

Warren County Pre-Disaster Multi-Jurisdictional Hazard Mitigation Plan

January 2010

September 2010

Revised

Prepared for the County of Warren

by

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**WARREN COUNTY PRE-DISASTER MULTIJURISDICTIONAL HAZARD
MITIGATION PLAN**

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Executive Summary

The Draft Warren County Pre-Disaster Multi-Jurisdictional Hazard Mitigation Plan November 2009, (the Plan) is to be reviewed by NY State Emergency Management Office personnel.

All towns and villages within the county of Warren participated in the planning process and the review of the draft Plan. Copies of each jurisdiction's resolution of adoption of the Plan are to be attached at the end of the plan document, hard copy, as soon as they are available. Resolutions will be passed when notice is received of the FEMA "Approvable Plan" status.

Warren County Pre-Disaster Multi-Jurisdictional Hazard Mitigation Planning meeting attendees are listed in Appendix A documenting each jurisdiction's participation in the planning process. Invitees (*in totem*) to the meetings convened for the planning process are listed in Appendix A also. Memos and records of calls, follow up calls and other outreach is included in Appendix F. Individual municipality and cognizant municipal department responses, are included in Appendix C. Each municipality's awareness and involvement of the planning process, plan development and participation in the Plan is represented by the Municipal Response Summary Table in Appendix C. Further record of community involvement and participation is noted by records from the NY HAZNY meetings held in the county. (The NY HAZNY meetings were not limited in scope to the software provided, but included anecdotal input, comments and concerns from each jurisdiction; this provided an added dimension to pre-planning – all input was invited and noted in meeting minutes and later utilized to create the draft list of hazards as a point-of-beginning to initiate planning meetings – the draft hazard list is included in Appendix B.)

The Local Emergency Planning Committee (LEPC) led by the Emergency Services Director/Fire Coordinator and his deputy performed oversight for, and participated in, the planning process. Committee member attendees to the planning meetings are listed on the sign-in sheets. The LEPC primary role in the planning process was/is oversight and review of information gathering and upon NY SEMO and FEMA acceptance of the draft plan, will provide plan maintenance and update duties as noted in the Draft Plan.

Coordination with Agencies is noted in the plan citing (among other agencies) the Adirondack Park Agency (APA) role of land-use management for much of Warren County. The APA participated in the planning process and remains the cognizant authority for land use under its jurisdiction, as well as an active partner in development and maintenance of the Plan. (Local (municipal) Comprehensive and Consolidated plans remain the only other planning sources for land use and they are implemented in conjunction with local codes and zoning regulations. Municipalities are charged with the task of updating and maintaining their local Comprehensive and Consolidated plans for the purpose of Plan maintenance and future review when funding resources are available for such work.)

Development in areas outside of the APA is governed by each local jurisdiction and their planning and zoning requirements, as well as county, regional (APA), state (Departments of Transportation, Health, State, *et al.*) and federal regulations, such as flood zones regulations and guidelines.

The Warren County Multi-Jurisdictional Hazard Mitigation Plan is comprised of three main sections. Section I is the plan narrative. Within the narrative is a description of the hazard mitigation planning process including the participants, their involvement and a timetable of events. The Background portion of Section I provides an overview of Warren County: economy, population, land use, government. Risk assessment and hazard profiles follow in Section I and is based primarily on data provided by the LEPC, NOAA, NYS Hazard Mitigation Plan, and FEMA, as well as information provided by county, town and village historians, and other anecdotal information.

Mitigation Actions corresponding to hazards and vulnerabilities follow in Section I listing specific mitigation actions, responsible persons, tentative cost estimates and a time frame for the mitigation actions. The final portion of Section I details how and when the Plan will be monitored and maintained, including periodic updates. Lastly, the Plan incorporates several appendices (A-I) that provide documentation of participants and their roles, Plan development records, resources to be utilized and potential funding sources for implementation of future planning and mitigation actions.

Section II, the Jurisdictional Annex, provides background information for each of the thirteen jurisdictions in the county (the city of Glens Falls is grouped with the Town of Queensbury and the Village of Lake George is grouped with the Town of Lake George). Along with background data, each jurisdiction's piece provides at least one mitigation action plan including the specific location(s) and cost estimate(s). The Jurisdictional Annex includes critical facilities maps, floodplain maps, wildfire fuel analysis maps and flood loss estimates for each jurisdiction.

Section III documents the various methods used to elicit information from the jurisdictions in order to determine risks and vulnerabilities that would lead to appropriate hazard mitigation planning for Warren County and the jurisdictions therein.

Warren County Pre-Disaster Multi-Jurisdictional Hazard Mitigation Plan

**Draft
November 2009
Revised July 2010**

Revised September 2010

**Prepared for the County of Warren and the
Warren County Office of Emergency Services**

by
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The *Warren County Multi-Jurisdictional All Hazard Mitigation Plan* is prepared in response to The Disaster Mitigation Act of 2000 (DMA 2000). DMA 2000 (also known as Public Law 106-390) improves the disaster planning process by increasing hazard mitigation planning requirements for hazard events. DMA 2000 requires states and local governments to prepare hazard mitigation plans to document their hazard mitigation planning process and identify hazards, potential losses, and mitigation needs, goals, and strategies. This type of planning supplements already strong disaster response, recovery, and relief capabilities.

The *Warren County Multi-Jurisdictional Hazard Mitigation Plan* is being developed as part of an ongoing pre-disaster preparedness planning process in Warren County. The county has an Emergency Response Personnel (ERPC) team that is authorized to promote policies, programs and activities to reduce hazard risks in their area of responsibility. Examples of the above include:

- Encouraging municipalities to adopt comprehensive community development plans, zoning ordinances, subdivision regulations, emergency management plans, and building codes that factor in the potential significant local hazard threats in the County.
- Promoting compliance with, and enforcement of, existing laws, regulations and codes that are related to hazard risks, e.g. building and fire codes, flood plain regulations
- Encouraging and assisting water and wastewater treatment plants to replace chlorine use with a safer disinfectant
- Encouraging and participating in municipal stream channel maintenance programs
- Encouraging state and local DOT's to address dangerous conditions on roads used by hazardous materials carriers

In 2003 the county completed the *Warren County Comprehensive Emergency Management Plan*. While the *Comprehensive Emergency Management Plan* identified three phases of comprehensive emergency management (prevention, response, and recovery), its primary focus remains on response and recovery readiness. As part of the continuing effort to support communities by promoting secure working and living spaces, a healthy environment, and a vigorous economy, Warren County developed the *Warren County Multi-Jurisdictional Hazard Mitigation Plan* to purposely address hazard mitigation.

While the *Warren County Comprehensive Emergency Management Plan* focuses on emergency response in the event of a disaster and the county's HAZNY report helped to identify the immediate hazards that threaten its communities, the *Warren County Multi-Jurisdictional Hazard Mitigation Plan* (the Plan) provides the framework for the county,

and each jurisdiction, to implement actions to mitigate the most damaging impacts of the natural hazards which most threaten the communities based upon local hazard history and vulnerabilities therein. The Plan contains records of the planning process including the organizational process, the hazard risk assessment process, the hazard mitigation strategies developed, and how the county will maintain the Plan to ensure that it is periodically evaluated and updated, and that it is incorporated into, or considered when other planning mechanisms are in development.

Prior to beginning the Warren County Multi-Jurisdictional Hazard Mitigation Plan development process, Warren County Office of Emergency Services, with the assistance of NYS regional officials, County Fire, Police and Health services (Appendix B) conducted a hazard analysis for the county using the automated HAZNY (Hazard New York) program in June 2007. The HAZNY process established a relevant starting point for a detailed risk assessment; the HAZNY process also heightened awareness and understanding of hazard vulnerability within Warren County. In addition, local support for developing a plan to confront hazards *before* they strike was fostered. (Appendix B)

The County of Warren, eleven participating towns therein, and the City of Glens Falls and the Village of Lake George intend to implement the Plan by coordinating the efforts of all the partners (list). This collaboration will decrease the cost of plan development by each jurisdiction and the cost of implementation. During this process the County, Towns, City, and Village established partnerships and the rapport needed for mitigation planning and the mitigation actions to be taken within the County.

Participating Jurisdictions

Town of Bolton	Town of Chester
Town of Hague	Town of Horicon
Town of Johnsbury	Town of Lake George
Town of Lake Luzerne	Town of Queensbury
Town of Stony Creek	Town of Thurman
Town of Warrensburg	City of Glens Falls
County of Warren	Village of Lake George

The local jurisdictions have the primary responsibility for the development and implementation of mitigation policies and strategies. However, several resources are available at the state and federal levels to assist the local governments in these endeavors. NYSEMO is the agency in New York State with planning assistance and guidance available to the local jurisdictions. FEMA provides grants, grant aids, planning tools and training in support of mitigation planning. The *Warren County Multi-Jurisdictional Hazard Mitigation Plan* was established according to the guidelines listed below.

Acts, laws, and guidance used to support plan development include:

DMA 2000 (Public Law 106-390, October 10, 2000)

FEMA. 2004. "How-To Guide for Using HAZUS-MH for Risk Assessment." FEMA Document No. 433. February.

FEMA Mitigation Planning How-to Series (FEMA 386-1 through 4, 2002), available at:
[://www.fema.gov/fima/planhowto](http://www.fema.gov/fima/planhowto).

SEMO Guidance (provided in 2003)

Planning Process

The planning process and results are documented in the Plan. Warren County, the eleven Towns, City of Glens Falls and the Village of Lake George partnered in the process to accomplish the following:

- Establish a planning committee
- Identify hazards of concern
- Profile hazards of concern
- Estimate the risk of occurrence of hazards of concern
- Estimate potential losses for hazards of concern
- Develop mitigation strategies/goals/actions to reduce the effects of the hazards that impact the jurisdictions in the County
- Establish Plan Maintenance procedures to be used after adoption and approval of the Plan

Planning Meetings

Fall of 2008 - The Warren County Board of Supervisors through the Office of Emergency Services (OES) contracted with Friends of the North Country, Inc., (Friends) a non-profit community development agency, to assist the county in developing the Pre-Disaster Multi-Jurisdictional Hazard Mitigation Plan. The organizational meeting for the development of the Warren County Multi-Jurisdictional Hazard Mitigation Plan was held in October between the OES, NYS Emergency Management Office personnel, and Friends. The importance of public involvement in developing and gaining support for a meaningful plan was recognized. Public support for a project is best achieved by engaging them in the planning process from the beginning. Also, residents and officials in the local communities are the most knowledgeable about their locale and the hazards that have historically threatened or affected their communities. They are also most familiar with the specific locations/properties that are vulnerable. The public needs to be aware of potential hazards in their communities, so they can take measures themselves to protect their property.

Initially public participation was encouraged through public meetings and publicly posted notices. Public notices were issued in all the jurisdictions at the outset of the planning process to invite participation in the planning meetings and solicit public input. As the draft plan evolved the sections were made available to the Planning Committee (Appendix A).

In November 2008 an invitation was sent via direct mail (USPS) to every town and county jurisdiction political official, school administrators from every grade school as

well as college, volunteer fire/emergency personnel from each jurisdiction, law enforcement, utilities administrators, agencies and other key informants notifying them of the hazard mitigation planning process and regional meetings that were scheduled to explain the process, ask for their input, and answer questions. The general public was invited by way of public notices posted in all jurisdictions. State and regional transportation, land use management, utility, emergency representatives were invited to attend. (Appendix A) Included in the invitation was a request for the invitees to provide information regarding hazard risks, critical facilities and a hazards history specific to their jurisdiction by completing worksheets designed to elicit information prior to the meeting. In an effort to encourage attendance at the meetings, two informational meetings were held in mid-November (November 18, 2008) one at the Sheriff's Office Training Center in Lake George and the second at the Chestertown Town Hall. The Regional SEMO Director presented an overview of the process including the need for a hazard mitigation plan. The consultant discussed with participants the type of information needed to complete a meaningful plan and the importance of the towns and county agencies involving themselves in the process. Participants were encouraged to complete the three handouts (included in previous mailing) by listing critical facilities, hazard risks, and hazard histories. The consultant requested a list of projects from each jurisdiction that would promote disaster mitigation within their jurisdiction.

At the November 21, 2008 Warren County Board of Supervisors meeting the same forms with a cover letter of introduction to the project was distributed to all attendees. Follow up telephone calls to town supervisors and highway departments were made during the month of December (1-4) 2008 (Appendix F) culminating with the consultant attending the Warren County Board of Supervisors meeting on December 19th to reiterate the significant value of their input in the process. The suggestion was made that each town designate a contact person for the plan. The contact person continued to be the Town Supervisor. A separate request for information was mailed to the town historians (Appendix A) for anecdotal information on disasters with in their region. A follow up letter was sent to each supervisor requesting information be forwarded to the consultant.

A Planning Committee (Emergency Response and Preparedness Committee ERPC) was formed by the Office of Emergency Services early in December 2008. (Appendix A) This group functioned as a review panel, providing valuable insight with suggestions after reviewing sections of the draft plan as it became available. The Office of Emergency Services acted as the County Hazard Mitigation Coordinator. Contact between the Coordinator and the consultant was frequent, with the County Coordinator assisting with organizing meetings, data gathering and reviewing each portion of the draft plan. Contacts with Planning Committee members and continuous communication regarding each draft section, and any committee input came via this office to the consultant. Informal discussions via email/telephone were held between committee members with the Mitigation Coordinator acting as a conduit to the consultant. After reviewing the Plan, the Warren County Planning Board representative on the mitigation planning committee provided mapping suggestions and clarifications. Following receipt and review the draft plan in its entirety, the Committee met to formalize revisions to the Plan (October 16, 2009)

ERPC COMMITTEE

- EMS Coordinator/Coroner, Office of Emergency Services
- Director, Warren County Social Services
- Director/ Fire Coordinator, Office Of Emergency Services
- Bio Terrorism Coordinator, Warren County Public Health
- Chief Deputy, Warren County Sheriff's Office
- Director, American Red Cross
- GIS Coordinator, Planning Department
- Deputy Director, Office of Emergency Services
- City Engineer, City of Glens Falls
- Assistant Engineer, Warren County DPW

Winter/Spring 2009 A second and third round of contact was made with each town supervisor and highway superintendent by telephone and/or email on January 13 and 27 2009. (Appendix F) Information was received by the consultant from every jurisdiction regarding public infrastructure that was thought to be particularly at risk of damage from hazard events; projects that would mitigate the effects of various hazards in their community.

The consultant met with the Public Works and Planning Department in March to reiterate the request for mitigation projects and local hazards information, and respond to questions raised by public officials, and/or the public. Questions from various officials were answered and the possibility of local site visits in various jurisdictions by the consultant was discussed. (Appendix F) Letters were sent on April 29, 2009 to town supervisors requesting that details of existing Town Plans be made available to the consultant for inclusion or reference in the Plan. Follow-up telephone calls were made to eleven towns on May 18, 2009.

Meetings between the consultant and town officials seeking supplemental information on existing management plans were held in five townships May 29; Thurman, Stony Creek, Warrensburg, Johnsburg, Horicon. (Appendix C).

Planning Process Timeline

Date	Event	Participants	Outcome/
June 2007	HAZNY Kickoff meeting	County Fire, Health, Emergency Services	HAZNY risk analysis, hazard awareness, 1 st step
October 2008	Organizational meeting	Office of Emergency Services, Consultant, SEMO representatives	Tentative timeframe, guidelines established
November 2008	Jurisdictional kickoff meetings	Government, business, school, fire officials, general public, SEMO, consultant (Appendix A)	Introduction to plan process, participation, information gathering
November	County Board of	Board of Supervisors,	Request for information,

2008	Supervisors Meeting	Consultant, general public	assistance from jurisdictions, answer questions
December 2008	Telephone calls/emails	Town supervisors(county board members), town highway supervisors	Information gathering
December 2008	County Board of Supervisors Meeting	Board of Supervisors, Consultant, general public	Information gathering, update of plan for jurisdictions
December 2008	Meeting	ERPC members, consultant, County Mitigation Coordinator	Beginning of ERPC information gathering, process update
December 2008	Mailings/telephone calls	Town/village historians	Information gathering
January 2009	Emails/telephone calls	Town Supervisors, Town Highway Superintendents	Information gathering, plan updates
March 2009	Public Safety/Planning Department meetings	Public Safety Committee members(town, county supervisors), general public, consultant	Plan updates, questions answered, information gathering, proposed visits to jurisdictions
April 2009	Mailing	Town supervisors	Requesting copies of existing jurisdiction Plans
May 2009	Telephone calls	Town supervisors	Follow up on mailing
May 2009	Jurisdiction Visits	Town officials	Review of Plan, information gathering
October 2009	Meeting	Mitigation Coordinator, ERPC, consultant	After reviewing Plan prior to meeting, participants make Plan adjustments
November 2009	1 st submission to SEMO	Mitigation Coordinator, ERPC, consultant	Participants make Plan adjustments
January 2010	Final submission to SEMO	Mitigation Coordinator, ERPC, consultant	Participants make Plan adjustments
June 2010	FEMA required revisions begin	Mitigation Coordinator, ERPC, consultant	Participants make Plan adjustments
July 2010	Continue revisions with email communication and ERPC, consultant meeting	Mitigation Coordinator, ERPC, consultant	Participants make Plan revisions
June/July 2010	Information gathering from jurisdictions by fax, telephone	Mitigation Coordinator, Town supervisors, consultant	Additions/revisions to Plan
July 13, 2010	ERPC meeting prioritize mitigation actions and review revisions to plan	ERPC members, consultant	Additions/revisions to Plan

All communication and correspondence issued by the consultant included language to encourage public input and included contact information for the hazard mitigation planning process project manager.

The *Warren County Multi-Jurisdictional Hazard Mitigation Plan* is developed with the best information available as provided from various local sources and as discovered by the consultant based upon referrals, SEMO/FEMA guides, and web-based materials. During the Plan development process every effort was made to gather information from town and county agencies, as well as federal and state agencies and the residents of Warren County. Section III of the Plan includes copies of the communications from the various agencies and individuals who provided input for the Plan.

Coordination with Agencies

Successful hazard mitigation planning depends on the ongoing participation of the public and engaging the specialized knowledge and technical expertise of various federal, state and local agencies and organizations. Below is a list of the agencies/organizations involved in the development of the *Warren County Multi-Jurisdictional Hazard Mitigation Plan*. Specific names of planning committee members, supervisors, meeting invitees/attendees, town historians are in Appendix A. These agencies were notified by mail of the development of the Plan and asked to participate in the planning process. In the monitoring and updating stages of the Plan these same agencies along with other entities will be integrated into the process.

Department/Agency	Participation
Director, Warren County Social Services	Planning committee , 1 st meeting
Office of Emergency Services	Co-ordination of Plan, Planning committee, County Plans, Contact lists, assistance
Warren County Bio-Terrorism Coordinator	1 st meeting, HAZNY Assessment, Planning committee
Warren County Public Health, Director	Planning committee, 1 st meeting
Director, Office of the Aging	1 st meeting
Warren County Sheriff's Office	Planning committee, HAZNY Assessment
Director, American Red Cross	Planning committee, HAZNY Assessment, 1 st meeting
GIS Coordinator, Warren County Planning	Planning committee, data, 1 st meeting
City Engineer, City of Glens Falls	Planning committee, 1 st meeting
Soil & Conservation Manager	Informed of planning process/1 st meeting
Assistant Engineer, Warren County DPW	Planning committee, 1 st meeting
NYS Police	Informed of planning process/1 st meeting, HAZNY Assessment
NYS Department of Transportation	1 st meeting, HAZNY Assessment

NYS Emergency Management Office	1 st meeting, HAZNY Assessment, guidance/assistance
NYS Department of Environmental Conservation	Informed of planning process/1 st meeting
Adirondack Park Agency	Informed of planning process/1 st meeting, information on Park land use
National Weather Service	Informed of planning process/1 st meeting, HAZNY Assessment, data
City of Glens Falls Hospital	Informed of planning process/1 st meeting, HAZNY Assessment
Floyd Bennett Memorial Airport	1 st meeting
Adirondack Community College	Informed of planning process/1 st meeting
Lake George Park Commission	Informed of planning process/1 st meeting
National Grid	Informed of planning process/1 st meeting
7 NYS School Districts	Informed of planning process/1 st meeting, information
24 Volunteer Fire Departments	1 st meeting, HAZNY Assessment
11 Town Supervisors, 2 Mayors, Town Clerks, Highway Departments, Historians	Meetings, input on jurisdictional plans, projects, buildings, infrastructure

Public Participation

The mitigation plan was available for citizen comment in printed form as well as on-line. Community review of the plan provided a valuable opportunity for citizens to understand the significance of hazard mitigation so agencies and individuals are better able to respond in the event of a natural disaster. Copies of the Plan were available in each jurisdiction with comments or recommendations encouraged. Requests for comments were announced in press releases, posted public notices in Town and County Offices and in direct mailings to town supervisors and other county board members.

Adoption and Review

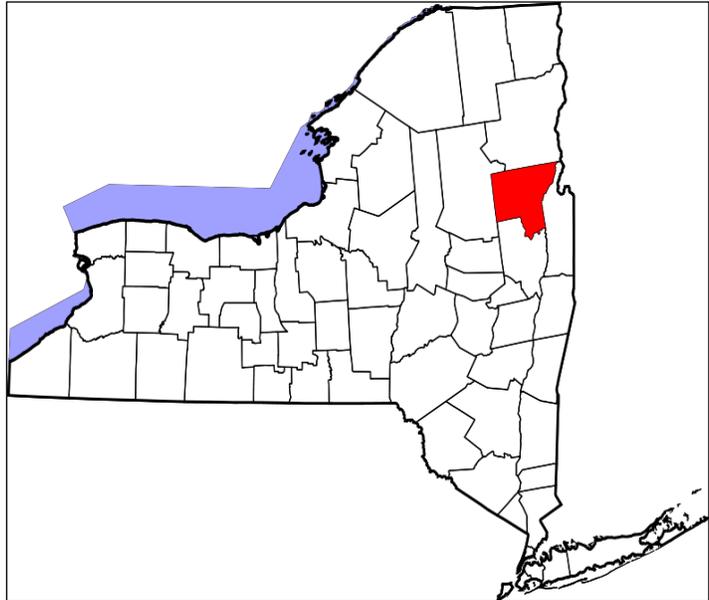
All participating jurisdictions and the Warren County Board of Supervisors are required to adopt the plan before formal approval from FEMA. (Appendix H). Following notification from FEMA that the Plan is “Approvable Pending Adoption” jurisdictional resolutions and adoption of the Plan will take place within a year from the APA date as required. A list of the formal plan adoptions by jurisdiction is below. After plan completion and approval, the Planning Committee will remain to provide direction, oversight and assistance with a yearly plan evaluation process. Committee planning and oversight will be done by the Hazard Mitigation Coordinator from the Office of Emergency Services.

Jurisdiction	Date of Formal Adoption of Plan

BACKGROUND

Warren County is located in northeastern New York State, bounded on the east by Lake George and Washington County, to the west by Hamilton and Saratoga Counties, to the north by Essex and Hamilton Counties, and to the south by Saratoga County.

A primarily rural county of 932 square miles composed of small towns and villages, the total population is 66,143 (2007) with an approximate average of 72 people/square mile, representing a 4.5% increase over the 2000 census population figures of 63,303. Of county residents, 16.3% are 65 years of age or older and 20.3% are under the age of 18. U.S. Census 2000 statistics indicate that the poverty rate in Warren County is 9.7%, below the state and federal averages of 14.6% and 12.4%, respectively.



The main population centers are the City of Glens Falls (population: 13,968) and the Town of Queensbury (population: 27,802); the Warren County Municipal Building is within the municipal bounds of the Town of Queensbury.

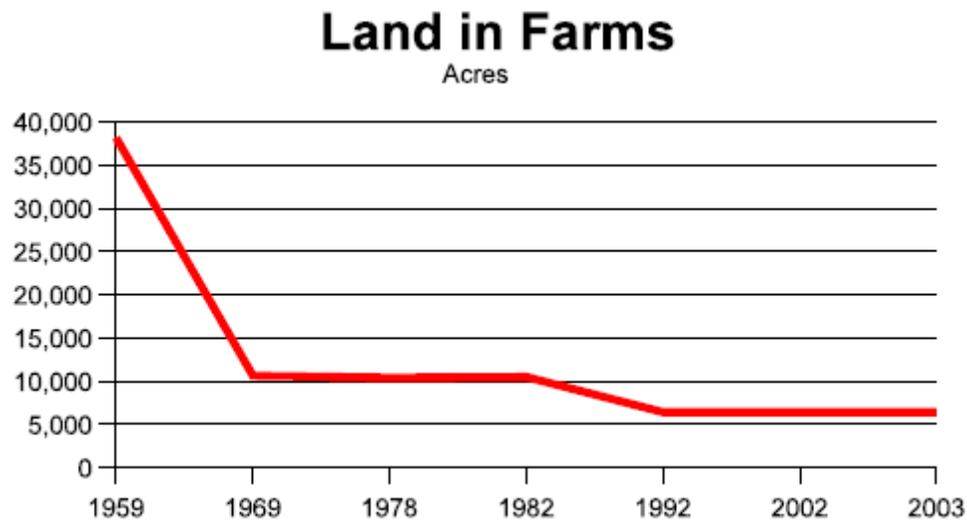
Table: Warren County Population by Municipality

Municipality	Population Estimate(2007)	Population(2000)
Town of Bolton	2,160	2,117
Town of Chester	3,691	3,614
Town of Hague	896	854
Town of Horicon	1,521	1,479
Town of Johnsbury	2,694	2,450
Town of Lake George	3,600	3,578
Town of Lake Luzerne	3,277	3,219
Town of Queensbury	27,802	25,441
Town of Stony Creek	846	743
Town of Thurman	1,351	1,199
Town of Warrensburg	4,337	4,255
Village of Lake George	982	985
City of Glens Falls	13,968	14,354
Warren County	67,603	63,303

Source US Census 2000 Data

Land Use and Assets

Located in the southeast corner of the Adirondack Forest Preserve, Warren County has a total land area of 932 square miles. Of the total land area in the county, 6.6 % (62 square miles) is water. Ninety-five percent of the county is forest, including Wilcox Lake Wild Forest, Lake George Wild Forest and Siamese Pond Wilderness Area and one per cent is agricultural. Similar to many United States counties, Warren has experienced a marked decline in the amount of farm land over the last fifty years. (graph below)

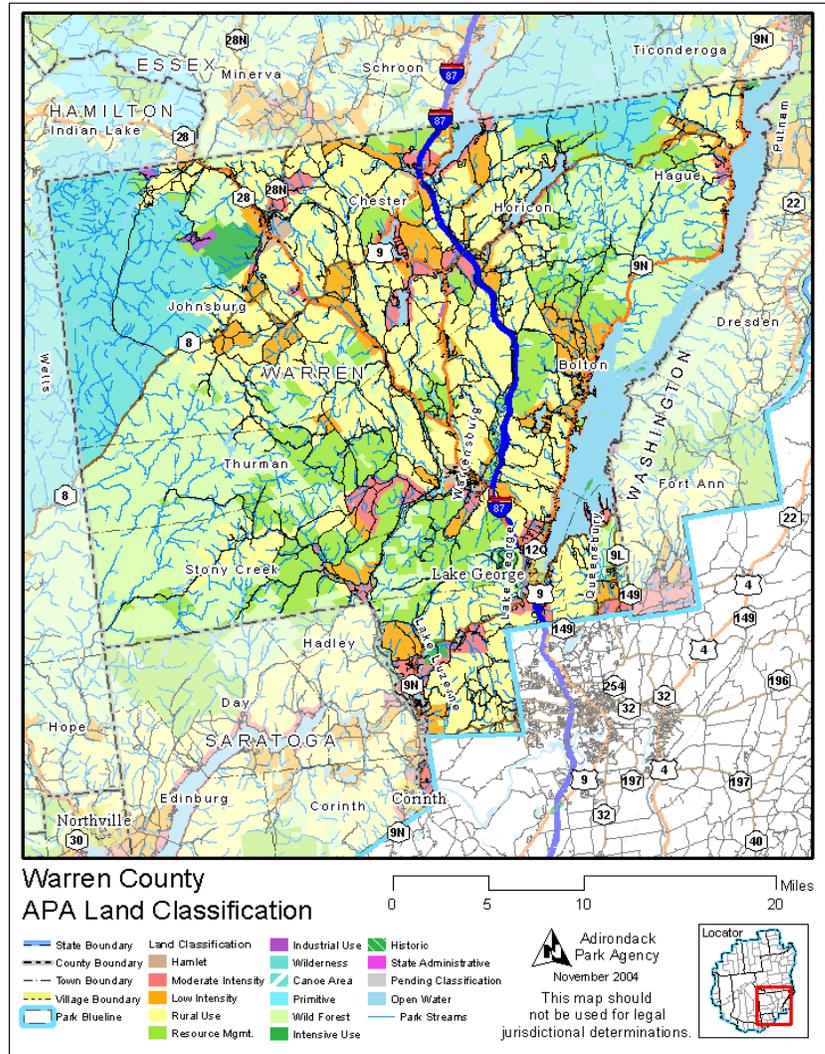


The vast majority of the county lies within the Adirondack Park, and land use is regulated by the Adirondack Park Agency (APA) accordingly; portions of the Towns of Lake Luzerne and Queensbury, including the City of Glens Falls are outside of the Park. Development projects within the Park Boundary are reviewed for (APA) permits in one of two ways depending on local review processes. Those local jurisdictions with ordinances, regulations, and/or a building permit process that meets APA guidelines and has been approved by the APA, the municipality may review and issue permit(s) locally. The towns of Johnsbury, Chester, Horicon, Hague, Bolton and Lake George (including Lake George Village) and Queensbury have plans meeting the APA guidelines. If a Town or Village regulatory process has not been approved, review and permitting is done by the APA. Maps below show the boundaries of the Adirondack Park and the APA Land Classifications for Warren County.



A majority of the land area of Warren County falls within the boundaries of Adirondack Park. Upon its creation in 1971, the Adirondack Park Agency's first task was to develop, in consultation with the Department of Environmental Conservation, a management plan for the administration of all State land in the Adirondack Park. The resulting plan, the Adirondack Park State Land Master Plan (Master Plan), is a refinement of the previous studies and by law, still governs the management of State land.

The Master Plan classifies State land within the Adirondack Park according to its characteristics and its ability to withstand use into seven basic categories: Wilderness, Primitive, Canoe, Wild Forest, Intensive Use, Historic and State Administrative. The New York State Department of Environmental Conservation administers state land within the park boundary.



The following state land classification definitions are taken from the Adirondack Park State Land Master Plan:

Wilderness

A wilderness area, in contrast with those areas where man and his own works dominate the landscape, is an area where the earth and its community of life are untrammelled by man--where man himself is a visitor who does not remain. A wilderness area is further defined to mean an area of state land or water having a primeval character, without significant improvement or permanent human habitation, which is protected and managed so as to preserve, enhance and restore, where necessary, its natural conditions, and which (1) generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable; (2) has outstanding opportunities for solitude or a primitive and unconfined type of recreation; (3) has at least ten thousand acres of contiguous land and water or is of sufficient size and character as to make practicable its preservation and use in an unimpaired

condition; and (4) may also contain ecological, geological or other features of scientific, educational, scenic or historical value.

Primitive

A primitive area is an area of land or water that is either:

1. Essentially wilderness in character but, (a) contains structures, improvements, or uses that are inconsistent with wilderness, as defined, and whose removal, though a long term objective, cannot be provided for by a fixed deadline, and/or, (b) contains, or is contiguous to, private lands that are of a size and influence to prevent wilderness designation; or,
2. Of a size and character not meeting wilderness standards, but where the fragility of the resource or other factors require wilderness management.

Canoe

A canoe area is an area where the watercourses or the number and proximity of lakes and ponds make possible a remote and unconfined type of water-oriented recreation in an essentially wilderness setting.

Wild Forest

A wild forest area is an area where the resources permit a somewhat higher degree of human use than in wilderness, primitive or canoe areas, while retaining an essentially wild character. A wild forest area is further defined as an area that frequently lacks the sense of remoteness of wilderness, primitive or canoe areas and that permits a wide variety of outdoor recreation.

Intensive Use

An intensive use area is an area where the state provides facilities for intensive forms of outdoor recreation by the public. Two types of intensive use areas are defined by this plan: campground and day use areas.

Historic

Historic areas are locations of buildings, structures or sites, that may or may not be owned by the state (other than the Adirondack Forest Preserve itself) that are significant in the history, architecture, archeology or culture of the Adirondack Park, the state or the nation; that fall into one of the following categories;

- state historic sites;
- properties listed on the National Register of Historic Places;
- properties recommended for nomination by the Committee on Registers of the New York State Board For Historic Preservation; and that are of a scale, character and location appropriate for designation as an historic area under this master plan and the state has committed resources to manage such areas primarily for historic objectives.

State Administrative

State administrative areas are areas where the state provides facilities for a variety of specific state purposes that are not primarily designed to accommodate visitors to the Park.

Additionally, in 1973, the New York State legislature adopted the Adirondack Park Land Use and Development Plan and Map. The text of the Plan is found in the Adirondack Park Agency Act. Section 805 of the Act describes the different private land use area classifications as follows:

HAMLET AREAS: range from large, varied communities that contain sizable permanent, seasonal and transient populations with a great diversity of residential, commercial, tourist and industrial development and a high level of public services and facilities, to smaller, less varied communities with a lesser degree and diversity of development and a generally lower level of public services and facilities.

MODERATE INTENSITY USE AREAS: those areas where the capability of the natural resources and the anticipated need for future development indicate that relatively intense development, primarily residential in character, is possible, desirable and suitable. These areas are primarily located near or adjacent to hamlets to provide for residential expansion. They are also located along highways or accessible shorelines where existing development has established the character of the area. Those areas identified as moderate intensity use where relatively intense development does not already exist are generally characterized by deep soils on moderate slopes and are readily accessible to existing hamlets.

LOW INTENSITY USE AREAS: those readily accessible areas, normally within reasonable proximity to a hamlet, where the physical and biological resources are fairly tolerant and can withstand development at an intensity somewhat lower than found in hamlets and moderate intensity use areas. While these areas often exhibit wide variability in the land's capability to support development, they are generally areas with fairly deep soils, moderate slopes and no large acreages of critical biological importance. Where these areas are adjacent to or near hamlets, clustering homes on the most developable portion of these areas makes possible a relatively high level of residential units and local services.

RURAL USE AREAS: those areas where natural resource limitations and public considerations necessitate fairly stringent development constraints. These areas are characterized by substantial acreages of one or more of the following: fairly shallow soils, relatively severe slopes, significant ecotones, critical wildlife habitats, proximity to scenic vistas or key public lands. In addition, these areas are frequently remote from existing hamlet areas or are not readily accessible. Consequently, these areas are characterized by a low level of development and variety of rural uses that are generally compatible with the protection of the relatively intolerant natural resources and the preservation of open space. These areas and the resource management areas provide the essential open space atmosphere that characterizes the park.

RESOURCE MANAGEMENT AREAS: those lands where the need to protect, manage and enhance forest, agricultural, recreational and open space resources is of paramount importance because of overriding natural resource and public

considerations. Open space uses, including forest management, agriculture and recreational activities, are found throughout these areas. Many resource management areas are characterized by substantial acreages of one or more of the following: shallow soils, severe slopes, elevation of over twenty-five hundred feet, flood plains, proximity to designated or proposed wild and scenic rivers, wetlands, critical wildlife habitats or habitats of rare and endangered plant and animal species. Other resource management areas include extensive tracts under active forest management that are vital to wood-using industry and necessary to insure its raw material needs. Important and viable agricultural areas are included in resource management areas, with many farms exhibiting a high level of capital investment for agricultural buildings and equipment. These agricultural areas are of considerable economic importance to segments of the park and provide for a type of open space which is compatible with the park's character.

INDUSTRIAL USE AREAS: those areas that are substantial in size and located outside of hamlet areas and are areas (1) where existing land uses are predominantly of an industrial or mineral extraction nature or (2) identified by local and state officials as having potential for new industrial development.

**** End APA Land Use Excerpt ****

The Adirondack Park Agency regulates development in accordance with these classifications. Future development in the region is regulated by the Adirondack Park Agency plan/permit review process. The APA provides land-use and density maps and comprehensive technical assistance and oversight for commercial and residential development proposals within their jurisdiction; local zoning regulations still apply both inside and outside of the Park. While a detailed full review of Agency development guidelines is beyond the scope of this plan, it should be noted that the permitting process is administered according to project classification and land use classification. In regard to land use, within the Park, the APA is the preeminent authority. In 2010 the NYS legislature proposed an Adirondack Park Local Government Planning Fund. The purpose of this would be to establish an APA administered program supporting local land use planning efforts. The APA encourages the use of NYS Smart Growth opportunities at <http://smartgrowthny.org>.

Housing Stock

According to the 2000 Census, Warren County has 34,852 housing units, of which 25,726 (73.8%) are occupied. Out of the 34,852 housing units, 43% were built previous to 1960.

Roadways

One thousand, two hundred forty-six miles of road traverses Warren County. US Route 87, the Adirondack Northway, is the only interstate highway and runs north-south between the 'local' population centers of Plattsburgh (north) and Albany (south), and beyond - Montreal, Canada to the north and New York City to the south. The Northway and NYS Route 9 are "north-south" routes within the county, as are NYS Routes 28 and 9N. East-west roads serve as connecting roads to the interstate, state routes, and local population centers, and are dispersed in heavily forested and mountainous rural sections of the county. The City of Glens Falls has a network of state, and local roadways.

Local Government and Capabilities

The Warren County government structure consists of a Board of Supervisors with a total of twenty supervisors. Eleven supervisors represent towns located within the county, five represent the City of Glens Falls five wards, and the Town of Queensbury also has four seats in addition to the supervisor. Decisions are determined on the system of weighted voting (per Local Law No. 10 of 2001) based on population. The Town of Queensbury and the City of Glens Falls retain the largest number of votes with 400 and 228 respectively. With a total of 999 for the entire county, 500 votes are needed for a majority, with 667 for a two-thirds vote. In this form of county government the Board is comprised of individuals elected as a Town Supervisor, and then by virtue of that election they serve on the County Board of Supervisors. For the purposes of this multi-jurisdictional plan all jurisdictions were represented and participated in the Plan development. Each time the consultant met with the Board of Supervisors and the Public Safety Committee jurisdictions were represented and involved.

General Planning

The Warren County Department of Planning and Community Development provides the following services:

- Planning and administrative support services to the Warren County Planning Board for monthly review meetings
- Providing technical services to local planning and zoning boards for matters related to community master plans, zoning ordinances and related land use regulations.
- Design and implementation of planning and economic development initiatives involving multiple county communities.
- Providing planning review and technical support for the Adirondack/Glens Falls Transportation Advisory Council and Policy Committee.

The department provides a variety of resources to communities in regards to planning and community development. The County Planning Board reviews and provides recommendations to local planning and zoning applications that are within 500 ft of designated criteria under Section 239 of NYS General Municipal Law. Warren County consists of 13 jurisdictions where 11 of them have local zoning ordinances and staff assistance such as a Code Enforcement Officer. All 13 communities are also under the jurisdiction of the Adirondack Park Agency (APA) land use regulations for either a portion or all of their community. Within Warren County land management and regulatory issues are also spread among a variety of agencies i.e. NYSDEC, Lake George Park Commission, DOH, Army Corp; and municipality departments, DPW, Building and Codes, Planning and Zoning, Water and Wastewater. In addition, the department includes GIS program management that is used on a regular basis; the system includes a well rounded data set of the entire county. The GIS coordinator relies on FEMA FIRM data and the GIS staff utilizes this to assist Warren County communities with a variety of tasks to visualize data and project data outcomes i.e. washouts, spills, accidents etc.

NFIP INSURANCE REPORT BY STATE, COUNTY, COMMUNITY NEW YORK

CID	Community Name	Total Premium	V-Zone	A-Zone	Current Total	Coverage Total	Claims since 78 Total	Doll since 78 Total
WARREN COUNTY								
360869	BOLTON, TOWN OF	5360	0	7	11	1301300	3	454
360609	CHESTER, TOWN OF	16934	0	19	26	3476500	33	20201
360872	GLENS FALLS, CITY OF	375	0	0	2	56600	0	0
360873	HAGUE, TOWN OF	3539	0	4	7	1169200	3	0
360874	HORICON, TOWN OF	7031	0	10	14	1397600	3	27046
360875	JOHNSBURG, TOWN OF	4378	0	4	7	716500	3	11958
360876	LAKE GEORGE, TOWN OF	1525	0	1	5	694400	0	0
360877	LAKE GEORGE, VILLAGE OF	3412	0	2	3	930000	1	2759
360878	LAKE LUZERNE, TOWN OF	21860	0	27	44	3908700	12	13123
360879	QUEENSBURY, TOWN OF	46443	0	49	73	12389500	29	91141
360880	STONY CREEK, TOWN OF	824	0	2	2	81000	0	0
360881	THURMAN, TOWN OF	407	0	0	2	226000	4	70132
360882	WARRENSBURG, TOWN OF	9316	0	12	19	1761400	7	11648
	County Total	121404	0	137	215	28108700	98	248462

Statistics as of 2008

At the June 26, 2008 (Warren County Board of Supervisors) Public Safety Committee meeting during discussion regarding compliance with the NYS Building Code and Department of Environmental Conservation among local jurisdictions, it was stated “regarding the National Flood Insurance Program and all the towns in Warren County had entered into this Program through an adoption of local law” [and that] “the local law was passed back in the 1980’s.” Current building code enforced in the county includes requirements for the elevation of certain building components and the first floor level to be located above the high water mark. Elevation Certificates are required in conjunction with flood plain development permits. The jurisdictions are complying with the NFIP at the local level, and oversight authorities such as the Adirondack Park Agency employ the same or more stringent development rules. At the January 22, 2009 Warren County Public Safety Committee meeting, the Administrator of Fire Prevention and Building Codes explained “pertaining to the floodplain issue, the only time her office would become involved was when they were notified by a Town that construction was taking place on a specific parcel within the floodplain.” “Their involvement would include ensuring that specific building code laws were followed.”

Risk Assessment

Multi-jurisdictional risk assessment efforts performed per DMA 2000 require evaluation of hazard risks and potential effects for the County of Warren. Each risk analyzed for the jurisdiction(s) should also be assessed in terms of jurisdictional vulnerability and potential losses.

For most hazards identified for Warren County, each city/town/village is at risk because all towns are exposed to natural hazards (such as severe winter storms, including ice events). The county region and all of the participating jurisdictions lie within an approximately 869 square mile geographic area; major weather or geologic differences are not present that would make one area more vulnerable to one hazard over another because these hazards affect the entire area. However, critical facilities, assets and other conditions within the various jurisdictions differ significantly, so some municipalities have a particular vulnerability and more concern about specific hazards. Particular buildings, facilities, utilities, and geographic areas may be at-risk for human-caused and technological hazards, but for the purposes of this plan, these are mentioned only in the context of broad mitigation actions that will be, or have been implemented to reduce the effects of natural hazards.

As part of the planning process, the planning committee identified hazards to which the region and the jurisdictions within are particularly vulnerable. These specific exposures and concerns are discussed in the hazard profiles and the loss estimates. Mitigation actions that are ongoing or planned for each jurisdiction and the county are based on the evaluations conducted in this risk assessment portion of the plan.

Assessing a region's vulnerability is the first step in developing an effective hazard mitigation plan. Two factors impact a region's vulnerability: the hazard events that threaten the area (risk) and the area's level of preparedness in the event of a disaster. The risk assessment portion of the Plan summarizes the steps taken to verify which hazards present the greatest threat to Warren County and the jurisdictions within it. The probability of future events is relative to the frequency of each event. The frequency descriptors are as follows: rare event – occurs less than once every 500 years, infrequent event – occurs between once every 8 years and once every 50 years, regular event – occurs between once a year and once every 7 years, frequent event – occurs more than once a year. [HAZNY Ground Rules (NYSEMO Planning Section and American Red Cross)]

Hazard identification was compiled using the following sources:

1. Results from the Warren County all-hazards program analysis (HAZNY) conducted within the county.
2. Written historical records focusing primarily on press coverage of past hazard events. The Post Star (a daily) and regional weekly newspapers provide resources to document events in the area.
3. Input from public officials and their constituents, solicited through public meetings, public notices, direct correspondence via USPS, and telephone interviews.
4. Interviews with local experts, including information gleaned from town and county historians, and the National Weather Service.
5. FEMA suggested websites. (Appendix D)
6. New York State Hazard Mitigation Plan
7. Key informants from each jurisdiction within the county.

8. Hazard/risk concerns updated by jurisdiction executives, 2010(Public Participation)

Municipality	1	2	3	4	5	6	7
Town of Bolton	x	x	x	x	n/a	x	x
Town of Chester	x	x	x	x	x	x	x
Town of Hague	x	x	x	x	x	x	x
Town of Horicon	x	x	x	x	x	x	x
Town of Johnsburg	x	x	x	x	x	x	x
Town of Lake George	n/a	x	x	x	n/a	n/a	x
Town of Lake Luzerne	n/a	x	x	n/a	n/a	n/a	x
Town of Queensbury	x	x	x	x	n/a	x	x
Town of Stony Creek	x	x	x	x	n/a	x	x
Town of Thurman	x	x	x	x	n/a	x	x
Town of Warrensburg	x	x	x	x	n/a	x	x
Village of Lake George	x	x	x	x	n/a	n/a	x
City of Glens Falls	x	x	x	x	n/a	n/a	x
Warren County	x						

Key	
1.	Flood/Ice Jams
2.	Ice Storms
3.	Winter Storm/Heavy Snowfall
4.	Severe Storms/Hail
5.	Infestation
6.	Wildfire/Fire
7.	Earthquake

Jurisdictions indicated the hazards/risks that impact their region. Each jurisdiction recognizes the potential vulnerability of historical, structural and/or geological characteristics in their specific region. Maps in the Jurisdictional Annex indicates concentrations of structures found within each jurisdiction. In the Implementation Strategy Plan, mitigation actions fall into each category above as well as a multi-hazard category. This multi-jurisdictional plan encompasses specific jurisdictional actions handled directly by the jurisdiction, county wide actions with input and oversight from each jurisdiction. Warren County government provides for this merging of agencies and oversight due to the fact that each Town Supervisor acts as a member of the Warren County Board of Supervisors, with increased participation on this Board by Queensbury and Glens Falls based on the population.

The NYS Hazard Mitigation Plan itemizes regional risk assessments. According to the State Plan the significant hazard risks for the Warren County region are listed below. The Warren County

Hazard Assessment Committee and the Office of Emergency Services considers the hazards below as High Hazard within their criteria.

<u>Natural Hazard</u>	<u>Rank</u>
Flood	Moderately High
Dam Failure	Moderately High
Hazmat-Transit	Moderately High
Transportation Accident	Moderately High
Ice Storms	Moderately High
Severe Storm	Moderately High
Winter Storm	Moderately High
Wildfire/Fire	Moderately High

The hazards listed below were identified by the Warren County All Hazards Analysis (HAZNY) as significant threats but will not be further evaluated herein as they are not considered natural hazards and therefore are not germane to the objective of the hazard mitigation plan. Those natural hazard events that may have a causal effect (e.g. earthquake, causing dam failure, utility failure, etc.) will be evaluated as such.

Hazmat-transit/Fixed location

Definition: *The uncontrolled release of material during transport, which when released can result in death or injury to people and/or damage to property and the environment through the material’s flammability, toxicity, corrosiveness, chemical instability and/or combustibility.* Hazmat spills are not considered natural disasters; however the Plan will address regions where prevention of road-blockage may be a mitigation objective. Spills or other events, such as transportation accidents that force road closures, may prevent access by vehicles to specific areas in the county. Towns within the boundaries of the Adirondack Park may face an additional burden when DEC/APA oversight may restrict the authority of local officials to address potential deficiencies in infrastructure.

Dam Failure

Definition: *An uncontrolled release of impounded water resulting in downstream flooding.* Numerous dams are located within Warren County towns, forming small lakes for recreational use, water supplies, as well as flood management. There are 63 dams with classifications designated by DEC. Twenty of the dams are considered moderate risk. Six dams of the sixty three appear on the list as high hazard dams. (see below)

High Hazard Dam	Town
Edgecomb Pond Dam	Bolton
Loon Lake Dam	Chester
Feeder Dam at Glens Falls	Queensbury
Butler Storage Reservoir Dam	Queensbury
Brant Lake Upper Dam	Horicon
Garnet Lake Dam	Johnsburg

In May, 2008 the City Council City of Glens Falls authorized the bidding of remedial work on the dam at the Butler Storage Reservoir in compliance with a NYSDEC approved Construction Permit. In January 2009, Mayor Jack Diamond stated one of the priorities was to “complete the

next phase to refurbish the city’s water distribution system,” by mid-February and apply for permits to refill the Butler Storage and Butler Pond Reservoirs and moving toward refurbishing the remaining dams.

Utility Failure

Definition: *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.* This is of moderate concern and is a hazard resulting from the cascade effect in the event of other hazards.

Structural Collapse: *A sudden structural failing, partial or fully of buildings, bridges or tunnels, threatening human life and health.* This is of moderate concern and is a hazard resulting from the cascade effect in the event of other hazards.

Water Supply Contamination: *The contamination or potential contamination of surface or subsurface public water supply by chemical or biological materials that results in restricted or diminished ability to use the water source.* These types of events are not considered natural disasters, however, Warren County and the jurisdictions within have Emergency Preparedness Plans to address the effects of water contamination events. (Comprehensive Emergency Management Plan Revised in 2006) (Appendix B)

Hazard Profiles

1. Flood /Ice Jams

Definition - Flood: *A general and temporary condition of partial or complete inundation on normally dry land, usually a natural, cyclical occurrence in waterbodies or drainage ways. When “normal” banks of water bodies overflow, a potentially violent/destructive waterway can form. Flash floods after a heavy rain or rapid snowmelt can transform a small stream into a violent waterway. Inadequate drainage systems in urban areas can create destructive “runoff”.*

Definition - Ice Jam: *Large accumulation of ice in rivers or streams interrupting the normal flow of water and often leading to flooding conditions and/or damage to structures.* The results of the all-hazards analysis place flooding at the highest ranking concern in the county even though the ranking score is within the guidelines of a “Moderately High” hazard. Ice jams are of relatively low concern but can lead to similar destructive situations. Mitigation measures for flooding are anticipated to have similar results to ice-jam flooding as to seasonal, storm, and other causes of flooding.

Flood profile:

Location:	Riverine and adjacent low-lying property throughout the county.
Extent:	See map and narrative discussion.
Cascade effects:	Highly likely to trigger another hazard.
Frequency:	Frequent event (occurs more than once a year)
Potential impact:	Serious injury or death is unlikely. Severe physical and/or economic damage to private property. Moderate to severe structural damage to community infrastructure and critical facilities in proximity.

Past hazard events: According to National Weather Service records, Warren County had 41 reported floods between 1993 and 2008, with reported property damage of approximately 13.069 million dollars. The table below is not a complete list of the flood incidents that have occurred in Warren County, but demonstrates that flooding is a frequent event. Not all flood events reported in the local media are reported to the National Climatic Data Center (NCDC) (see table below).

Description of Event	Area(s) Affected	Date of Onset	Property Damage (\$)	Deaths	Injuries	Source of Info
Flood	Countywide	4/16/1993	500K	0	0	NCDC
Flood	Countywide	4/17/1993	500K	0	0	NCDC
Flood	North Creek	8/12/1993	50K	0	0	NCDC
Flood	Lake George Village, Brant Lake, Hague	1/19/1996	3.0M	0	0	NCDC
Flood	North Creek, Lake Luzerne	1/8/1998	745K	0	0	NCDC
Flood		2/26/2000	502K	0	0	NCDC
Flood	Chester, Pottersville, Horicon, Warrensburg	4/16/2001	500K	0	0	NCDC
Flood	South Horicon	8/29/2004	160K	0	0	FEMA News Release NCDC
Flash Flood	Bolton, Chestertown, Warrensburg, Horicon	6/13/2005	6.5M	0	0	Northeastern Storm Buster Publication, NCDC
Flash Flood	Chestertown	6/26/2006	40K	0	1	NCDC
Flash Flood	Brant Lake/Horicon	9/2006	.5M	0	0	Town of Horicon

Flooding that has occurred within Warren County has generally not resulted in extensive damage to residential, commercial, or public buildings; roadways in locations scattered throughout the county are the infrastructure most affected by flooding. Flood waters inundate roadways, damage bridges, erode ditches, wash-out portions of roads, often force road/bridge closures, and less often, evacuations. The areas most prone to flood events are shown on the flood maps for each of the municipalities within the county. (Section II) Mapping relied on FEMA FIRM data and for the purposes of this plan all shorelines, and waters(streams, rivers etc.) are contemplated as potential flood risk

NCDC reporting indicates repeated flood events in two broad regions of Warren County: along the Schroon River in the riverbank section where in 2001 runoff from rapid snow melt contributed to rising flood waters that reached an historical crest level of 10.11 feet (see chart below,) and along the Hudson River where significant rainfall and rapid snowmelt led to considerable flooding of roadways.

Schroon River (Riverbank region)

Flood Categories (in feet)

Major Flood Stage:	9
Moderate Flood Stage:	8.5
Flood Stage:	7
Action Stage:	6

Historical Crest Depths

- (1) 12.18 ft on 03/21/1936
- (2) 10.70 ft on 03/28/1913
- (3) 10.41 ft on 03/28/1953
- (4) 10.23 ft on 04/13/1922
- (5) 10.11 ft on 04/25/2001
- (6) 9.70 ft on 04/03/1976
- (7) 9.63 ft on 04/17/1994
- (8) 9.62 ft on 04/24/1969
- (9) 9.55 ft on 04/18/1993
- (10) 9.33 ft on 04/02/1998

In January of 1996 and 1998 flooding of roadways and bridges, along with drainage ditch and road washouts resulted in the areas of the county noted above. In 1996 Federal Disaster aid was made available by Presidential Declaration. Substantial rainfall also created flash flood situations, including a June 2005 event that washed out a portion of Interstate 87 (the Adirondack Northway) forcing closure of the interstate for several days. Rainfall in the region of Bolton Landing was described by some officials as a “500 year storm” and damage was extensive. Twenty people were evacuated and road repair costs for the Bolton Landing region and Interstate 87 exceeded six million dollars. The governor declared Warren County a “disaster area”.

A causal factor of flooding distinct in the county (and surrounding areas) is heavy rainfall forcing the destruction of beaver dams on lakes, rivers and streams that have cascade effects of downstream flooding of roadways. In June of 2006 a washout of this nature on County Route 19 (Olmsteadville Road) resulted in injuries to a motorist when her vehicle fell through a flood-damaged section of the road. The damage estimate for Olmsteadville Road and seven other county roads was approximately \$40,000.

Probability of future events: Based on the frequency of recent past events, flooding occurs more than once a year: Frequent.

Potential impact: Erosion due to flooding has historically been a significant cause of major damage to roads and highways as well as dams and bridges throughout Warren County. In addition, flooding can create electric power and communication disruptions.

Vulnerable areas: **Town of Horicon** – Pease Hill Road, County Rte 11, River Road, Hayford Road, and regions along the Schroon River, Brant Lake Outlet, Mill Brook, Brant Lake and Valentine Pond **Town of Johnsbury** – State Rte 8 (Bakers Mills), Barney Hill Road, Riverside Station Road, Bartman Road, Harrington Road **Town of Thurman** – River Road, Sky-High Road/Lake Road, West Stony Creek Road/Wolf Pond Road, Rte 418

Estimate of potential losses: Past flooding costs for the entire county reached approximately \$989,500 with the Towns of Chester, Warrensburg and Horicon experiencing the highest costs. See municipal flood property loss tables in Section II.

of freezing rain, often following a snowfall, that create a dangerous build up of ice on roads, trees and power lines. The NCDC often identifies these regional events as “winter weather”. Upon review, these events have resulted in icing in all regions of Warren County.

Ice Storm profile:

Location: Countywide
 Extent: Ice build-up of over 1 inch on tree branches, roads and utility lines
 Cascade effects: Highly likely to trigger other hazards
 Frequency: Regular event (occurs once every one to seven years)
 Potential impact: Potential for serious injury, moderate physical and/or economic damage to private property

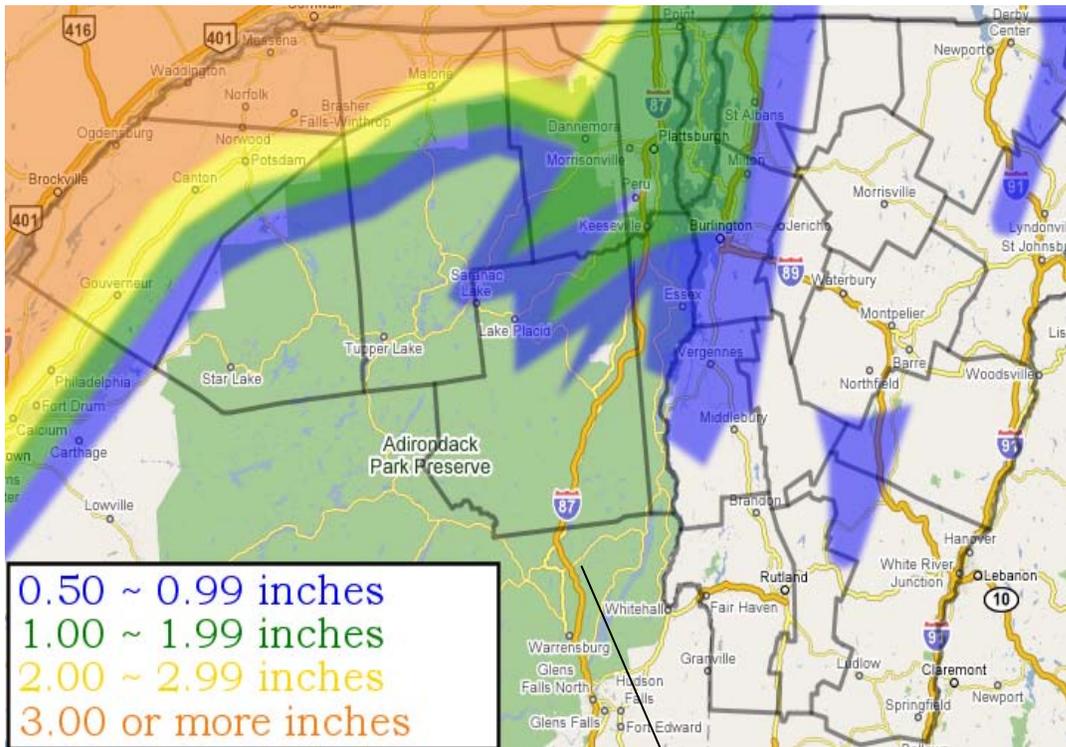
Past hazard events: Warren County experiences winter storms and icing events with regularity. Harsh winter weather is a normal occurrence for Warren County during the winter months, and may continue into early spring and may begin in late autumn as well. The NCDC identified two ice storms: 1. January 2007, when significant icing led to downed trees and broken/falling tree limbs that led to widespread power outages. High winds followed the freezing rain causing more downed trees and with the ice load on power lines, more downed lines, leaving thousands without power, some for three days. Lake George in Warren County was the area hardest hit. 2. In March of 2008, freezing rain accumulations of over one inch with high winds led to downed trees and power lines, and caused extended power outages. Estimates of fallen trees reached as high as 1000, leading to road closings, including Route 9N and Route 8. The towns of Hague, Johnsbury and Queensbury were hardest hit. According to the Albany Times Union, National Grid estimated 5,700 people were without power. Freezing rain, although not classified as “ice storm”, contributes to considerable power outages around the County, while creating hazardous travel conditions on all roads in the region. The wintery mix that develops generally occurs in the Lake George, Glens Falls vicinity, often forcing closure of the Adirondack Northway for a period of time.

(See chart below).

Year	# of Icing Events	Total Cost	Anecdotal Information
1994	6	2.5M	
1995	5	1.1M	
1997	9	339K	8 inches of snow, followed by freezing rain

2002	3	270K	Ice ¾ inch thick on roads, high winds
2003	2	N/A	Bolton Landing, 20.2 inches of snow followed by icing
2007	1	N/A	
2008	5	60K	¼ to ½ inch of ice in the Lake George region – Town of Hague
2009	1	N/A	

Ice Storm of 1998 – Warren County was not directly impacted with icing during this event according to the National Weather Service, Burlington, Vermont (see map below). However, As indicated above, Warren County has icing events; the two worst in 2007 and 2008.



Observed Ice Accumulation Map

Warren County

Probability of future events: Winter storms, complete with snow, sleet, freezing rain and winds are a routine occurrence during winter months in Warren County. Elevation can have a direct effect on the severity and type of winter storm that is directly proportional – higher elevations experience cooler temperatures contributing to earlier onset of frozen precipitation, for example, however winter and severe storms are experienced county-wide. Ice storms are a regular event in the county.

Potential impact: Warren County highway departments, emergency response, and medical facilities state that they are capable of handling winter storms, including ice events. The towns and the county maintain necessary highway snow removal and winter roadway maintenance equipment. Highway departments are diligent in their efforts to begin clearing with the onset of storms and roads are kept open to the extent possible. Travel is restricted to some degree due to winter conditions, but in general, the county is prepared and equipped to mitigate the damage and effects of winter storms.

Estimate of potential losses: Potential losses include damage to critical infrastructure in the county, as well as public and private property. An additional cost is incurred when emergency assistance and shelter for residents, due to disrupted utility service and poor road conditions, is necessary. Businesses suffer economic losses when they are forced to close during and in the days following an ice storm.

3. Winter Storm/Heavy Snowfall Profile:

Definition: A storm system that develops in late fall to early spring depositing wintery precipitation. Heavy snow is six inches of snow in 12 hours or less, blizzard conditions are

characterized by low temperatures, high winds (35mph or greater) and visibility reduced to near zero for at least three hours.

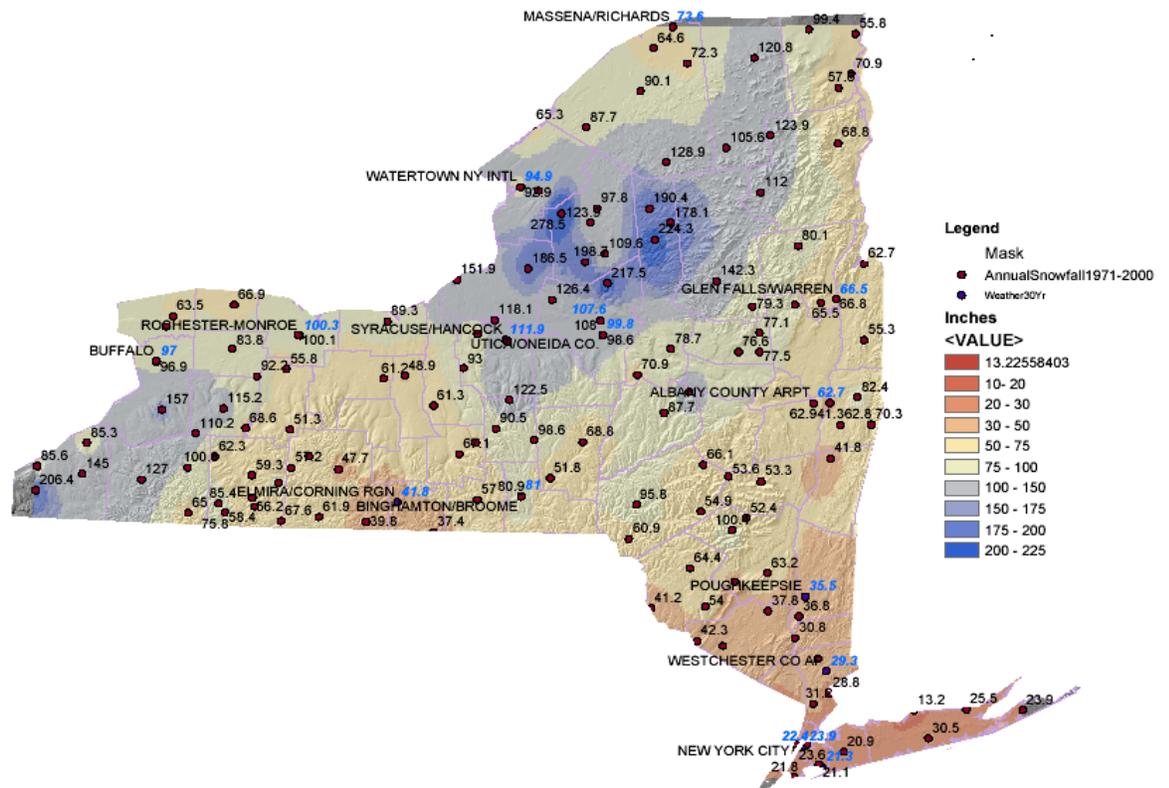
Winter storms accompanied by heavy snow fall are considered a moderately high hazard by the HAZNY ranking system in Warren County. The region is accustomed to steady snowfall and winter storms, annual average snowfall of 75.6 inches according to NYS HAZ-MIT PLAN , however heavy snow fall that contributes to power outages, and/or road closures are seen as severe.

Winter storm/heavy snowfall profile:

Location:	Entire county
Extent:	Refer to definition above
Cascade effects:	Potential to trigger another hazard
Frequency:	Frequent event (occurs more than once a year)
Potential impact:	Serious injury or death is unlikely. Moderate physical/economic damage to private property. Moderate structural damage to county infrastructure.

Warren County annual snowfall varies from approximately 65 inches in the eastern portion to approximately 100 inches in western Warren County. The map below from the NYS Hazard Mitigation Plan indicates the variation.

Annual Snowfall Normals 1971-2000



Past hazard events: Winter storms and heavy snowfall happen with regularity in Warren County. From 1993 to 2009, 104 winter storms were reported by NCDC and 22 of these consisted of heavy snowfall. “Nor’easters” tend to bring the heaviest snowfall to the region; 18 inches in Warrensburg in March 1999, 16 inches in North Creek in January 2000, 28 inches in Bolton Landing in March 2001, and 14-16 inches in the Lake George region in February 2008. (According to the NCDC)

Probability of future events: The pattern of winter storm events occurring regularly in Warren County is unlikely to change; prevailing weather patterns and elevation makes this southern Adirondack County vulnerable to frequent winter storm events.

Potential impact: Heavy snow fall can contribute to structural collapse of older buildings. Traffic accidents occur due to poor visibility and heavy snow can cause trees, limbs, and utility lines to fall into roadways causing significant impact on traffic flow, possible property damage and power outages.

Estimate of potential losses: The cost of roadway maintenance is a part of every municipality’s annual budget, but an inordinate number of these storms in a year can impact the budget. The clearing and maintenance of roadways is a major expense, and repair and maintenance of the electrical grid carries a cost.

4. Severe Storms/Hail

Definition: *Severe storms include hail, wind and severe thunderstorms.*

+ *Thunderstorms are often accompanied by high winds, heavy rainfall and sometimes hail.* The HAZNY results for Warren County place severe storms in the category of a moderately high hazard, ranking sixth in the analysis results. The storms have a cascade effect, predominantly occurring with power outages.

Severe storm profile:

Location: Entire county
 Extent: Winds gusting in excess of 57 mph, hail
 Cascade effects: Highly likely to trigger another hazard
 Frequency: Frequent event (occurs more than once a year)
 Potential impact: Serious injury or death is unlikely
 Moderate physical/ economic damage to private property. Moderate structural damage to county infrastructure.

Past hazard events: Severe storms, often accompanied by high winds, lightening and/or hail, are typical events throughout Warren County as illustrated by data from the NCDC. Since 1966 there have been 152 severe thunderstorms reported, many with high winds and/or hail. Several events were determined to be macro bursts (*a large downburst with a 2.5 mile or greater outflow diameter and damaging winds lasting 5 to 20 minutes*) Pottersville (Town of Chester) and the Brant Lake region (Town of Horicon) documented macro bursts in June 2006 and September 2006 respectively. Damages from these events reached \$40,000 to \$50, 000. Below is a chart of major past events with details drawn from area newspaper articles, town references and the NCDC.

Year	# of Storms	Amount of Damage	Anecdotal Information
1990-95	22	\$1,921,000	Unavailable
1996	8	\$979,000	High winds, downed trees on several houses. (8/96) Wind damage, downed power lines in Bolton, Stony Creek, Glens Falls and Chestertown (11/96)
1997	6	\$4,598,000	Lightning destroyed a Head Start classroom, office building at Warrensburg Elementary School
1998	3	\$15,000	Fast moving storms closed State Highway 9N south of Bolton Landing due to tree debris, one storm produced nickel sized hail in Chestertown
1999	5	\$3,864,000	High winds, fallen trees closed roads near Lake George and killed one camper on Uncas Island (8/99) Late July, walnut- sized hail damaged areas near Hague. (9/99) Wolf Pond Valley had winds of 80 mph, hundreds of trees down in a mile long 200 yard wide swath. Power outages lasted up to a week. One storm brought walnut sized hail in Hague.
2000	1	\$950,000	Strong winds brought down trees, power lines and a portion of a block wall at the new Staples store under construction in Queensbury
2001	1	\$9,000	Clustered thunderstorms brought 1 inch sized hail in Queensbury

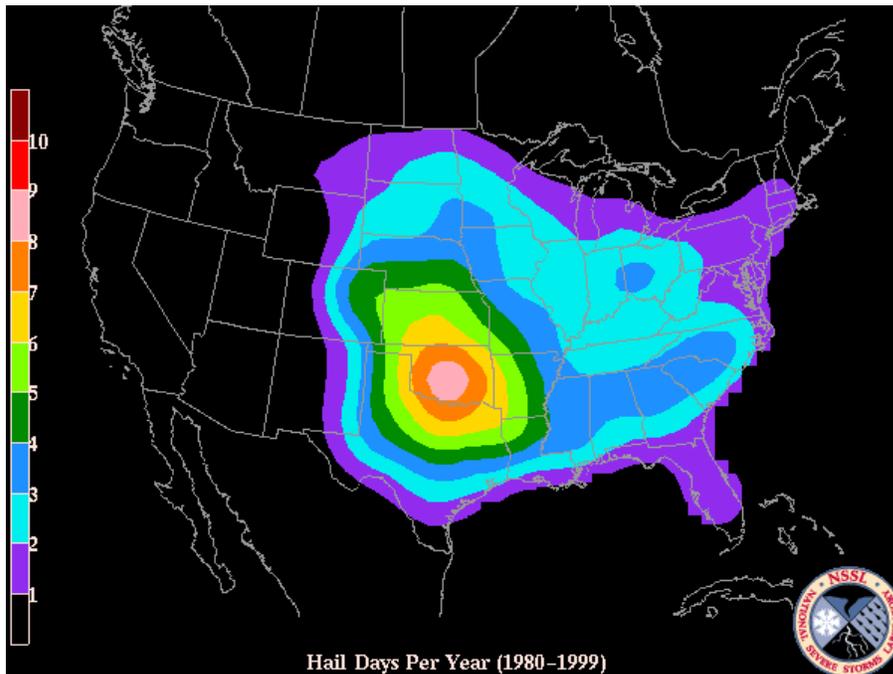
2002	4	\$372,000	High winds brought down electrical wires igniting a fire that destroyed a boat repair business, nine boats and two cabins (3/02) Downed trees and power lines knocked out power for 1,500 customers in the Queensbury/Lake George region (9/02)
2003-04	7	\$351,000	Unavailable
2005-06	11	\$25,000	Downed trees damaged homes in Queensbury, closed part of Bay Road and Rte 149
2007-08	9	\$82,000	Micro burst created wind speeds of 100 mph, many homes damaged on the west and east sides of Brant Lake, swath was 5 miles long and 1 mile wide(9/07)

Probability of future events: Severe storm events are likely to continue to be frequent events within Warren County.

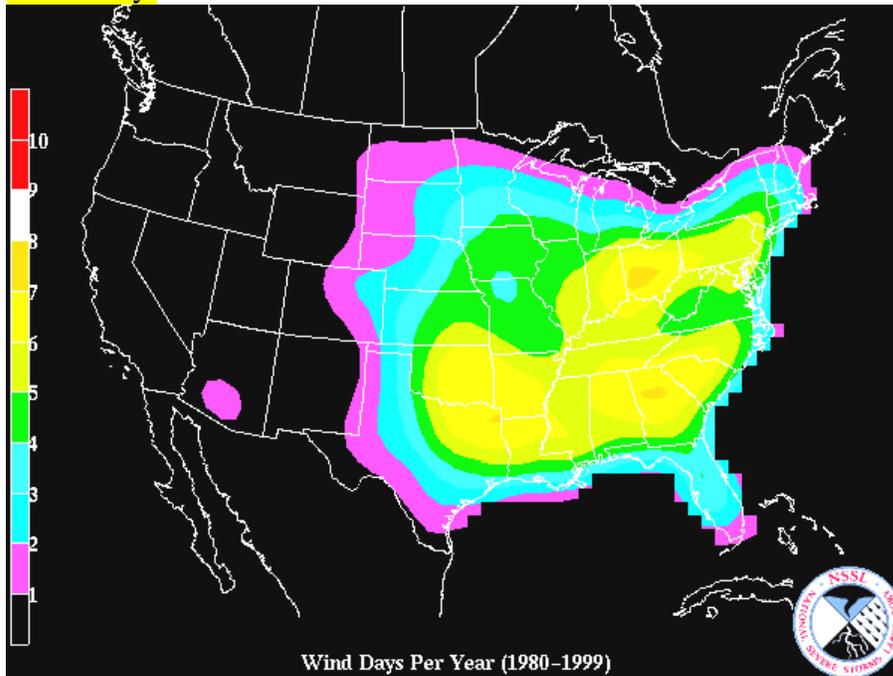
Potential impact Severe thunderstorms, especially accompanied by high winds create road washouts, power failures, downed trees, and flash flooding causing temporary road closures, damage to homes and businesses.

Estimate of potential losses: Road maintenance continues to be a major portion of town budgets. In a year when the number of severe storms increases, there may be budget shortfalls. Residential and commercial losses can range from relatively light to heavy losses due to property damage.

The map below demonstrates the number of hail events in Warren County per year. (1 per year)



The map below designates the number of wind days per year until 1999. Warren County falls within the 3 to 4 day category. Information comes from NOAA's National Severe Storms Laboratory.

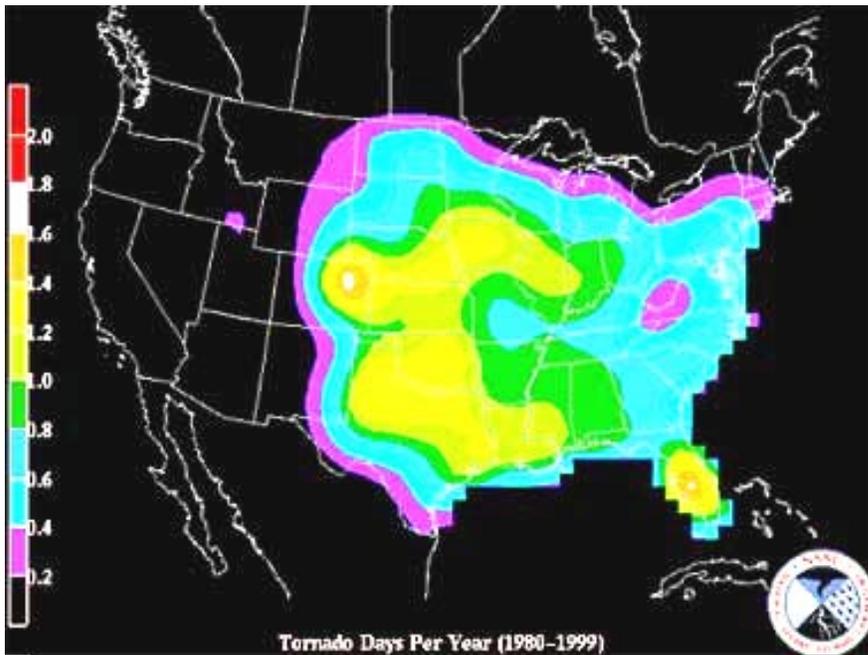


Tornadoes:

Definition: *An atmospheric storm formed by winds rotating at very high speeds, usually in a counterclockwise direction.* Since 1950 there have been 2 tornado events in Warren County; a category F1 in 1978 and an F0 in 1985. A category F0 is characterized by winds from 40-72 mph and F1 is winds from 73-112 mph. On the map below note the areas of possible tornado events. High wind/tornado events have been addressed in the severe storm section of this plan and with mitigating actions.

Tornado profile:

Location:	Southern Warren County
Extent:	Winds gusting in excess of 57 mph
Cascade effects:	Highly likely to trigger another hazard
Frequency:	Infrequent event
Potential impact:	Serious injury or death is unlikely Physical/ economic damage to private property. Structural damage to county infrastructure.



Probability of Any Tornado:

The map shows the average number of days per year any tornado, no matter how strong or weak, might occur within 25 miles of a point. The highest numbers indicate where at least one tornado might occur somewhere within 25 miles as often as on 1.5 days per year. Warren County is located in the .2 range.

5. Infestation:

Definition: *An excessive population of insects, rodents, or other animals requiring control measures due to their potential to carry disease, destroy crops or harm the environment.* Portions of Warren County suffer the effects of beavers damming up lakes, ponds, and rivers. The beaver dams do not present the hazard, but when the dams break due to heavy rain or other natural events, the resulting outflow of water creates a cascade of hazardous events.

Infestation profile:

Location:	Town of Lake George, Town of Chester
Extent:	Refer to definition above
Cascade effects:	Highly likely to trigger another hazard
Frequency:	Frequent event (occurs more than once a year)
Potential impact:	Serious injury or death in unlikely Moderate physical/economic damage to private property. Moderate structural damage to county infrastructure.

Past hazard events: The Town of Lake George provided past event history that illustrates the problem. In 2003 a beaver dam washout closed a ½ mile section of road for three days. Dam failure on Prospect Mountain affected Sewell Street residences, and two culverts unable to handle the outflow causes road wash outs twice a year, often up to 5 days. In June 2006 the Town of Chester experienced heavy rains that forced out a beaver dam in the Village of Pottersville, with repairs costing \$40,000.

Probability of future events: The towns of Johnsbury, Lake George, Chester and the Village of Pottersville experience this particular situation regularly, and it is a frequent event.

Potential impact: The unexpected failure of beaver dams and the resultant discharge of water disrupts traffic, creates flooding of roadways and residences.

Estimate of potential losses: The foremost expense to the County is the maintenance of water-damaged roads and culverts in the Towns of Lake George and Chester .

6. Wild fire:

Definition: An uncontrollable combustion of trees, brush, or grass involving a substantial area of land, with the potential for threatening human life and property. Fire: An uncontrolled burning in residential, commercial, industrial, institutional or other structures in a developed area.

According to the NYS Haz-Mit Plan, *a shifting of housing from urban to rural areas has created a new type of environment – the Wildland/Urban Interface.* DEC categorizes the Adirondack Mountains, including 95% of Warren County as a mixed and a classic interface. Mixed refers to large wildland areas with scattered structures and a classic interface is where many structures, often on small lots, border wildlands on a broad front. With the continued migration to the more remote areas these primary homes and/or seasonal homes are susceptible to forest fires since they often build on the edge or in the middle of “fuels” that feed wildland fires (trees, shrubs, and brush) This mix of structures and vegetation may cause erratic fire behavior, increasing the risk to life, property and economic welfare in the Wildland/Urban Interface. The risk for forest fires and other fires is always present - Section II provides maps of fuel loading for each jurisdiction; “Aids to Determining Fuel Models for Estimating Fire Behavior” published by the USDA, is included at the end of Section II.

Wild/Forest Fire profile:

Location: Entire county

Extent: Refer to definition above

Cascade effects: Highly likely to result in other hazards

Frequency: Infrequent (occurs once between every 8 -50 years)

Potential impact: Serious injury or death is unlikely

Severe physical and/or economic damage to private property

Severe structural damage to community infrastructure

Past hazard events: Early in the 20th century the region suffered five recorded forest fires with major losses to the lumber industry. Drought throughout July 1998 to August 1999 contributed to serious wildfire threat, resulting in a major event in the French Mountain region of the Town of Lake George. Dry, summer weather, along with gusty winds contributed to the spread of fires in 2002. All burn permits were suspended and DEC banned campfires on all State Forest Preserve lands (except campgrounds). Warren County suffered 13 fires in the month of August and fought the largest fire in the Adirondack Park, on Huckleberry Mountain in the Town of Johnsbury.(75 acres) In April 2006 “Red Flag Alerts” were issued for Warren County by the National Weather Service due to the critical weather conditions existing for extreme fire danger.

Potential impact: A shift in population trends has increased the number of homes and business in or adjacent to wildland areas. Structural losses increase and major losses of life and property may be common.

Probability of future events: Major events are infrequent occurrences.

Vulnerable areas: The entire county is at risk, but especially the regions near or in the forest lands.

Estimate of potential losses: Major events would result in massive losses for the county.

7. Earthquake:

Definition: A sudden motion of the ground due to plate tectonics, resulting in surface faulting, ground shaking or ground failure.

Earthquake profile:

Location: Entire county

Extent: See narrative below

Cascade effects: Possibly trigger another hazard

Frequency: Rare event (occurs less than once every 50 years)

Potential impact: Serious injury or death is likely
Severe physical and/or economic damage to private property
Severe structural damage to community infrastructure

Past hazard events: Earthquakes in Warren County have historically been limited primarily to minor tremors. In April 1931, Warrensburg felt the effects of an earthquake measuring 4.8, where chimneys fell and a church spire twisted. In 1984, a tremor event in the Blue Mountain Lake area impacted much of Warren County. Events in the northern New York region in 1992, 1995, 1999 and 2000 have registered magnitudes of 1.2, 2.6, 1.9 and 1.7 respectively. An event in 2002 measuring 5.1 resulted in a Governor declared state of emergency for Essex and Clinton counties. In addition these events were considerable distance from Warren County; so the events amounted to possible tremors. (See Table 3-53, NYS Hazard Mitigation Plan, below.)

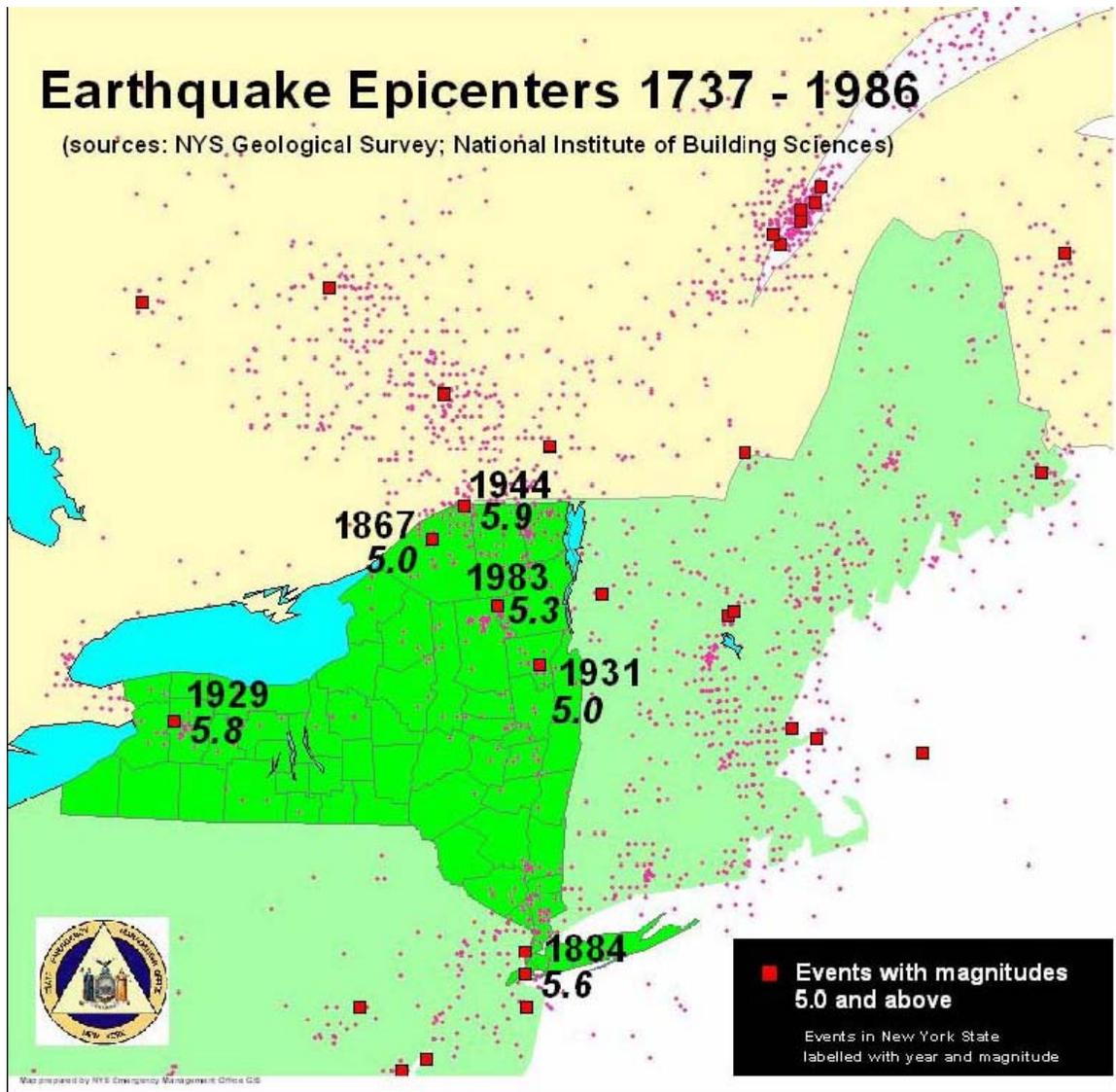
Potential impact: In the event of a major earthquake, Warren County faces considerable losses. Many homes in the County are of older stock and would sustain structural damage. Primary cascade effects would be loss of electricity and potential dam failure.

Probability of future events: Rare event

Vulnerable areas: The entire county is vulnerable to damage. Severe damage would result in the more densely populated areas.

Estimate of potential losses: In the event of a major earthquake the losses to Warren County would be immense.

The map below demonstrates the past earthquake events in New York State, pointing out Warren County's history of earthquake events. (1931, 5.0)



Earthquake intensity and classification are commonly measured on two different scales, the Maximum Modified Mercalli Intensity scale and by the Richter Magnitude scale. The following table provides ranking and classification definitions for the two scales.

Magnitude and Intensity Comparison	
Richter Magnitude Scale	Typical Maximum Modified Mercalli Intensity
1.0 to 3.0	I
3.0 to 3.9	II to III
4.0 to 4.9	IV to V
5.0 to 5.9	VI to VII
6.0 to 6.9	VII to IX
7.0 and Higher	VIII or Higher
Defined Modified Mercalli Intensity Scale Rating	
I	Not Felt except by a very few under especially favorable conditions
II	Felt only by a few persons at rest, especially on upper floors of buildings
III	Felt quite noticeably by persons indoors, especially on upper floors of buildings. Many people do not recognize it as an earthquake. Standing motor cars may rock slightly. Vibrations similar to the passing of a truck. Duration Estimated
IV	Felt indoors by many, outdoors by few during the day. At night, some awakened. Dishes, windows, doors, disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing motor cars rocked noticeably.
V	Felt by nearly everyone; many awakened. Some dishes, windows broken. Unstable objects overturned. Pendulum clocks may stop.
VI	Felt by all, many frightened. Some heavy furniture moved; a few instances of fallen plaster. Damage slight.
VII	Damage negligible in buildings of good design and construction; slight to moderate in well-built ordinary structures; considerable damage in poorly built or badly designed structures; some chimneys broken
VIII	Damage slight in specially designed structures; considerable damage in ordinary substantial buildings with partial collapse. Damage great in poorly built structures. Fall of chimneys, factory stacks, columns, monuments, walls. Heavy furniture overturned
IX	Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb. Damage great in substantial buildings, with partial collapse. Buildings shifted off foundations.
X	Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations. Rails bent.
XI	Few, if any (masonry) structures remain standing. Bridges destroyed. Rails bent greatly.
XII	Damage total. Lines of sight and level are distorted. Objects thrown into the air.

Peak Ground Acceleration Map

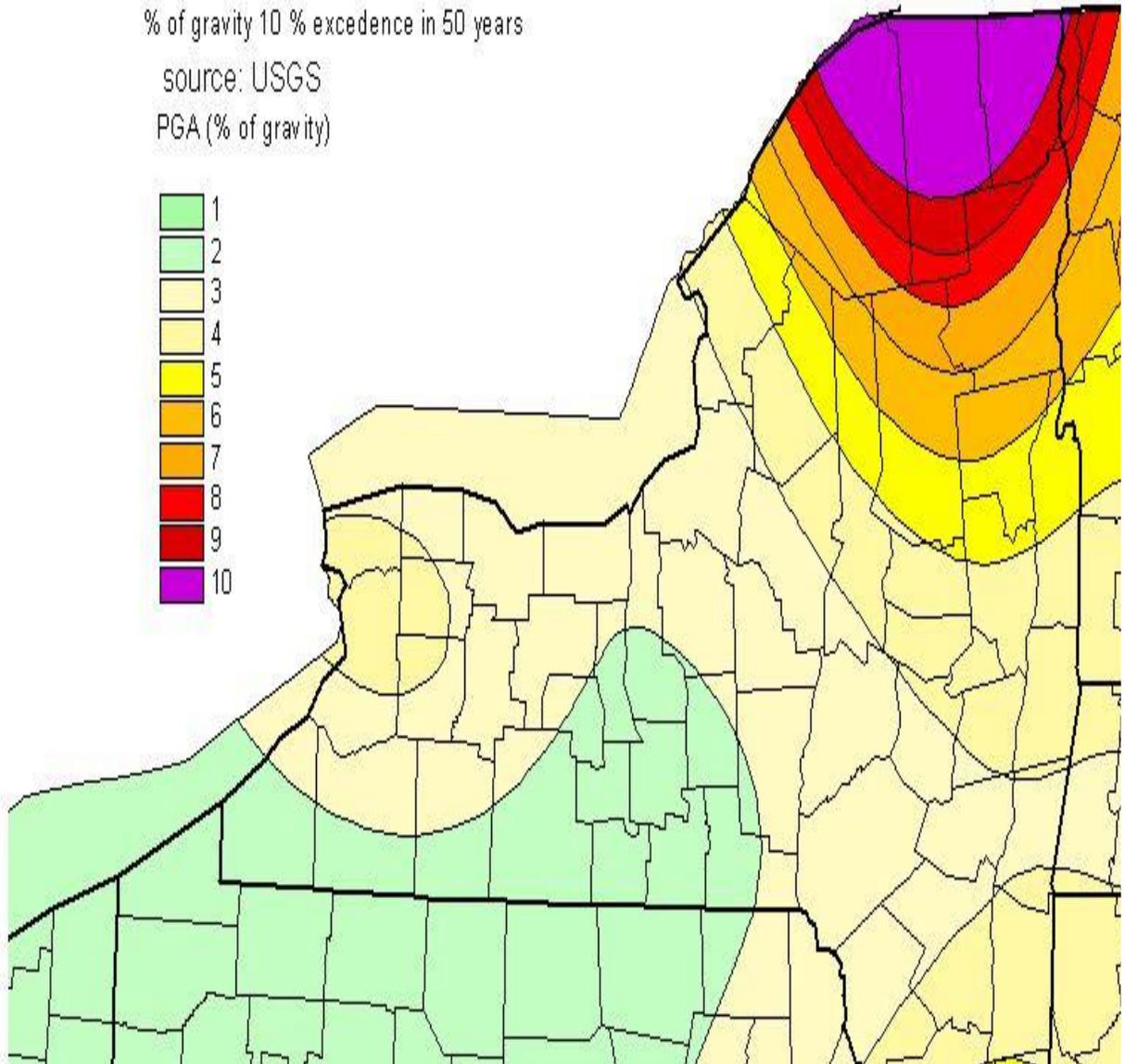
The term used to describe a measure of earthquake acceleration on the ground is called Peak Ground Acceleration (PGA). The Richter magnitude scale is a measure of the total size of the earthquake, while the PGA is how hard the earth shakes in a given geographic area. Below is the Peak Ground Acceleration map for New York State. Warren County falls in the 6% category in the north and 5% in the southern portion.

EARTHQUAKE HAZARD

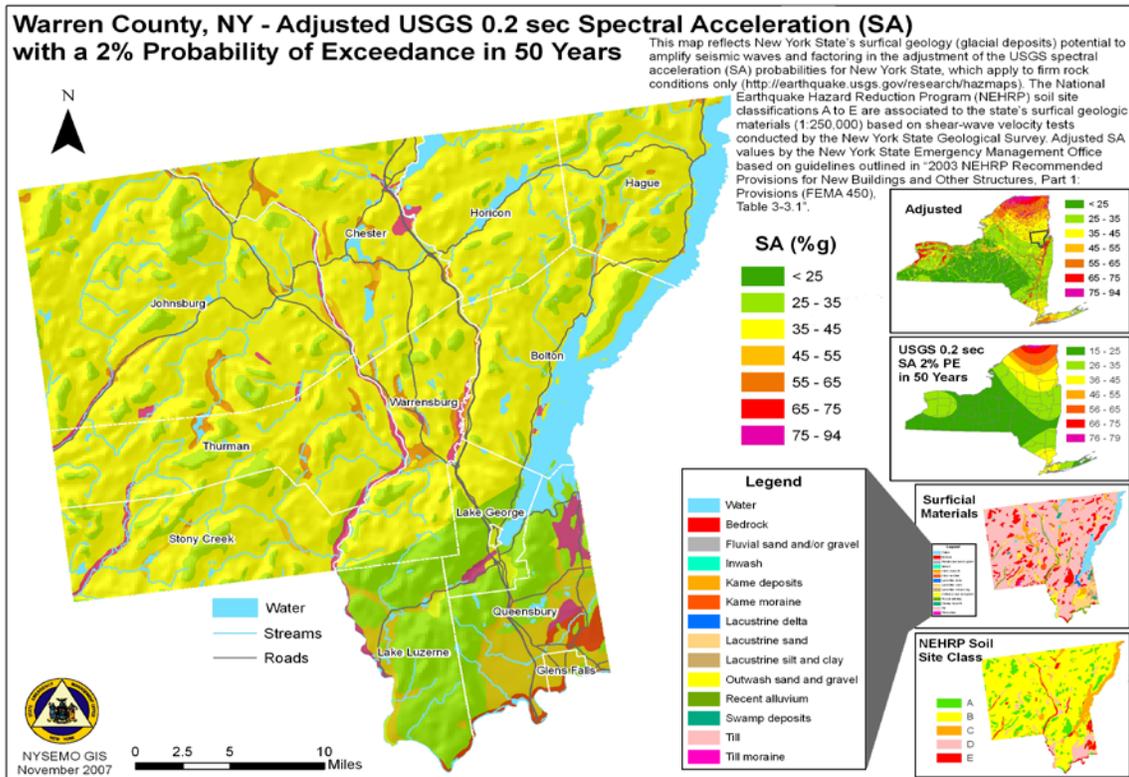
Peak Ground Acceleration - PGA
% of gravity 10 % exceedence in 50 years

source: USGS

PGA (% of gravity)



The map and chart below illustrate the Spectral Acceleration for Warren County as well as the loss estimates for the county.



Warren County HAZUS-MH Earthquake Loss Estimation

		Total Losses [x\$1,000]			
County	Total Exposure	2500-year	1000-year	500-year	250-year
Warren	4,475,350	261,034	83,893	29,930	9,442

Source: NYS Haz Mit Plan 2008, Section 3.12 Earthquake Hazard Profile

The chart above provides loss estimates from earthquake damage for Warren County. This information is updated annually, providing the county with annual information to revise the Plan as needed.

The chart below provides details from FEMA and NYS related to hazard events in Warren County taken from the 2009 FEMA Tool Kit:

<p style="text-align: center;">New York Hazard Events (adapted from FEMA web info and NYS plan)</p> <p>DR = Disaster EM = Emergencies FM = Fires X = file with more info n = no county info y = yes, county declared</p>			Notes	All NY	Warren	Washington	Wayne	Westchester	Wyoming	Yates	
Sep 2005	Hurricane Katrina Evacuation	3262-EM			y	y	y	y	y		
Apr 2005	Severe Storms and Flooding	1589-DR					y				
Oct 2004	Severe Storms and Flooding	1564-DR				y					
Oct 2004	Tropical Storms Ivan, flooding (Sept 18-19, 2006)	1565-DR	<u>L</u>								
Aug 2004	Severe Storms and Flooding	1534-DR			y				y		
Mar 2004	Snow	3195-EM									
Aug 2003	Severe Storms, Flooding and Tornadoes	1486-DR						y	y		
Aug 2003	Power Outage	3186-EM			y	y	y	y	y		
May 2003	Ice Storm	1467-DR			y				y		
Mar 2003	Snowstorm	3184-EM					y				
Feb 2003	Snowstorm	3173-EM									
May 2002	Earthquake	1415-DR									
Mar 2002	Snowstorm	3170-EM						y			
Mar 2002	Snowstorm	1404-DR									
Sep 2001	World Trade Center Terrorist Attack	1391-DR			y	y	y	y	y		
Dec 2000	Snow Storm	3157-EM									
Oct 2000	Virus Threat	3155-EM			y	y	y	y	y		
Jul 2000	Severe Storms, Flooding	1335-DR							y		
Sep 1999	Hurricane Floyd	1296-DR									
Sep 1999	Hurricane Floyd	3149-EM									
Aug 1999	West Point Fire Complex	2269-FM									
Mar 1999	Winter Storm	3138-EM				y		y			
Jan 1999	Winter Storm	3136-EM						y			
Sep 1998	Severe Storms	1244-DR				y					
Jul 1998	Severe storms and Flooding	1233-DR						y			

Jun 1998	Severe Thunderstorms and Tornadoes	1222-DR							y		
Jan 1998	Severe Storms, Flooding	1196-DR									
Dec 1996	Severe Storms, Flooding	1148-DR									
Nov 1996	Severe Storms, Wind, Flooding	1146-DR						y			
Jan 1996	Snow, Blizzard of '96	1083-DR									
Jan 1996	Severe Storms, Flooding	1095-DR			y	y					
Aug 1995	Sunrise Complex	2115-FM		n							
Aug 1994	Chemung County Flooding	undeclared	X								
Feb 1994	Herkimer County Ice Jam	undeclared	X								
May 1993	Central New York State Flooding	undeclared	X	n							
May 1993	Great Lakes Region Flooding	undeclared	X	n							
Apr 1993	World Trade Center Explosion	984-DR									
Mar 1993	Severe Blizzard	3107-EM									
Dec 1992	Nor'east Storm	974-DR									
Sep 1991	Hurricane Bob	918-DR		n							
Mar 1991	Ice Storm	898-DR		n			y		y	y	
Aug 1990	Westchester County Flooding	undeclared	X					y			
Aug 1990	Putnam County Flooding	undeclared	X								
Aug 1989	Peekskill, Westchester County Flooding	undeclared	X					y			
Nov 1987	Severe Winter Storm	801-DR		n							
May 1987	Flooding	792-DR		n							
Sep 1986	Cattaraugus and Chautauqua County Flooding	undeclared	X								
Oct 1985	Hurricane Gloria	750-DR		n							
Mar 1985	Flooding	733-DR		n							
Mar 1985	Snow Melt, Ice jams	734-DR		n							
Sep 1984	Severe Storms, Flooding	725-DR		n							
Apr 1984	Coastal Storms, Flooding	702-DR		n							
May 1981	Disaster Incident Reported - No Information Available	undeclared	X	n							
Feb 1981	Delaware River Flooding	undeclared	X	n							
May 1980	Chemical Waste, Love Canal	3080-EM		n							
May 1980	Disaster Incident Reported - No Information Available	undeclared	X	n							

Nov 1978	Disaster Incident Reported - No Information Available	undeclared	X	n						
Aug 1978	Chemical Waste, Love Canal	3066-EM		n						
Mar 1978	Disaster Incident Reported - No Information Available	undeclared	X	n						
Apr 1977	Disaster Incident Reported - No Information Available	undeclared	X	n						
Feb 1977	Snowstorms	527-DR		n						
Jan 1977	Snowstorms	3027-EM		n						
Sep 1976	Ice Storm, Severe Storms, Flooding	494-DR		n						
Sep 1976	Hurricane Belle	520-DR		n						
Aug 1976	Broome, Chemung and Tioga County Flooding	undeclared	X							
Aug 1976	New York City, Nassau and Suffolk County Flooding	undeclared	X							
Jul 1976	Erie County Flooding	undeclared	X							
Jul 1976	Broome, Cortland, St. Lawrence, Tompkins and Warren County Flooding	undeclared	X		y					
Jul 1976	Erie County Flooding	undeclared	X							
Jul 1976	Severe Storms, Flooding	515-DR		n						
Jun 1976	Chenango, Delaware, Otsego, Rockland and Schoharie County Flooding	undeclared	X							
Jun 1976	Genesee County Flooding	undeclared	X							
Jun 1976	Chemung, Schuyler, Steuben and Wayne County Flooding	undeclared	X			y				
May 1976	Oswego County Flooding	undeclared	X							
Apr 1976	Fulton and Warren County Flooding	undeclared	X		y					
Apr 1976	Chenango, Saratoga and Wayne County Flooding	undeclared	X			y				
Mar 1976	Allegany and Chautauqua County Flooding	undeclared	X							
Feb 1976	Allegany, Broome, Cattaraugus, Chautauqua, Chemung, Columbia, Delaware, Greene and Tioga County Flooding	undeclared	X							
Jan 1976	Dutchess, Jefferson, Orange, Rensselaer, Saratoga, Sullivan, Ulster, Westchester and Washington County Flooding	undeclared	X			y		y		
Jan 1976	Otsego County Flooding	undeclared	X							
Nov 1975	Chautauqua and Erie County Flooding	undeclared	X							
Oct 1975	Severe Storms, Heavy Rains, Landslides, Flooding	487-DR		n						
Oct 1975	Otsego, Schoharie, Rensselaer and Chenango County Flooding	undeclared	X							

Oct 1975	Albany, Broome, Chenango, Oneida, Otsego, Tioga and Washington County Flooding	undeclared	X		y				
Aug 1975	Erie County Flooding	undeclared	X						
Aug 1975	Chautauqua County Flooding	undeclared	X						
Dec 1974	Flooding (NYS Barge Canal)	3004-EM		n					
Jul 1974	Severe Storms, Flooding	447-DR		n					
May 1974	Monroe and Orleans County Flooding	undeclared	X						
Dec 1973	St. Lawrence County Flooding	undeclared	X						
Jul 1973	Severe Storms, Flooding	401-DR		n					
Jun 1973	Plattsburg, Clinton County Flooding	undeclared	X						
Jun 1973	Columbia, Delaware, Dutchess, Rensselaer, Sullivan and Ulster County Flooding	undeclared	X		y				
Apr 1973	Genesee, Livingston, Monroe, Ontario and Wyoming County Flooding	undeclared	X				y		
Mar 1973	High Winds, Wave Action, Flooding	367-DR		n					
Mar 1973	Village of Champlain, Clinton County Flooding	undeclared	X						
Jun 1972	Tropical Storm Agnes	338-DR		n					
Jun 1972	Coastal Storm Agnes	undeclared	X	n					
May 1972	Herkimer, Montgomery, Rensselaer, Saratoga and Schenectady County Flooding	undeclared	X						
May 1972	Cicero, Onondaga County Flooding	undeclared	X						
Mar 1972	Prattsville, Greene County Flooding	undeclared	X						
Mar 1972	Menands, Albany County Flooding	undeclared	X						
Mar 1972	Sunset Bay, Chautauqua County Flooding	undeclared	X						
Mar 1972	Town of Seneca, Erie County Flooding	undeclared	X						
Mar 1972	Waterford, Saratoga County	undeclared	X						
Sep 1971	Eastern County Flooding	undeclared	X	n					
Sep 1971	Severe Storms, Flooding	311-DR		n					
Aug 1971	Cayuga, Seneca, Tomkins & Wayne County Flooding	undeclared	X			y			
Aug 1971	Erie, Monroe, Onondaga & Oneida County Flooding	undeclared	X						
Oct 1970	Schuyler County Flooding	undeclared	X						
Oct 1970	Sullivan County Flooding	undeclared	X						
Jul 1970	Heavy Rains, Flooding	290-DR		n					

Jul 1970	Broome, Delaware, Schuyler & Tomkins Co Flooding	undeclared	X						
Jul 1970	Cattaraugus County Flooding	undeclared	X						
Apr 1970	Walkill River, Orange County Flooding	undeclared	X						
Apr 1970	Milford, Goodyear Lake, Otsego County	undeclared	X						
Feb 1970	Eagle Bridge, Rensselaer County Flooding	undeclared	X						
Feb 1970	Blenheim, Schoharie County Flooding	undeclared	X						
Feb 1970	Greene and Dutchess County Flooding	undeclared	X						
Sep 1969	Chautauqua and Allegany County Flooding	undeclared	X						
Aug 1969	Orange County Flooding	undeclared	X						
Aug 1969	Heavy Rains, Flooding	275-DR		n					
Jul 1969	Sullivan County Flooding	undeclared	X						
Jun 1969	McGraw and Courtland County Flooding	undeclared	X						
May 1969	Dexter and Jefferson County Flooding	undeclared	X						
Apr 1969	Franklin County Flooding	undeclared	X						
Feb 1969	Delaware County Flooding	undeclared	X						
Oct 1967	Severe Storms, Flooding	233-DR		n					
Sep 1966	Fire Island, Suffolk County High Tide	undeclared	X						
Feb 1966	Chautauqua County Flooding	undeclared	X						
Jul 1964	Rensselaer County Flooding	undeclared	X						
Mar 1964	Flooding Central New York State	undeclared	X	n					
Aug 1963	Erie County Flooding	undeclared	X						
Aug 1963	Erie County Flooding	undeclared	X						
Aug 1963	Heavy Rains, Flooding	158-DR		n					
Mar 1963	Chautauqua County Flooding	undeclared	X						
Mar 1962	Suffolk County Floods and High Tides	undeclared	X						
Mar 1962	Severe Storms, High Tides, Flooding	129-DR		n					
Sep 1960	Hurricane Donna	undeclared	X						
Jun 1960	Broome County Flooding	undeclared	X						
Apr 1960	Ogdensburg, St. Lawrence County Flooding	undeclared	X						
Feb 1960	Schenectady County Flooding	undeclared	X						
Dec 1957	Hudson River Flooding	undeclared	X	n					

Mar 1956	Flood	52-DR		n						
Mar 1956	Flooding	undeclared	X							
Oct 1955	Hurricane Carol	26-DR		n						
Oct 1955	Southern NY Counties Flooding	undeclared	X	n						
Aug 1955	Southern NY Counties Flooding	undeclared	X	n						
Aug 1955	Hurricane Diane, Floods	45-DR		n						
Jan 1949	NE NY Tropical Storm	undeclared	X	n						
Dec 1948	NE NY Tropical Storm	undeclared	X	n						
Sep 1944	Long Island Tropical Storm	undeclared	X	n						
Sep 1938	Ausable River and SE NY Hurricane Flooding	undeclared	X	n						
Mar 1936	Mohawk, Hudson and Susquehanna Flooding	undeclared	X	n						
Mar 1913	Hudson, Genesee Black and Mohawk Flooding	undeclared	X	n						
Oct 1903	Delaware River Flooding	undeclared	X	n						
Mar 1875	Genesee River Ice Jam	undeclared	X	n						
Apr 1865	Black River Flooding	undeclared	X	n						
Mar 1865	Genesee River Flooding	undeclared	X	n						
Sep 1821	Long Island Tropical Storm	undeclared	X	n						
Sep 1815	Long Island Great September Gale	undeclared	X	n						
Aug 1635	Long Island recorded Hurricane	undeclared	X	n						

The following events occur infrequently in Warren County; each is defined and addressed in general terms.

Extreme Temperatures:

Definition: *Extended periods of excessive cold or hot weather with a serious impact on human and/or animal populations.* Warren County occasionally experiences extreme heat/cold temperatures but not for extended periods of time as indicated in the definition; these are seasonal weather events. Extreme temperature events are addressed in the severe storm and heavy snowfall sections of the plan and include mitigation actions.

Landslide:

Definition: *The downward and outward movement of slope-forming materials reacting to the force of gravity. Slides may be comprised of natural rock, soil, artificial fill or a combination of these materials.* According to the NYS Hazard Mitigation Plan, Warren County is considered an area of “low landslide incidence” with only one recorded landslide event from 1837-2007.

Drought:

Definition: A prolonged period of limited precipitation affecting the supply and quality of water. Warren County has been an ancillary region in seven drought events in the Albany area (NCDC). April through August 1999 was the second driest period on record in Albany, resulting in a significant drought event for Warren County as well. This noteworthy dry period resulted in serious risk for forest fire in Warren County (see wild/forest fire risk)

Hurricanes:

Definition: 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” According to the National Climatic Data Center Warren County has not experienced a hurricane in the time period 1950 – 2009 so this is of relatively minor concern to the County. However the problems and costs associated with high wind events has been addressed in the severe storm profile section and mitigation activities.

Subsidence:

Definition: Depressions, cracks and sinkholes in the earth surface which can threaten people and property. Land subsidence has been documented in other regions of NYS and the Haz-Mit Plan for NYS recognizes it is “difficult to predict probability of future occurrence, only that it is likely.” As none have occurred within the county to date, none are expected.

Assessing Vulnerability: Identification of Assets and Development Trends

To understand risk, community assets are evaluated based upon exposure to hazard events. The inventory of assets considers the population, structures, and lifelines that could be impacted by hazard events. This section presents inventory data used for this risk assessment and discusses development trends in the area of interest. The consideration of development trends is important because areas of future development could increase the inventory that is exposed, and therefore at risk of damage or loss should a hazard event occur.

Inventory data enumerate the people, places, and things that could be injured, damaged, or destroyed during a particular hazard event. Once the general asset inventory has been established, the portion of the inventory that is at risk by the various hazards is identified. This “at-risk” division can be identified by overlaying the hazard area (for example, flood zones) with the asset data to estimate the assets at risk. Districts of residential development may be compared with flood zones to determine the locations and number of structures at risk of damage or destruction from flooding. Understanding vulnerable assets can help guide mitigation strategies and efforts. Hazard exposure and loss estimates use this approach.

The chart below demonstrates the number of individuals considered vulnerable along with the total housing units potentially at risk in each jurisdiction and Warren County in its entirety.

Jurisdiction Town/City/Village	Total Housing Units	Total population	Age 5 and under	Age 65 and older	Total vulnerable
Bolton	2,164	2,117	83 (3.9%)	411 (19.4%)	494(23.3%)
Chester	2,418	3,614	181 (5%)	561 (15.5%)	742(20.5%)
Hague	1,047	854	25 (2.9%)	222 (26%)	247(28.9%)
Horicon	1,767	1,479	40 (2.7%)	281 (19%)	321(21.7%)
Johnsburg	1,714	2,450	113 (4.6%)	461 (18.8%)	574(23.4%)
Lake George Town	2,456	3,578	175(4.9%)	532(14.9%)	707(19.8)
Lake Luzerne	1,949	3,219	174(5.4%)	437(13.6%)	611(19.0%)
Queensbury	11,223	25,441	1,471(5.8%)	3,859(15.2%)	5,330(21%)
Stony Creek	513	743	32(4.3%)	114(15.3%)	146(19.6%)
Thurman	642	1,199	60(5.0%)	174(14.5%)	234(19.5%)
Warrensburg	2,148	4,255	236(5.5%)	582(13.7%)	818(19.2%)
Lake George Village	579	985	42(4.3%)	137(13.9%)	179(18.2%)
Glens Falls City	6,811	14,354	841(5.9%)	1961(13.7%)	2,802(19.6%)
Warren County	34,852	63,303	3,431(5.4%)	9,595(15.2%)	13,026(20.6%)

Section II contains potential conservative Flood Loss Estimates for each jurisdiction within the county based upon 50% of buildings (located in the floodways) experiencing 30% damage. A comprehensive inventory of assets located within the county (with their tax assessed value) is also attached at the end of Section II.

The purpose of the flood maps and forest fire fuel analysis maps is to illustrate how some critical facilities may be impacted based upon their proximity to wooded areas, i.e., potential wildfire(s). Section II contains conservative potential loss estimates due to wildfire; calculations are based upon building, critical facilities, and/or infrastructure that is/are within 100 lineal feet of forested areas. Countywide assets, including roads, bridges and infrastructures are enumerated in Appendix I.

Severe Repetitive Loss – Key informants and representatives of the municipalities within Warren County reported that there are two areas within their respective jurisdictions (see chart below) that meet the definition of severe repetitive loss as put forth by FEMA. One area is located in the Town of Johnsbury in the northwest corner of the county; the second is in the Town of Queensbury located in the southeastern portion. The chart on the next page provides details on repetitive loss properties in Warren County since 1978.

<i>FULLNAME</i>	CRS CLRAT	Repetitive Loss #s	Repetitive Loss Paid	# of Policies	TOT_COVER	Total Premiums	Total Claims Since 1978	Paid Claims Since 1978	V_ZONE	A_ZONE	Insurance in Force
<i>BOLTON, TOWN OF</i>	0	0	\$0	17	\$4,021,000	\$7,901	4	\$38,857	0	4	\$4,021,000
<i>CHESTER, TOWN OF</i>	0	0	\$0	26	\$3,881,800	\$16,803	33	\$20,201	0	15	\$3,881,800
<i>GLENS FALLS, CITY OF</i>	0	0	\$0	5	\$546,000	\$1,043	0	\$0	0	0	\$546,000
<i>HAGUE, TOWN OF</i>	0	0	\$0	9	\$2,375,800	\$5,837	4	\$8,021	0	3	\$2,375,800
<i>HORICON, TOWN OF</i>	0	0	\$0	18	\$3,480,400	\$13,170	3	\$27,046	0	10	\$3,480,400
<i>JOHNSBURG, TOWN OF</i>	0	1	\$55,217	14	\$2,076,300	\$8,027	4	\$56,869	0	7	\$2,076,300
<i>LAKE GEORGE, TOWN OF</i>	0	0	\$0	5	\$865,000	\$2,897	1	\$31,400	0	1	\$865,000
<i>LAKE GEORGE, VILLAGE OF</i>	0	0	\$0	3	\$720,000	\$3,113	1	\$2,759	0	2	\$720,000
<i>LAKE LUZERNE, TOWN OF</i>	0	0	\$0	36	\$5,445,900	\$29,687	12	\$13,123	0	28	\$5,445,900
<i>QUEENSBURY, TOWN OF</i>	0	1	\$3,577	77	\$16,780,800	\$73,388	34	\$95,988	0	49	\$16,780,800
<i>STONY CREEK, TOWN OF</i>	0	0	\$0	3	\$317,700	\$2,166	0	\$0	0	3	\$317,700
<i>THURMAN, TOWN OF</i>	0	0	\$0	3	\$462,000	\$732	4	\$70,132	0	0	\$462,000
<i>WARRENSBURG, TOWN OF</i>	0	0	\$0	22	\$3,179,700	\$12,618	7	\$11,648	0	14	\$3,179,700
<i>WARREN COUNTY</i>	0	2	58,794	238	44,152,400	177,382	107	376,044	0	136	44,152,400

Mitigation Strategies

Hazard mitigation reduces the potential impacts and costs associated with emergency and disaster related events. Mitigation activities address a range of impacts, including impacts on the population, property, the economy, and the environment.

Mitigation activities can include activities such as: revisions to, and enforcement of, building codes; revisions to land-use planning; training and education, and structural and nonstructural safety measures.

An overview of past and current mitigation efforts in Warren County is valuable as a foundation for understanding the mitigation goals, objectives and activities to be outlined. In the past, Warren County and its jurisdictions have undertaken numerous activities demonstrating a continual effort to implement hazard mitigation projects. As one example, the County has prepared a Comprehensive Emergency Management Plan to address various regional concerns. Various projects are on-going in the county at this time;

2008 Repair and replacement of the Butler Storage Reservoir Dam and the Butler Pond Dam in Glens Falls (Common Council Minutes April/May 2008)

2008 New gate installation for lower dam on Mill Pond and wing wall repair on the upper dam on Mill Pond – Town of Horicon (Spring 2008 Newsletter)

2008 Submission of Loon Lake Dam Emergency Action Plan to DEC, including a “what if” the dam went out and who would be flooded downstream Town of Chester (Meeting Minutes July 2008)

2009 Paving projects in 11 towns and Glens Falls (Summer 2009, County DPW)

Below is a list of anticipated county Department of Public Works (DPW) projects from the Warren County DPW Website.

FEDERAL (80%)/STATE (15%) AID PROJECTS			
Site	PROJECT	COST	DATE COMPLETED
Corinth Road - Main Street Corridor in the Town of Queensbury and City of Glens Falls	Total reconstruction, upgrade utilities, and widen to 3 lanes	\$12.654 Million	2008-2010
Middleton Bridge over the Schroon River in the Towns of Bolton and Warrensburg	Possible bridge replacement	1.793 Million	2009
Tannery Road Bridge over Stony Creek in the Town of Stony Creek	Bridge Replacement	1.447 Million	2008

Grist Mill Road Bridge over Stony Creek in the Town of Stony Creek	Bridge Replacement	1.103 Million	2008
Woolen Mill Bridge (Milton Street) over the Schroon River in the Town of Warrensburg	Bridge Replacement	2.893 Million	2008
Beach Road in the Town and Village of Lake George	Reconstruction, utility and drainage upgrade and multi modal safety improvements	5.002 Million	2010
Harrington Road Bridge over Mill Creek in the Town of Johnsbury	Possible bridge replacement	1.055 Million	2010
Alder Brook Road Bridge over Trout Brook in Chestertown	Possible bridge replacement	1.469 Million	2008

A majority of the jurisdictions have Comprehensive Plans either completed or in-process at this time. Emergency Management Plans are found in each jurisdiction as well as Warren County. Seven townships and the City of Glens Falls have zoning boundaries and codes, reviewed in 2008. For those jurisdictions without a Zoning Plan, Warren County has a countywide plan in use that adheres to Adirondack Park Agency (APA) guidelines. The NYS Uniform Fire Prevention and Building Code is enforced throughout the county, with additional local building codes enforced in the Town of Queensbury and the City of Glens Falls.

Zoning Data (taken from the Warren County Planning Board website)

The majority of the communities in Warren County have their own zoning regulations, and the remaining municipalities adhere to the NYS Adirondack Park Agency Land Classification. Listed below are the respective zoning layers available for Warren County.

Layer	Data Source
<u>Town of Bolton Zoning</u>	Warren County
<u>City of Glens Falls Zoning</u>	Warren County
<u>Town of Hague Zoning</u>	Warren County
<u>Town of Horicon Zoning</u>	Warren County
<u>Town of Lake George Zoning</u>	Warren County
<u>Town of Lake Luzerne Zoning</u>	Warren County
<u>Town of Queensbury Zoning</u>	Town of Queensbury Planning Dept.
<u>Town of Warrensburg Zoning</u>	Warren County
<u>Adirondack Park Land Classification</u>	Adirondack Park Agency

Vision Statement

Warren County subscribes to the Hazard Mitigation Vision Statement developed by the State Mitigation Summit of 2002 and 2008:

“To create communities whose daily activities reflect a comprehensive commitment by government, business, non-profit organizations and the public to eliminate or reduce risks and adverse impacts from natural, technological and human-caused hazards.”

Mitigation Goals

Mitigation goals for Warren County act as general guidelines representing a long range vision for hazard reduction and the enhancement of mitigation capabilities. The goals are compatible with the concepts expressed in available planning documents for the multiple jurisdictions.

Goal 1: Protect life and property

- Introduce mitigation activities that will make homes, businesses and critical facilities more hazard resistant
- In areas vulnerable to hazards, encourage businesses and homeowners to take preventive actions when possible.
- Periodically review existing building codes, safety procedures, town and county ordinances to update recent standards for building protection.
- Immediately enforce existing building codes within the jurisdiction
- Encourage owners of home and businesses and renters to purchase appropriate insurance coverage for potential damages from hazards.
- Implement mitigation activities encouraging protection of the environment

Goal 2: Increase public awareness

- Continue developing and integrating education and outreach programs in an effort to enhance public awareness of the hazards, providing information on specific activities for individuals in anticipation of a hazard event .
- Provide information on current government programs and funding resources to assist with mitigation
- Strengthen communication and cooperation between public agencies, citizens, non-profit groups, and businesses to implement mitigation activities effectively.

Goal 3: Provide for Emergency Services

- Coordinate hazard mitigation activities with existing local emergency plans
- Identify and plan for acquiring any specific emergency services and equipment needed to improve response capabilities for specific hazards
- Review emergency traffic routes, making changes as needed, and educating the public as to the routes

Natural Hazards – Mitigation Goals, Objectives, Strategies

Warren County jurisdictions identified a broad range of actions for mitigation planning. Input from local government agencies, social service organizations, residents and others

contributed to the development of the current list of mitigation actions. No reasonable natural hazard mitigation actions were dismissed.

The following section lays out the mitigation goals and actions developed through the hazard mitigation planning process. Timelines for projects and planning actions that require additional staff and funding are dependent on the securing of necessary funding. The most likely funding sources for these actions are listed in the table. Additional potential funding sources are included in Appendix G: Federal, State, and other funding sources. The County and participating municipalities have limited resources to take on new responsibilities or projects. The implementation of these mitigation activities is dependent on the approval of each local elected governing body and the ability of the communities to obtain funding from local or outside sources. The communities will work together and with the County, SEMO, and other agencies to secure funds. Potential appropriate funding sources are noted for specific mitigation actions, however until application(s) for funds is(are) made, no particular funding source is yet identified.

Proposed mitigations actions in the following section and the Jurisdictional Annex have the support of all the jurisdictions. This is demonstrated in the approval of the Plan by each jurisdiction as well as the fact that the county form of government followed in Warren County includes Town Supervisors as established members of the County Board of Supervisors. All municipal activities will begin under the direction of the executive, i.e. town supervisor, mayor. Additionally, training of local code officials is planned to ensure that those building code elements related to minimizing earthquake damage are known, enforced and disseminated to the public.

Mitigation projects were evaluated based on the costs, timeframe for implementation and ease of implementation. Based on their collective expertise in pertinent areas, the ERPC assigned time frames based on the categories of *immediate*, *short-term*, and *long term*. *Immediate* is within 6 months, *short-term* is within 1 year and *long term* is within 3 years. Priorities were determined by considering cost, staffing availability, and benefit to the jurisdiction, with *high* indicating a low cost, broad impact action, *medium* indicating a future project with potential funds available and *low* priority indicating a long term endeavor, with an alternate funding source necessary. Warren County recognizes that FEMA requires a formal benefit-cost analysis (BCA) of mitigation measures when requesting approval for HMGP funding. A formal BCA is not a requirement in the Hazard Mitigation Plan. A formal BCA as well STAPLEE will be conducted previous to the annual review of the Plan. Specific mitigation actions are noted below in the Implementation Strategy Plan

IMPLEMENTATION STRATEGY PLAN

* Refer to Appendix G – Funding Resources

Low - low cost – under \$10,000

High – High cost – over \$10,000, need alternative funding source

Hazard/Risk	Objective	Strategy	Lead Agency	Funding	Target Date/Time frame	Existing/ New Buildings	Priority High Medium Low
Reduce the impact of severe snow/ ice storms	Improve public awareness of hazard Goal 2	Educate county residents with information regarding steps to be taken to decrease the impact of ice storms on property (Appendix D)	County Office of Emergency Services will provide information executives of each municipality will direct dissemination	Current funding Low	Fall 2010 Ongoing I	y	H
	Keep trees from threatening lives, property, and public infrastructure during storm events Goal 1	Monitor and remove trees/limbs in storm areas.	DPW,(County, Towns)	Current funding Low	Fall 2010 ongoing I	y	H
	Ensure critical facilities have needed backup power Goal 3	Obtain funding to purchase generators for municipally owned critical facilities	Office of Emergency Services, executives of each	TBD* High	Fall 2010 ongoing LT	y	L

			municipality				
	Identify emergency concerns of specific needs populations Goal 3	Survey populations as to their requirements	County Office of Emergency Services, Social Services Department, County Public Health, Office of the Aging	Current funding Low	Fall 2010 ongoing ST	n/a	M
	Ensure efficient use of resources, during and after storm events Goal 3	Coordinate emergency services, public works departments, and public utilities.	Executives of each municipality, County executives	Current funding Low	Fall 2010 Ongoing I	n/a	H
	Implement debris removal as soon as possible Goal 1	Develop plans for debris management after severe winter snow/ice events.	DPW(County and Towns)	Current funding Low	Fall 2010 ongoing	n/a	H
	Connect with elderly, handicapped, low-income, during major events. Goal 2	Design a network of citizens that will check in on individuals during major events	Department of Social Services, Office of the Aging, Municipal executives	TBD* High	Fall 2010 ongoing I	n/a	L
Reduce the potential damage and threat to life and property from wild/forest fires	Improve public awareness of hazard prevention Goal 2	Educate county residents with information regarding steps to be taken to decrease the impact of wild/forest fires on property (Appendix D)	County Office of Emergency Services will provide information executives of each municipality	Current funding Low	Fall 2010 Ongoing I	y	H

			will direct dissemination				
	Review zoning and guidelines for compliance with national “FireWise Communities” program (Appendix D) Goal 1	County Office of Emergency Services will conduct a review of “FireWise Communities” guidelines to develop a Best Practices summary. Each municipality will review the summary and make modifications to their zoning practices	County Office of Emergency Services, County Fire Prevention and Building Codes Office, Town of Queensbury, City of Glens Falls Code Officials, executives of each municipality	TBD* High	Fall 2010 through Fall 2013 LT	y	L
	Fire fighter training/updating Goal 3	Each jurisdiction will send a representative to the NYS Wildland Fire Suppression Training (Appendix D)	Executive of each jurisdiction, County Office of Emergency Services	TBD* Low	On going I	n/a	M
	Educate fire departments on DEC Wildfire Management Draft Plan Goal 3	DEC will inform county about shared services in Draft Plan	County Office of Emergency Services and DEC	DEC/ NYS Low	On going I	n/a	H
	Educate fire departments on assistance from NFFPC Goal 3	DEC will inform county about shared services through Northeastern Forest Fire Prevention Compact(NFFPC)	County Office of Emergency Services and DEC	DEC/ NYS Low	On going ST	n/a	H
Reduce the impact from severe storms/winds	Improve public awareness of impact of hazard Goal 2	Educate residents regarding steps to be taken to decrease damage	County Office of Emergency Services will	Current funding Low	Fall 2010 Ongoing I	y	H

		from storms on property by providing brochures. (Appendix D)	provide brochure, executives of each municipality will direct dissemination				
	Ensure existing storm related building codes are enforced per the current code. Goal 1	Municipal executive to require Code Enforcement Officer to present building guideline details in the jurisdiction relating to severe storms	Executives of each municipality, County Building Codes Office, City of Glens Falls, Town of Queensbury Code Officials	Current funding Low	Fall 2010 Ongoing I	y	H
	Keep trees from threatening lives, property, and public infrastructure during storm events Goal 1	Monitor and remove trees/limbs in storm areas that present potential hazards	DPW, (County, Towns)	Current funding Low	Fall 2010 ongoing I	y	H
	Ensure efficient use of resources, during and after storm events Goal 3	Coordinate emergency services, public works departments, and public utilities.	Municipal executives County Emergency Services	Current funding Low	Fall 2010 Ongoing I	n/a	H
	Ensure for debris removal as soon as possible Goal 1	Implement plan for debris management after severe storm events.	DPW(County) and Highway Dept.(Towns)	Current funding Low	Fall 2010 ongoing I	n/a	H
	Ensure critical facilities have needed backup power Goal 3	Obtain funding to purchase generators for critical facilities	County Office of Emergency Services, municipality Executives	TBD* High	Fall 2010 ongoing I	y	L

Reduce the impact from tornado	Improve county wide public awareness with information on steps to be taken to identify risk Goal 2	Educate residents to identify a tornado watch from a tornado warning and actions to take in each case; all municipalities will post information	County Office of Emergency Services will provide information, executives of each municipality will direct dissemination	Current funding Low	Fall 2010 ongoing I	y	H
Reduce the impact from earthquake	Ensure existing earthquake-related building codes are enforced. Goal 1	Municipal executive to require Code Enforcement Officer present earthquake-related building codes information in their jurisdiction Provide training for local code enforcement officials	Executives of each municipality, County Building Codes Office, City of Glens Falls, Town of Queensbury Code Officials	NYS Low	Fall 2010 through 2011 I	y	H
	Improve county wide public awareness with information on steps to be taken to identify risk Goal 2	Educate residents relating to steps taken to alleviate potential earthquake damage by providing brochures/pamphlets(Appendix D)	County Office of Emergency Services will provide brochure/pamphlet, executives of each municipality will direct dissemination	Current funding Low	Fall 2010 I	y	H
Reduce the impact from flooding	Improve county wide public awareness of hazard Goal 2	Provide residents with information listing steps taken to lessen potential flood damage(Appendix D)and increase knowledge of NFIP	County Office of Emergency Services will provide pamphlets, executives of	Current funding Low	Fall 2010 I	y	H

		services	each municipality will direct dissemination				
	Maintain cleared areas around roadways (obstructions of groundwater, infestation) Goal 1	Clear areas around Truesdale Hill Road, Prospect Mountain, Sewell Street area, all county roads	Town of Lake George DPW and county DPW	Current funding Low	Fall 2010 I	y	H
	Maintain cleared areas around roadways (obstructions of groundwater, infestation) Goal 1	Clear areas around Riverside Station Road, River Road, all county roads	Town of Johnsbury DPW and county DPW	Current funding Low	Fall 2010 I	y	H
	Alleviate flooding of roadways Goal 1	Elevate roads to avoid flooding, River Road, Sky-High Road, West Stony Creek Road, all county roads	Town of Thurman DPW and county DPW	TBD* High	Summer 2011 LT	y	L
	Alleviate flooding of roadways Goal 1	Elevate or reroute roadways/bridges to avoid flooding, Pack Forest Road Bridge, Alden Avenue Extension, all county roads	Town of Warrensburg DPW and county DPW	TBD* High	Summer 2011 LT	y	L
	Alleviate flooding of roadways	Elevate or reroute roadways/bridges to avoid flooding, Pease Hill Road, Hayford Road,	Town of Horicon DPW and county DPW	TBD* High	Summer 2011 LT	y	

		River Road, all county roads					
	Alleviate flooding of roadways Goal 1	Elevate or reroute roadways/bridges to avoid flooding, Barney Hill Road Baker's Mills area, all county roads	Town of Johnsborg DPW and county DPW	TBD* High	Summer 2011 LT	y	L
	Participation in the Community Rating System(CRS) by NFIP municipalities Goal 1	Communities will begin participation in CRS and inquire as to their points toward current status (Appendix D)	Executives of individual municipalities	TBD* High	Spring 2011-2013 LT	y	L
	Eliminate obstructions to surface water drainage(Appendix E) Goal 1	Identify and examine culverts in affected areas regularly, remove obstructions as necessary	DPW(County and Towns), County GIS Coordinator	Current funding/ DEC Low	Fall 2010 ongoing I	n/a	H
	Clean and maintain stormwater drains and catch basins Goal 1	Identify and examine stormwater drains and catch basins in affected areas, follow County DPW guidelines for maintenance (Appendix D)	DPW(County and Towns) County GIS Coordinator	Current funding Low	Fall 2010 ongoing I	n/a	H
	Create effective flood mitigation activities for "hot spots" within the county Goal 1	Identify, evaluate and implement activities in flood areas(Appendix E)	DPW(County and Towns)	TBD* High	Fall 2010 ongoing LT	y	L
	Community outreach Goal 2	Educate the community on benefits of carrying NFIP policies	Town Floodplain Administrators**, City of Glens Falls Flood Plain Administrator	Current funding Low	Fall 2010 ST	y	

	Ensure flood prone areas have updated information via County web site Goal 2	Identify new flood data and prioritize areas	GIS Coordinator, Office of Emergency Services, FEMA mapping	Current funding Low	Fall 2010 I	y	H
	Ensure all jurisdictions have flood damage prevention codes, identify flood hazard areas in Town codes Goal 1	Town zoning and emergency codes to be reviewed and updated	Executives of each municipality, Flood Plain Administrators**, Town Floodplain Administrators, City of Glens Falls Flood Plain Administrator	Current funding Low	Fall 2010 ongoing I	y	H
Reduce the threat to life and property from multiple hazards	Ensure consistency with the goals/objectives of this plan and existing local plans Goal 1	Review local plans integrating goals, objectives, activities not found in existing regulatory documents as appropriate	Executives of each municipality, Office of Emergency Services	Current funding Low	Fall 2010 to Fall 2011 I	y	H
	Public awareness of hazard warning systems in county jurisdictions Goal 1, 2	Disseminate via Warren County web page of all warning systems in place and how the public should notify officials of a potential hazard	Developed by jurisdictional emergency services with the county Emergency Services Office,	Current funding Low	Winter 2010-11 I	n/a	H
	Maintain a current inventory of at-risk buildings and infrastructure Goal 1, 3	Continually update inventory of at-risk structures in each jurisdiction	Executives of each municipality, Office of Emergency	Current funding Low	Fall 2010 ongoing LT	y	M

			Services				
	Maintain list of year built and level of protection for each critical facility relating to all applicable hazards Goal 1, 3	Conduct a study to determine year built, and level of vulnerability for each critical facility	Warren County GIS Coordinator, Municipal Executives	Current funding Low	Fall 2011 LT	y	M
	Seek funding for mitigation projects needed to provide a level of protection for critical facilities Goal 1, 3	Apply for grants to assist with mitigation activities	Warren County Emergency Services, Hazard Mitigation Coordinator, Municipal Executives	TBD* High	Spring 2012 LT	y	L
	Foster involvement in communication/collaboration between the County and municipalities Goal 2	Develop and hold public hearings related to the inclusion of mitigation activities in local laws, encourage the public to add to the collaboration efforts	Warren County, Executives of municipalities	Current funding Low	Fall 2010 ongoing I	n/a	M
	Maintain and expand emergency preparedness and response countywide Goal 3	Increase communication and cooperation between County/local DPW and County/local emergency services. Link emergency services with hazard mitigation programs	Executives of each municipality, County/local DPW, emergency responders (County and local), Office of Emergency Services, County Public Health	Current funding Low	Fall 2010 ongoing I	n/a	H
	Educate citizens,	Develop, enhance and	Executives of	TBD*	Fall 2010		

	public agencies, private property owners, businesses and schools on mitigating hazards and reducing risks Goal 2	implement education programs, brochures , school presentations informing groups about ways to reduce risk	each municipality, Superintendent of area school districts, County Public Health , Red Cross	Low	ongoing I	n/a	H
	Encourage homeowners to buy hazard insurance when possible Goal 1	Develop an outreach program to inform public about options available,	Executives of each municipality, Office of Emergency Services , Red Cross	TBD* Low	2011 ST	y	H
	Ensure code enforcement and inspection services Goal 1	Continue education, training and updated information to Municipal Flood Plain Administrators	Executives of each municipality, Flood Plain Administrators**	NYS High	Fall 2010 ongoing I	y	M
	Maintain prioritization of objectives/strategies in Plan Goal 2	Make revisions and update information using the STAPLE+E criteria	Executives of each municipality, County Hazard Mitigation Officer	TBD* High	2013 LT	y	M
	Re-evaluate mitigation action priorities and update the plan.	Update mitigation action priorities using BCA as detailed in FEMA Tool kit(FEMA 386-5)	Executives of each municipality, County Hazard Mitigation Officer	TBD* High	2013 LT	y	M
	Protect property development from	Implement zoning regulations to discourage	Executives of each jurisdiction	Current funding	Fall 2010 ongoing	n/a	M

	disaster prone areas county wide Goal 1	building new structures in disaster prone areas	Municipal Zoning and Flood Plain Administrators**	Low	ST		
	Maintain documents used and required for the mitigation plan Goal 3	Create a centralized library of all documents used	County Mitigation Officer	Current funding Low	Fall 2010 ongoing I	n/a	H
	Protect property development from disaster prone areas county wide Goal 1	Implement building codes that reflect disaster resistant construction for new structures and renovation	Executives of each jurisdiction and Code Enforcement Officer	Current funding Low	Fall 2010 ongoing I	y	M
	Maintain/adjust mitigation action priorities	Use STAPLE-E and Benefit/Cost Analysis of mitigation action projects.	County Hazard Mitigation Officer, ERPC (Planning Committee)	Current Funding Low	Annually beginning 2011 ST	n/a	H

** Flood Plain Administrators

List of Local Flood Damage Prevention Administrators:

- Town of Bolton—Zoning Administrator
- Chestertown—zoning Administrator
- Town of Hague—Zoning Administrator
- Town of Horicon—Zoning Administrator
- Town of Johnsburg—Zoning Administrator
- Town of Lake George—Zoning OFFICE
- Village of Lake George—BUILDING & ZONING ADMINISTRATOR
- Town of Lake Luzerne—PLANNING BOARD
- Stony Creek—Codes Administrator Warren County Office of Code Enforcement
- ***this is currently under review as there is no inter-municipal agreement authorizing the administrator
- Thurman—TOWN BOARD
- Warrensburg—WARRENSBURG CODE ENFORCEMENT OFFICE
- Town of Queensbury—Director of Codes
- City of Glens Falls—Zoning Enforcement Officer

Next steps This draft plan will be reviewed by Warren County Emergency Services, the County Mitigation Coordinator, and ERPC Committee. Revisions, additions and adjustments will be made. Town Supervisors will provide input and public hearings will be held. The input from all parties involved will be reviewed by the planning group, documented and discussed and used to prepare a final plan acceptable for adoption by all of the participating jurisdictions and approval by SEMO as a compliant, multi-jurisdictional pre-disaster hazard mitigation plan, designed to meet the state and federal requirements for mitigation planning.

Plan Monitoring/ Maintenance

In an effort to foster hazard awareness and facilitate planning continuity, new elected and appointed town, village, and county officials will be presented an opportunity to review the *Warren County Multi-jurisdictional Hazard Mitigation Plan* (the Plan). It is good policy for City, Town and Village jurisdictions to consider the Plan when developing or updating zoning, land use, and community development activities and prior to adoption of new zoning or land use regulation(s) to integrate hazard mitigation that will reduce the effects of natural disasters on life and property.

A survey of jurisdictions resulted in the following information.

Jurisdiction Town/City/Village	Comprehensive Plan/Land Use	Zoning Ordinance	Town/City/Village Codes
Bolton	y	y	y
Chester	y	y	y
Hague	y	y	y
Horicon	y	y	y
Johnsburg	y	y	y
Lake George Town	y	y	y
Lake Luzerne	y	y	y
Queensbury	y	y	y
Stony Creek*			y
Thurman*			y
Warrensburg	y	y	y
Lake George Village	y	y	y
Glens Falls City	y	y	y
Warren County	y	y	y

* Town relies on Adirondack Park Agency regulations

The *Warren County Multi-Jurisdictional Hazard Mitigation Plan* will be monitored and evaluated annually and updated at least every five years. As the towns and county gradually implement the action items within the Plan, remaining action items may evolve or priorities may change. The hazards that exist in Warren County will continue to be present, but the conditions within the region, such as population and development patterns will continue to change. Often these changes occur gradually, and the Plan will be monitored, evaluated and revised to ensure that it remains current and retains its relevance to the jurisdictions. **Forms adapted from the FEMA Tool-Kit will be utilized in this process. (Appendix J)** Annually, major updates will be forwarded to the NY SEMO Mitigation Branch and will require formal Board of Supervisors approval.

Representatives from each jurisdiction will collect and process reports from agencies involved in implementing mitigation projects or activities in the Plan annually.

Representatives from each entity should include those with direct knowledge of the mitigation projects and/or the potential hazards in their jurisdiction; i.e. Fire Chiefs, Highway Officials, Planning Board Members. Each municipality's Executive Officer will be responsible for collecting and maintaining any information for the annual review. Items to be reviewed include mitigation project completion within the allotted budget and schedule, funding status, dollar amounts in losses avoided and changes in number of households, businesses, critical facilities and environmental assets at risk. For projects and programs that were not successful, the monitoring entity will consider the lessons learned from the situation. Following any major disasters the Plan will be reviewed and evaluated to decide if the suggested mitigation actions remain applicable. The risk assessment will be reviewed to see if changes are necessary based on the pattern of damage. All information will be forwarded to the County Hazard Mitigation Coordinator by October 1st of each year with their recommendations for updating the plan. The County Hazard Mitigation Coordinator will conduct a meeting to review this information with a report summarizing the activities to be written and maintained. These reports will then provide data to assist in the five year update cycle of the Plan. By monitoring the Plan annually this monitoring entity will ably assess which projects are completed, which projects are no longer feasible and which projects will require additional funding. Challenges faced by each jurisdiction in implementing the Plan will be reviewed. Monitoring efforts will be aided by forms disseminated to essential parties and collated by the County Hazard Mitigation Officer (Appendix J)

Annual Review

Warren County Office of Emergency Services and County Hazard Mitigation Officer will oversee an annual plan review to ensure that all information is current. The review process follows:

1. The Hazard Mitigation Planning Committee will meet to consider:
 - Progress made on the plan recommendations during the previous 12 months.
 - Mitigation accomplishments in projects, programs and policies.
 - Status of mitigation projects
 - New mitigation needs identified
 - Cancellation of planned initiatives, and the justification for doing so
 - Changes in membership
 - Address Benefit/Cost Analysis of mitigation action plans
 - Use STAPLE-E to assist in adjusting prioritization of mitigation action plans
2. The Hazard Mitigation Planning Committee will request input from other departments and outside entities not represented on the Committee on

issues listed above. A special effort will be made to gather information on non-capital projects and programs important to mitigation.

3. The Hazard Mitigation Planning Committee will make “minor” changes to the Plan without seeking outside approval.
4. “Major” changes (those related to new policies or recommended projects) will go through a more formal review process that may, at the discretion of the Emergency Services Director along with the County Hazard Mitigation Coordinator be submitted for final approval
5. To allow for on-going public input, the Hazard Mitigation Planning Committee will post the plan permanently on the Emergency Services website along with contact information that will encourage people to submit questions or comments.

Following a Major Disaster

Within two months of a major disaster warranting a presidential or gubernatorial Disaster Declaration, and as determined necessary for a smaller event, the Warren County Office of Emergency Services will convene the Hazard Mitigation Planning Committee.

The annual update process described above will also be used following a major disaster. However, post-disaster deliberations will also consider the following:

- Lessons learned from the disaster, and what new initiatives should be added to the plan to help reduce the likelihood of similar damage in the future.
- Follow-up needed on relevant items from any After Action reports produced.
- Integration of mitigation into the recovery process.

A comprehensive update that includes assessment of the Plan will be conducted on a five-year cycle. The County Office of Emergency Services will coordinate this review/revision process with the County Hazard Mitigation Coordinator, Town, City and Village administrators, partner agencies including the NYS Department of Environmental Conservation, the Adirondack Park Agency, and the County Soil and Water Conservation District. The public will be given notice that the Plan revisions are being made and their input, if any, is requested.

Direct input will be solicited during two meetings, one at each end of the county. Town and village administrators will be notified of the revision process via direct mailings (USPS) and encouraged to attend at least one of the two meetings. These meetings will also be open to the public and will be advertised through a press release and flyers to be posted in town and village offices. Community members will be encouraged to provide Plan input through their municipality representative, or through the County website.

Once input is obtained, the Plan will be revised accordingly. Again, notice of the draft revisions to the Plan will be advertised through a press release and flyers posted in town and village offices, and community members will be encouraged to review the updated Plan (revisions) and provide input through their municipal representatives. The revised plan will be made available for review for at least 30 days at the Warren County Office of Emergency Services. When revisions are approved, the updated Plan will be presented to each municipality for formal adoption.

5 Year Plan Adoption

Every five years, the plan will be re-submitted for adoption to the Warren County Board of Supervisors. Prior to this, Emergency Services, led by the Hazard Mitigation Coordinator will use the following process to ensure all relevant parties are involved:

1. Follow steps 1 and 2 above. (Annual Review)
2. Incorporate all relevant issues raised via the forums identified.
3. Hold public meeting and initiate meetings with identified groups of interested parties and outside organizations to gain input and feedback.
4. Integrate relevant feedback and circulate revised plan to Hazard Mitigation Planning Committee for approval.
5. Seek review and comment from Hazard Mitigation Planning Committee.
6. Integrate recommendations into the plan.
7. Submit the plan to the Board of Supervisors for adoption by resolution.
8. Submit revised plan to FEMA via NY SEMO Hazard Mitigation Branch.

PLAN REVIEW AND UPDATES

Plan Approval: _____

Plan Review: _____

Plan Review: _____

Plan Review: _____

Plan Review: _____

Updates:

Page: _____ Date: _____

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