blogspot.com/>>.
- Pasfield, K. Seismological Analysis and the Effects of Earthquakes in New York and Long Island. SUNY Stonybrook. Date Unknown. Accessed 2010 <http://www.geo.sunysb.edu/lig/Conferences/abstracts_00/Pasfield/Pasfield_abs.htm>.
- Pidwirny, M. "Thunderstorm." The Encyclopedia of the Earth. Ed. Howard Hanson. Last Modified 3 July 2008. Accessed 2010 <<http://www.eoearth.org/article/Thunderstorm>>.
- Rasmusson, K. N. Probabilistic Analysis of Social and Economic Losses Due to Large Earthquakes in New England. Thesis. Boston College, 2003.
- Rubenstein, C. "Charley, Jeanne and the Others, Dishing Dirt on Floyd". New York Times 10 Oct. 2004. Accessed 2010 <http://www.nytimes.com/2004/10/10/nyregion/10WE.html?_r=3&oref=slogin&oref=slogin&oref=slogin>.
- Steinberg, J. "The Blizzard of '93: Westchester; Sighs of Relief and Exhaustion." New York Times 15 Mar. 1993. Accessed 2010 <<http://query.nytimes.com/gst/fullpage.html?res=9F0CE0DA173CF936A25750C0A965958260>>

- Savadove, L., and Bucholz, M. T. Great Storms of the Jersey Shore. West Creek: Down the Shore, 1983.
- Shipkowski, B. “Rain storm hinders commuters in Northeast”. Salon.com. 15 March 2010. Accessed 2010 <http://www.salon.com/wires/allwires/2010/03/15/D9EF0HPG3_us_stormy_weather/>.
- South Carolina Sea Grant Consortium. “Hazards - Coastal Erosion Description.” HazNet – the Site for Coastal Natural Hazards. 2005. Accessed 2010 <http://www.haznet.org/haz_hazards/hazard_erosion.htm>.
- State of Maine. Department of Conservation. Maine Geological Survey. Reading Coastal Bluffs Maps.
Last Modified 6 Oct. 2005. Accessed 2010 <<http://www.maine.gov/doc/nrimc/mgs/mapuse/bluffs/bluff-read.htm>>.
- Storm Prediction Center (SPC). National Oceanic and Atmospheric Administration (NOAA). The Enhanced Fujita Scale (EF Scale). Last Modified 17 June 2009. Accessed 2010 <<http://www.spc.noaa.gov/efscale/>>.
- “Storms and Flooding”. Westchestergov.com. Last Modified 10 May 2010. Accessed 2010 <http://keepingsafe.westchestergov.com/index.php?option=com_content&task=view&id=2560&Itemid=4428>.
- Stover, C. W., and Coffman J. L. U.S. Geological Survey (USGS). Historic Earthquakes: Cape Ann, Massachusetts. 1993. Accessed 2010 <http://earthquake.usgs.gov/regional/states/events/1755_11_18.php>.
- Stuart, N.A. et al. The Use of Ensemble and Anomaly Data To Anticipate Extreme Flood Events in the Northeastern U.S. Date Unknown. Accessed 2010 <http://www.erh.noaa.gov/box/papers/HeavyrainspreprintWAF_stuart.pdf>.
- The Illinois Association for Floodplain and Stormwater Management. Section 1 Natural Aspects of Flooding: Part 1 Flooding and Floodplain Management. Mar. 2006. Accessed 2010 <http://www.illinoisfloods.org/documents/home_study_course/1%20Natural%20Aspects%20of%20Flooding.pdf>.
- “The Northeast Blizzard of 1978.” Long Island Hurricane History. Date Unknown. Accessed 2010 <<http://www.hurricanes-blizzards-noreasters.com/78blizzard.html>>.
- Tantala, M. et al.. The New York City Consortium for Earthquake Loss Mitigation (NYCEM) Earthquake Risks and Mitigation in New York, New Jersey, and Connecticut Region. 2003. Accessed 2010 <<http://nycem.org/techdocs/FinalReport/03-SP02p.pdf>>.
- The Tornado Project. The Fujita Scale. Date Unknown. Accessed 2010 <<http://www.tornadoproject.com/fscale/fscale.htm>>.
- The Tornado Project. Worst Tornadoes. 2003. Accessed 2010 <<http://www.tornadoproject.com/alltorns/worstts.htm>>.
- Tilghman, A. “Federal Aid Sought for Quake Damage”. Albany Times Union 27 April 2002. Custom Newspaper. Gale. Sussex County Library System. Accessed 2010.

- The Weather Channel. Averages and Records. 1995-2010. Accessed 2010
<<http://www.weather.com/common/home/climatology.html>>.
- Tobin, M. "Earthquakes and the Ramapo Fault System in Southeastern New York State." Lamont-Doherty Earth Observatory. 30 Apr. 2004. Accessed 2010
<http://www.ldeo.columbia.edu/news/2004/04_30_04.htm>.
- "United States Landfalling Hurricane Probability Project." Landfalling Hurricane Probability Project. Date Unknown. Accessed 2010 <<http://www.e-transit.org/hurricane/welcome.html>>.
- U.S. Army Corps of Engineers (USACE). Survey Engineering and Mapping Center. "National Inventory of Dams." Date Unknown. Accessed 2010
<<http://crunch.tec.army.mil/nidpublic/webpages/nid.cfm>>.
- U.S. Census Bureau. 2008 Zip Code Business Patterns (NAICS). 2008. Accessed 2010
<<http://censtats.census.gov/cgi-bin/zbpnaic/zbpsect.pl>>.
- U.S. Census Bureau. Population Finder: New Rochelle, New York. 2010. Accessed 2010
<http://factfinder.census.gov/servlet/SAFFPopulation?_event=Search&_name=new+rochelle&_state=&_county=new+rochelle&_cityTown=new+rochelle&_zip=&_sse=on&_lang=en&pctxt=fph>.
- U.S. Environmental Protection Agency (USEPA). Extreme Events: Abrupt Climate Change. Last Modified 8 Sept. 2009. Accessed 2010
<<http://www.epa.gov/climatechange/effects/extreme.html>>.
- U.S. Environmental Protection Agency (USEPA). Future Climate Change. Last Modified 19 Aug. 2010. Accessed 2010 <<http://epa.gov/climatechange/science/futurecc.html>>.
- U.S. Environmental Protection Agency (USEPA). "Westchester County." Surf Your Watershed. Last Modified 9 Sept. 2010. Accessed 2010
<http://cfpub.epa.gov/surf/county.cfm?fips_code=36119>.
- U.S. Environmental Protection Agency (USEPA). National Estuaries Program. Long Island Sound (NEP Profile). Last Modified 22 Jan. 2010. Accessed 2010
<<http://www.epa.gov/owow/estuaries/programs/lis.html>>.
- U.S. Environmental Protection Agency (USEPA). Office of Policy, Planning and Evaluation. Climate Change and New York (EPA-230-F-97-008ff). Sept. 1997. Accessed 2010
<[http://yosemite.epa.gov/OAR/globalwarming.nsf/UniqueKeyLookup/SHSU5BVJR6/\\$File/ny_impct.pdf](http://yosemite.epa.gov/OAR/globalwarming.nsf/UniqueKeyLookup/SHSU5BVJR6/$File/ny_impct.pdf)>.
- U.S. Environmental Protection Agency (USEPA). Climate Change-Science: Future Temperature Changes. Last Modified 20 Dec. 2007. Accessed 2010
<<http://www.epa.gov/climatechange/science/futuretc.html>>.
- U.S. Geological Survey (USGS). Earthquakes. By K.M. Shedlock and L.C. Pakiser. 23 October 1997. Accessed Nov. 2008 <<http://pubs.usgs.gov/gip/earthq1/>>.

- U.S. Geological Survey. National Assessment of Coastal Vulnerability to Sea-Level Rise: Preliminary Results for the U.S. Atlantic Coast; Discussion: New York to New Jersey Region. Last Modified 14 Sept. 2001. Accessed 2010 <<http://pubs.usgs.gov/of/1999/of99-593/pages/ny.html>>.
- U.S. Geological Survey. National Assessment of Coastal Vulnerability to Sea-Level Rise: Preliminary Results for the U.S. Atlantic Coast. 14 Sept. 2001. Accessed 2010 <<http://pubs.usgs.gov/of/1999/of99-593/pages/cvi.html>>.
- U.S. Geological Survey (USGS). The Richter Magnitude Scale. 1989. Accessed Nov. 2008 <<http://earthquake.usgs.gov/learning/topics/richter.php>>.
- U.S. Geological Survey (USGS). "Visual Glossary." Earthquake Hazard Program. Last Modified 16 July 2008. Accessed 2010 <<http://earthquake.usgs.gov/learning/glossary.php?alpha=ALL>>.
- U.S. Geological Survey. Woods Hole Science Center. U.S. Geological Survey Studies in the New York Bight. Last Modified 1 Sept. 2009. Accessed 2010 <<http://woodshole.er.usgs.gov/project-pages/newyork/>>.
- U.S. Geological Survey (USGS). Programs in New York. 16 May 1996. Accessed Jun. 2008 <<http://water.usgs.gov/wid/html/ny.html#HDR4>>.
- U.S. Geological Survey (USGS). The Highlands Province. 22 July 2003. Accessed 2010 <<http://3dparks.wr.usgs.gov/nyc/highlands/highlands.html>>.
- University of Illinois at Urbana-Champaign. Department of Atmospheric Sciences. Tropical Storms. Date Unknown. Accessed 2010 <[http://ww2010.atmos.uiuc.edu/\(Gh\)/guides/mtr/hurr/stages/ts.rxml](http://ww2010.atmos.uiuc.edu/(Gh)/guides/mtr/hurr/stages/ts.rxml)>.
- Westchester County. Watersheds: Nature's Way of Dividing Up the Landscape. Date Unknown. Accessed 2010 <http://www.westchestergov.com/printerfriendly/environment_watersheds.htm>.
- Westchester County Geographic Information Systems (GIS). Interactive Maps - Mapping Westchester County. Date Unknown. Accessed 2010 <<http://giswww.westchestergov.com/gismap/viewer.aspx>> or <<http://giswww.westchestergov.com/>>.
- Westchester County Geographic Information Systems (GIS). Westchester County Land Use/ Land Cover. 1999. Accessed 2010 <<http://giswww.westchestergov.com/>>.
- "What is a Flood". FloodSmart.gov. Last Modified 26 Aug. 2010. Accessed 2010 <http://www.floodsmart.gov/floodsmart/pages/flooding_flood_risks/ffr_overview.jsp>
- Zhang, K., et al. "Do Storms Cause Long-Term Beach Erosion Along the U.S. East Barrier Coast?" The Journal of Geology Volume 110, P 493-502 (2002). 2006. Accessed 2010 <<http://www.journals.uchicago.edu/JG/journal/issues/v110n4/020408/brief/020408.abstract.html>>.
- Zielinski, G. A. Climate Change Institute. University of Maine (UMaine). UMaine Today: Categorizing Winter Storms. Jan.-Feb. 2003. Accessed 2010 <<http://www.climatechange.umaine.edu/Research/news/winterstorms.html>>.