

### **Section III            Risk Assessment**

#### **A. Program and Method**

Schoharie County performed the risk assessment and all-hazard analysis using the New York State Emergency Management Office *Hazard Analysis - New York (HAZNY)* program, which was supplemented by the U.S. Department of Homeland Security's *Threat and Hazard Identification and Risk Assessment (THIRA)* application and hazard research performed by the planning committee. The HAZNY was performed on a County-wide basis, and also prepared for each of the County's jurisdictions where unique concerns and threats were identified.

A joint meeting was held with the Hazard Mitigation Planning Committee (HMPC) and the Local Emergency Planning Committee (LEPC) that used *HAZNY and THIRA* to begin revision of the Risk Assessment for this updated Hazard Mitigation plan. The HAZNY and THIRA are used to examine the kinds of hazards that could potentially affect Schoharie County and serve as building blocks for the comprehensive risk assessment included in this section.

The following factors were considered in the HAZNY analysis that examines potential hazards.

1) **Where could the hazard occur**

- a) a large region (affecting an area greater than half of the municipality)
- b) a small region (affecting an area one third to one half the municipality)
- c) several individual locations
- d) a single location.

2) **How often does the hazard occur** - historical data was analyzed to determine how often a hazard occurred in the municipality.

- a) a rare event (less than once every fifty (50) years), an infrequent event (once every eight (8) to fifty (50) years)
- b) a regular event (once a year to once every seven (7) years)
- c) a frequent event (more than once a year)

3) **What are the cascade effects** - the HAZNY asked "Could the hazard trigger another hazard". For example, a flood can trigger a hazardous materials release, or a severe storm will result in a power outage.

4) **How will the hazard impact the population, private property and public infrastructure**

- a) serious injury or death is unlikely
- b) death or injury is likely but not in large numbers
- c) death or injury is likely in large numbers
- d) death or injury is likely to extremely large numbers

**5) Damage options are selected for private and public property:**

- a. 'Little' is defined as either ...
  - a significant number of structures still habitable or useable but in need of minor repair, or
  - severe damage to a very limited number of structures
- b. 'Moderate' means the property is not habitable or useable, but can be repaired – and 'moderate' can mean there was damage to a sizeable number (a quarter) of structures in the area
- c. 'Severe' is defined as a total loss and a sizeable number of structures must be replaced.

**6) How much warning will you receive - options include:**

- a) no warning,
- b) several hours,
- c) one day,
- d) several days,
- e) more than a week.

**7) How long will the hazard remain active - options included:**

- f) less than one day
- g) one day
- h) two to three days,
- i) four days to a week
- j) more than one week

**8) How long will emergency operations continue - options included:**

- k) less than one day,
- l) one to two days,
- m) three days to a week,
- n) one to two weeks,
- o) more than two weeks.

*Risk Assessment Data Collection and Analysis*

In addition to the HAZNY, historical and statistical data of disaster occurrences and damages has been compiled, analyzed and included in this section. Sources primarily include records and data from the following sources.

- National Weather Service (NWS)
- National Climate Data Center (NCDC)
- U.S. Geological Survey (USGS)
- Federal Emergency Management Agency (FEMA)
- National Flood Insurance Program (NFIP)
- New York State Hazard Mitigation Plan (2011)
- Schoharie County Planning and Development Agency
- Schoharie County Emergency Management
- Schoharie County Soil and Water Conservation District (SWCD)
- New York Power Authority (NYPA)
- New York City Department of Environmental Protection (NYC DEP)
- New York State Department of Environmental Conservation (DEC)

**B. Hazard Definitions**

The Schoharie County HAZNY evaluated thirty-five (35) potential hazards. Listed below are the definitions of potential hazards as identified in the New York State Hazard Mitigation Plan, which are endorsed by the National Weather Service (NWS) and used in the New York State HAZNY program.

**Air contamination:** This is pollution caused by atmospheric conditions, (as opposed to a chemical spill or release type of situation) such as a temperature inversion induced smoggy condition sufficiently serious to create some danger to human health.

**Avalanche:** A mass of sliding snow, which usually occurs in mountainous terrain where snow is deposited on slopes of twenty (20) degrees or more.

**Blight:** A disease of agricultural crops or non-agricultural plants resulting in withering, lack of growth, and death of its parts without rotting.

**Civil Unrest:** An individual or collective action causing serious interference with the peace, security, and/or functioning of a community (e.g., riot).

**Dam Failure:** Structural deterioration, either gradual or sudden, resulting in the facility's inability to control impounded water as designed, and posing a danger to people and/or property in the potential inundation area.

**Drought:** A prolonged period of limited precipitation affecting the supply and quality of water.

**Earthquake:** A sudden motion of the ground caused by release of subterranean strain energy, due to plate tectonics, resulting in surface faulting (ground rupture), ground shaking, or ground failure (collapse).

**Epidemic:** The occurrence or outbreak of disease to an unusual number of individuals or proportion of the population, human or animal.

**Explosions:** The threat or actual detonation of an explosive device or material with the potential of inflicting serious injury to people or damage to property.

**Extreme Temperature: Extreme Heat** is sustained periods when the heat index is 100 degrees or greater, or when sustained nighttime temperatures exceed 80 degrees.

**Extreme Cold** is sustained periods with windchills of minus-20 degrees and colder.

**Fire:** Uncontrolled burning or fire hazards in developed areas, or where populations and structures are at risk.

**Flooding:** Flooding usually is a natural, cyclic occurrence in existing water bodies. When a water body overflows its 'normal' banks, a potentially violent and/or destructive waterway can form. A flash flood is a sudden transformation of a small stream into a violent waterway after heavy rain and/or rapid snowmelt.

**Food Shortage:** A situation where the normal distribution pattern and/or the timely delivery of foodstuffs to retail establishments for normal consumer demand is interrupted for a substantial period of time.

**Fuel Shortage:** A situation in which the normal quantity and/or timely delivery of fuel supplies to distributors and retail establishments are interrupted.

**Hazardous Materials - Fixed Sites:** The uncontrolled release of material from a stationary facility, 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.

**Hazardous Materials - In Transit:** The uncontrolled release of materials 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.

**Hurricane / Tropical Storms - Severe:** Tropical cyclones, formed in the atmosphere over warm ocean areas, in which wind speeds reach 74 miles per hour or more and blow in a large spiral around a relatively calm center or "eye." Circulation is counterclockwise in the Northern Hemisphere and clockwise in the Southern Hemisphere.

**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.

**Ice Storm:** Freezing rain that accumulates as a substantial glaze or heavy layer of ice ¼ inch or greater.

**Infestation:** Excessive populations of insects, rodents or other animals requiring control measures due to their potential to carry diseases, destroy crops or harm the environment.

**Landslide:** The downward and outward movement of slope-forming materials reacting to the force of gravity. Slide materials may be composed of natural rock, soil, artificial fill, or combinations of these materials. The term landslide is generalized and includes rockfalls, rockslides, creep, block glides, debris slides, earth-flow, mudflow, slump, and other similar terms.

**Land Subsidence (Cave Failure):** The sudden sinking or gradual downward settling of land with little or no horizontal motion, caused by a loss of subsurface support which may result from a number of natural and human caused occurrences including subsurface mining or the pumping of oil or ground water. Land subsidence events, depending on their location, can pose significant risks to health and safety, or interruption to transportation and other services.

**Mine Collapse:** The folding, caving-in or sudden implosion of an underground cavity. Such an event would threaten persons inside the cavity and/or persons, property and structures on the surface.

**Oil Spill:** Uncontrolled or accidental discharge of petroleum products to water or land.

**Radiological - Fixed Site:** A release or threat of release of radioactive material from a nuclear power generating station or research reactor or other stationary source of radioactivity.

**Radiological – In Transit:** A release or threat of release of radioactive material from a transportation vehicle including truck, rail, air, and marine vehicle.

**Structural Collapse:** A sudden structural failing, partial or fully, of buildings, bridges or tunnels, threatening human life and health.

**Terrorism:** The threat or use of violence to achieve political/social ends usually associated with community disruption and/or multiple injuries or deaths

**Tornado:** A local atmospheric storm, generally of short duration, formed by winds rotating at very high speeds, usually in a counterclockwise direction. The vortex, up to several hundred yards wide, is visible to the observer as a whirlpool-like column of winds rotating about a hollow cavity of funnel. Winds have been estimated to be as high as 400 miles per hour.

**Transportation Accidents:** A mishap involving one or more conveyances on land, sea, and/or air that results in mass casualties and/or substantial loss of property.

**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.

**Wildfire:** An uncontrollable combustion of trees, brush, or grass involving a substantial land area that has the potential for threatening human life and property

**Winter Storm - Severe:** When there is a storm or extended periods and amounts of freezing or frozen precipitation (freezing rain, sleet, snow), or the combined effects of winter precipitation and strong winds. Includes snowfalls of 6 inches or more in 12 hours, or 8 inches or more in 24 hours. Also includes blizzards where sustained winds or frequent gusts of 35 mph or greater are combined with snow or blowing snow and visibility is reduced to 1/4 mile or less for a period of three hours or more, and sleet accumulating 1/2 inch or more.

**Severe Storm:** A thunderstorm which can produce damaging tornadoes, lightning and hail 0.75 inches or more in diameter, and/or winds of 58 mph or more. Structural wind damage may imply the occurrence of a severe thunderstorm.

**Tsunami:** A large sea wave produced by subocean earth movement, earthquake, or volcanic eruption; historically very rare in the Atlantic Ocean.

**Utility Failure/Long-Term Power Outage:** Any sustained, long-term interruption or loss of electrical, natural gas, telecommunications and/or water supply service; caused by accident, sabotage, natural hazards, technological or equipment failure.

### C. Hazard Rankings

The HAZNY applies a numerical rating from 0 to 400 for each hazard based on the criteria noted in Section A above, and then ranks hazards in the following groups.

<b>High Hazard</b>	<b>321 to 400</b>
<b>Moderately High Hazard</b>	<b>241 to 320</b>
<b>Moderately Low Hazard</b>	<b>161 to 240</b>
<b>Low Hazard</b>	<b>44 to 160</b>

The Schoharie County HAZNY, updated for the 2013 Hazard Mitigation Plan, ranked the hazards as follows. Additional man-made hazards that were included in the THIRA analysis were applied using the HAZNY criteria and ratings, producing the consolidated rankings below.

No hazards were ranked as a ‘High Hazard’ -- to be ranked a high hazard means that death and injury are likely in high numbers and the event would have widespread catastrophic impacts.

Five (5) hazards were ranked as ‘Moderately High’ – which means that death and injuries are likely and that damages and impacts could have severe consequences for the community. These would also be considered ‘Hazards of Concern’.

<b>Hazard</b>	<b>Rating</b>	<b>Rank</b>
FLOOD	304	Moderately High
HURRICANE - TROPICAL STORM	274	Moderately High
DAM FAILURE	258	Moderately High
TERRORISM	254	Moderately High
HAZMAT (IN TRANSIT)	248	Moderately High

The HAZNY ranked 20 hazards as ‘Moderately Low’ – which means the event poses significant risks for a community, particularly for locations or areas where it occurs; but widespread consequences and numerous deaths and injuries are not likely.

<b>Hazard</b>	<b>Rating</b>	<b>Rank</b>
SEVERE STORM	237	Moderately Low
OIL SPILL	231	Moderately Low
WATER SUPPLY CONTAMINATION	230	Moderately Low
CYBER ATTACK	227	Moderately Low
MAJOR FIRE	225	Moderately Low
UTILITY FAILURE	215	Moderately Low
ICE STORM	214	Moderately Low
TRANS ACCIDENT	211	Moderately Low
EXPLOSION	210	Moderately Low
OTHER CBRNE ATTACKS	205	Moderately Low
WINTER STORM (SEVERE)	194	Moderately Low
HAZMAT (FIXED SITE)	194	Moderately Low
TORNADO	189	Moderately Low
IMPROVISED EXPLOSIVE DEVICE (IED)	184	Moderately Low
IMPROVISED NUCLEAR DEVICE (IND)	182	Moderately Low
EARTHQUAKE	181	Moderately Low
LANDSLIDE	181	Moderately Low
EXTREME TEMPS	178	Moderately Low
STRUCTURAL COLLAPSE	175	Moderately Low
DROUGHT	164	Moderately Low

The following 12 hazards were ranked as ‘low’ hazards – which is those having little chance of occurring, or if there is an event they are not expected to have a significant impact on the community.

Hazard	Rating	Rank
WILDFIRE	159	Low
FOOD CONTAMINATION	158	Low
ANIMAL DISEASE	155	Low
ICE JAM	154	Low
AIR CONTAMINATION	152	Low
FUEL SHORTAGE	150	Low
EPIDEMIC	143	Low
RADIOLOGICAL (IN TRANSIT)	142	Low
ACTIVE SHOOTER	138	Low
MINE COLLAPSE, CAVE FAILURE	136	Low
CAVING ACCIDENT	132	Low
FOOD SHORTAGE	116	Low

#### Hazards Likely to Occur Most Often

Flood  
Severe Storm

#### Hazards That Can Occur With Little or No Warning

Dam Failure	Terrorism	HazMat - In Transit
Oil Spill	Cyber Attack	Water Supply Contamination
Major Fire	Utility Failure	Transportation Accident
Explosion	HazMat – Fixed Site	Other CBNE Attack
Earthquake	Landslide	Improvised Explosive Device
Structural Collapse	Wildfire	Improvised Nuclear Device
Active Shooter	Mine Collapse	Radiological – In Transit
Caving Accident		

Hazards That Pose The Greatest Threat To Life

Dam Failure  
Terrorism

Haz-Mat – In Transit  
Other CBRNE Attack

Transportation Accident  
Improvised Explosive Device

HAZNY Results for the Towns and Villages

<b>Jurisdiction</b>	<b>Ranked Moderately High</b>	
Blenheim	Flood Winter Storm	Dam Failure Ice Storm
Broome	Flood Wildfire	Winter Storm Ice Storm
Carlisle	Winter Storm	Ice Storm
Cobleskill, T	Flood HazMat - Transit	Winter Storm
Cobleskill, V		
Conesville	Winter Storm Flood	Ice Storm
Esperance, T	Flood Winter Storm	Dam Failure
Esperance, V		
Fulton	Flood Winter Storm	Dam Failure Ice Storm
Gilboa	Flood Winter Storm	Dam Failure Ice Storm
Jefferson	Wildfire Ice Storm	Winter Storm
Middleburg, T	Flood Winter Storm	Dam Failure
Middleburg, V		
Richmondville, T	Winter Storm	HazMat - Transit
Richmondville, V		
Schoharie, T	Flood Winter Storm	Dam Failure
Schoharie, V		

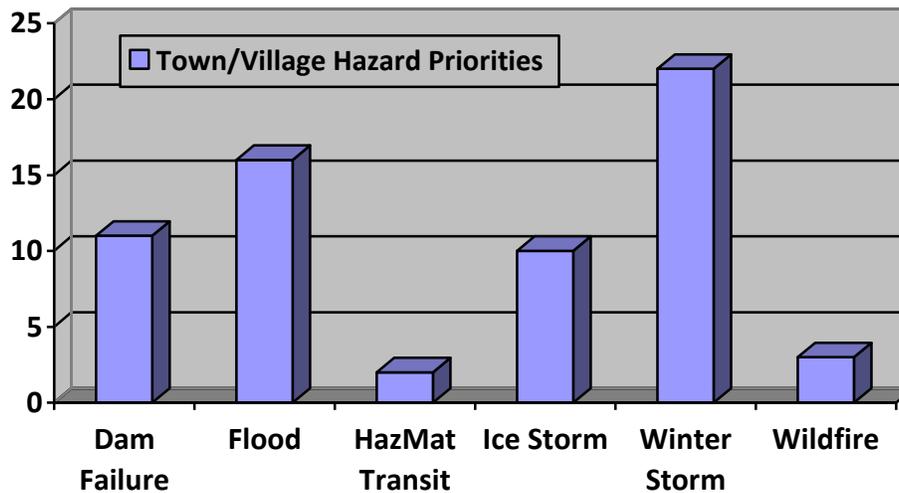
Jurisdiction	Ranked Moderately High	
Seward	Winter Storm	Ice Storm
Sharon	Flood	Winter Storms
Sharon Springs		
Summit	Wildfire Ice Storm	Winter Storm
Wright	Flood Ice Storm	Winter Storm

Town/Village Hazard Rankings that Concur with County Rankings

Flood                      Dam Failure                      HazMat – In Transit

Hazards the Towns/Villages Ranked Higher than the County

Winter Storm (22)      Ice Storm (10)              Wildfire (3)



## D. Natural Hazard Planning Priorities

### *Hazards Selected for Further Assessment and Planning*

The purpose of the Hazard Mitigation Plan and the priorities set forth in the federal Disaster Mitigation Act of 2000 are to focus on establishing mitigation measures and improvements that will reduce the impacts and costs associated with natural hazards. For that reason, the hazard assessment portion of the Plan is limited to evaluating certain natural hazards that pose the greatest threat to the community. The process for determining which hazards are targeted for this evaluation and those identified as ‘hazards of concerns’ is outlined next.

*Hazards of Concern* are defined as those hazards that are considered most likely to impact a community. A *hazard of concern* may be identified when the HAZNY or a similar data supported analysis determines it poses a significant threat or risk and has high vulnerability -- but *hazards of concern* can also be designated when knowledgeable local authorities or those with special experience and historical perspective determine that a hazard poses significant concern.

The following are commonly defined *Natural Hazards* as listed in various FEMA publications and guidance documents.

Flood	Severe Storms (Windstorm, Thunderstorms, Hail and Lightning)
Tornado	Coastal Storms (Hurricanes, Tropical Storm, Coastal Erosion)
Earthquake	Winter Storm (Extreme Cold, Blizzard, Avalanche)
Extreme Heat	Land Subsidence (Cave Failure)
Drought	Landslide
Wildfire	Tsunami
Volcano	

The following natural hazards have been targeted as ‘*Hazards of Concern*’ and are further analyzed in the hazard assessment and profiles of this plan because they were ranked by the HAZNY analysis as ‘*Moderately High*’ hazards, or they were identified as *Hazards Likely to Occur Most Often*, or are *Hazards that Pose the Greatest Threat to Life*.

Hazards of Concern		
Flood	Severe Storm	Dam Failure

The following natural hazards were ranked ‘Moderately Low’ in the County’s HAZNY evaluation, primarily because these events have rarely occurred in Schoharie County, or an occurrence is not expected to have significant consequences. Still, the hazards below are considered ‘*Hazards of Concern*’ and are targeted for further evaluation in this plan for one or more of these three (3) reasons.

- 1) they have occurred elsewhere in upstate New York State in recent years and resulted in serious consequences for other New York communities
- 2) if an event related to these hazards does occur in Schoharie, it could have potentially significant consequences for the community
- 3) it was identified as a more serious concern by many of the HAZNY evaluations performed for the towns and villages and the planning committee determined that the hazard should also be included in the hazard assessment and planning process

Hazards of Concern	
Ice Storm	Winter Storm
Tornado	Earthquake

#### *Hazards Addressed By Other Plan Considerations*

Hurricane and Tropical Storm - For evaluation and assessment of Hurricane and Tropical Storm, which the HAZNY identified as a ‘Moderately High’ hazard, see the sections for Severe Storms and Flooding. Once a hurricane or tropical storm moves inland into upstate New York and Schoharie County, they are characterized by high winds and/or flooding and lack the storm surge and hurricane force winds that are unique to coastal areas.

Utility Failure is commonly a secondary hazard associated with a natural hazard like severe storms or tornados, or a man-made condition such as a technology failure, transportation accident or terrorism. For that reason, utility failure is not evaluated in this Risk Assessment section as an independent hazard. Utility Failure is, however, considered in the Section V Vulnerability Assessment because power outages or other utility disruptions linked to a natural hazard can often have overwhelming community impacts that sometimes surpass those accompanying the underlying hazard.

*Evaluation of Natural Hazards Not Selected for Analysis*

The following summary evaluation is provided for the four (4) natural hazards that were ranked as 'Low', the remaining three (3) natural hazards ranked 'Moderately Low' and three (3) other natural hazards identified by FEMA but not targeted for further evaluation as '*Hazards of Concern*'.

<i>Hazard</i>	<b>Air Contamination</b>
<i>Impact Area</i>	Countywide
<i>History</i>	Rare
<i>Determining Factors</i>	The rural character and limited industrial activity in Schoharie County minimizes any serious threat or community impacts. Air quality issues are more commonly linked to personal respiratory problems associated with pollen or man-made pollutants.

<i>Hazard</i>	<b>Avalanche</b>
<i>Impact Area</i>	NA
<i>History</i>	None
<i>Determining Factors</i>	The steeply sloped areas of Schoharie County are heavily forested and vegetated, and along with climatic factors associated with eastern New York and the local topography, the snow pack and risk associated with an avalanche are minimized. Developed residential areas are primarily located in the lower, less steeply sloped environs.

<i>Hazard</i>	<b>Drought</b>
<i>Impact Area</i>	Countywide
<i>History</i>	Six (6) minor or moderate drought events in the last 20 years, primarily affecting agricultural and well water users.
<i>Determining Factors</i>	<p><i>Synopsis:</i> Water supplies are generally more sustainable throughout Schoharie County due to the beneficial climatic factors that merge among the Catskill Mountain range, Schoharie Valley and temperate north plain. Potential drought conditions and threats are monitored closely, however, because all of Schoharie County's public and private water supplies rely on local sources of ground water, wells and springs. Droughts often affect various elements of a community in different ways through the phases of a drought cycle; agriculture and those relying on private wells first, then restrictions on business and institutions, and finally impacts on public water supply and quality.</p> <p><i>Events:</i> Drought conditions are common in Schoharie County, where a drought of some type occurs every couple of years; but events are generally considered minor or moderate. The most recent drought warnings were issued in 1993, 1994, 1995, 1999, 2000 and 2001. These droughts resulted in the application of conservation measures, restricted well supplies, assistance to agricultural users and concerns about fire protection. And while these droughts had economic consequences and created short-term disruptions in the community, none resulted in deaths, injuries or extensive losses to property and infrastructure.</p> <p><i>Determination:</i> The county's sparse population and the ability to share limited resources when water shortages occur make it less vulnerable to droughts. Droughts occurring in Schoharie County do not typically result in widespread property losses or threats to health and, at most, pose a low or moderate threat in Schoharie County.</p>

### The Four Drought Stages and What They Mean

The New York State Drought Plan describes the actions to be taken during each drought stage by water purveyors, towns and villages, water authorities, and other agencies with water supply responsibilities.

- **Drought Watch** - The least severe of the stages, a drought watch is declared when a drought is developing. Public water suppliers begin to conserve water and urge customers to reduce water use.
- **Drought Warning** - Voluntary water conservation is intensified. Public water suppliers and industries update and implement local drought contingency plans. Local agencies make plans in case of emergency declaration.

- **Drought Emergency** - The Governor may declare emergency. The Disaster Preparedness Commission coordinates response. Mandatory local/county water restrictions may be imposed. Communities may need to tap alternative water sources to avoid depleting water supplies, protect public health and provide for essential uses.
- **Drought Disaster** - Disaster plans are implemented. Water use is further restricted. The Governor may declare disaster and request federal disaster assistance. Emergency legislation may be enacted. The state provides equipment and technical assistance to communities.

<i>Hazard</i>	<b>Extreme Temperatures</b>
<i>Impact Area</i>	Countywide
<i>History</i>	2 events with minimal impacts over the last 20 years
<i>Determining Factors</i>	<p><i>Synopsis:</i> Extreme hot and cold conditions can pose temporary problems for certain individuals and segments of the local population, but they never create the kind of impacts and or extent of losses that would define them as a community disaster. The elderly and those with compromised health can be vulnerable to prolonged heat, but the number of people not able to obtain relief is small and community services are organized during hot periods to aid them. Seniors and others who are vulnerable in unusually cold periods are similarly helped through community programs. There is virtually no homeless population in Schoharie County and a degree of community protection from extreme temperatures exists across the population due to the local emphasis on independent living that characterizes this and other rural, community oriented counties. Many residents in Schoharie heat with wood, fuel oil and other independent heating fuel sources. The inland mountains and valley geography of the county also work to keep the area cooler than major urban and suburban locations.</p> <p><i>Events:</i> Excessive hot or cold periods, where community services are activated to aid sensitive citizens occur almost every year. Temperature extremes that result in death, increased EMS response and multiple hospitalizations are rare. National Weather Service records note that periods of extreme cold (-10 degrees F or below) occurred once in the 20 year period from 1983 to 2003. Extreme heat (over 100 degrees F) also occurred once in the same period.</p> <p><i>Determination:</i> Other practical problems occur during extreme temperature periods; such as electrical restrictions, lost productivity, water line ruptures, increased medical and health care services, plus stress on animals and livestock. While extreme heat is a significant health threat nationally, dealing with extreme temperatures is not considered a significant vulnerability for Schoharie County.</p>



## **Population Vulnerable to Extreme Temperatures**

Situational and physical characteristics help to identify vulnerable populations that are more at risk in an emergency and may require special help or resources. In periods of extreme heat or cold, the following groups could be more vulnerable or at greater risk.

- Homeless
- Infants and small children under age five
- Women who are pregnant
- Elderly people (age 65 and older)
- Persons who have obesity
- Persons who are bedridden
- Persons with mental illness/disabilities
- Persons with cognitive disorders
- Persons with medical conditions (e.g., heart disease, diabetes, high blood pressure)
- Persons requiring life-saving medications (e.g., for high blood pressure, depression, insomnia)
- Persons who utilize medical equipment (e.g., ventilators, oxygen, G-tubes)
- Individuals with drug or alcohol addictions
- Persons who use mobility devices (e.g., wheelchairs, walkers, canes)
- Persons who are non-ambulatory
- Those with sensory impairments (blind/visually impaired or deaf/hard of hearing)
- Persons who are under extreme working conditions
- Persons who are poor
- Persons who are socially isolated
- Persons who do not speak English with minimal access to information

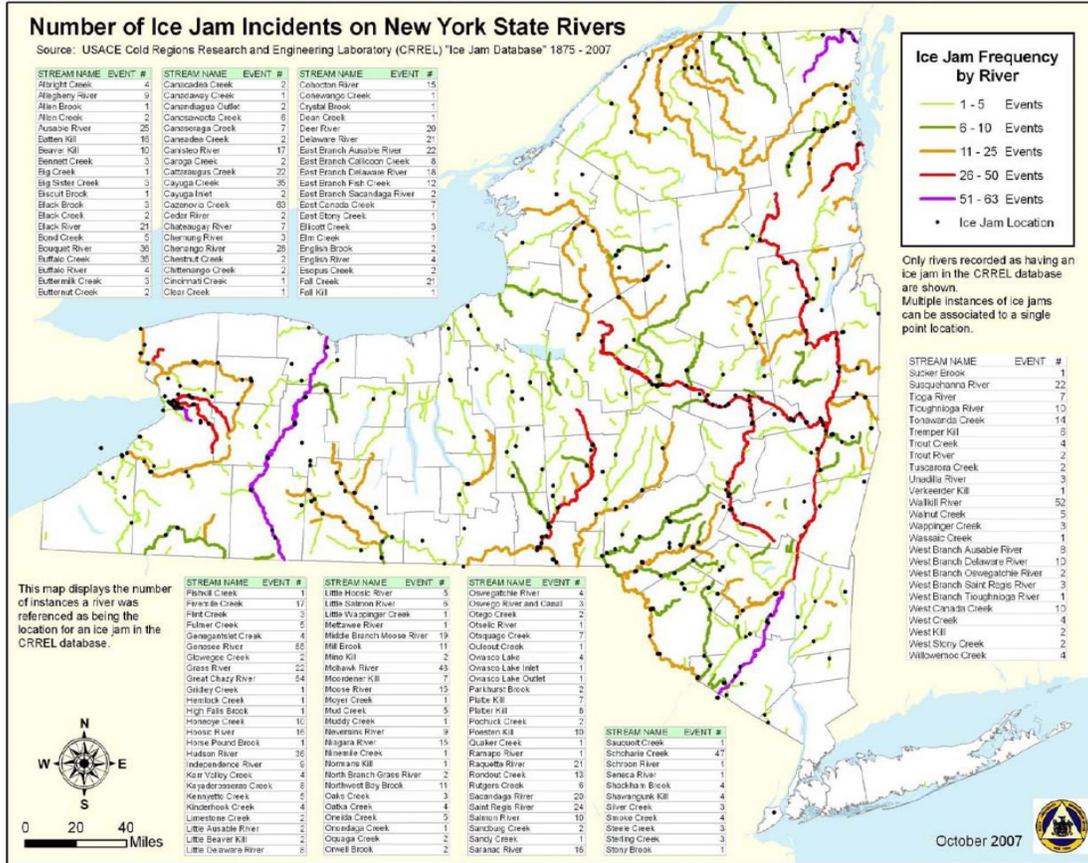
<i>Hazard</i>	<b>Ice Jam</b>
<i>Impact Area</i>	Countywide
<i>History</i>	2-3 minor events over 30 years
<i>Determining Factors</i>	<p><i>Synopsis:</i> Steep terrain in the south of the county, sloping terrain in the center and the continuing flow of drainage out of the north plain work to minimize ice jam problems. The most serious ice jams are more common where major streams approach a confluence of the collecting rivers and lakes, which are primarily to the north of Schoharie in other counties of the region.</p> <p><i>Events:</i> The U.S. Army Corps of Engineers records more than 50 ice jams on Schoharie County creeks over the past 100 years; most occurred where feeder tributaries meet the Schoharie Creek and on West Creek near Warnersville Cut-off Road. There is no record or accounts by local officials and citizens, however, of any ice jams having significant consequences.</p> <p><i>Determination:</i> Local officials are not able to identify or recollect that any ice jam has caused serious or widespread damage in Schoharie County. Most ice jams have not had significant consequences and associated water back-up or minor flooding results in temporary closure of roads and minimal community disruption. In some cases an ice jam may be a secondary concern that accompanies a more serious flood event, but overall flood impacts have always overshadowed ice jam issues. Local officials do not consider ice jams to be a ‘hazard of concern’.</p>



March 2003 ice jam flood – Warnersville Cut-off Road



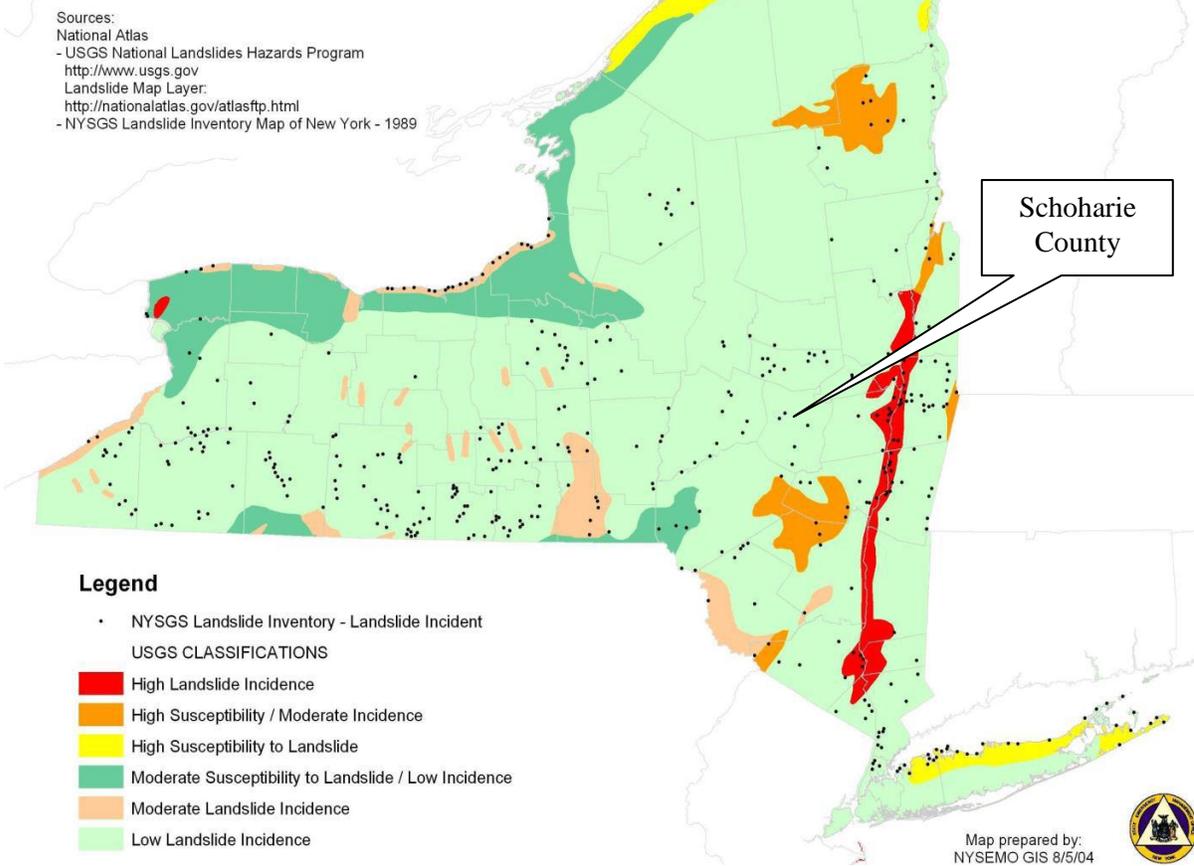
March 2004 ice jam – Warnersville Cut-off Road



Source: NYS Hazard Mitigation Plan (2011)

<i>Hazard</i>	<b>Landslide</b>
<i>Impact Area</i>	Western and southern towns
<i>History</i>	Six (6) minor events in the past 100 years
<i>Determining Factors</i>	<p><i>Synopsis:</i> The varied landscape profile of Schoharie County, with dense forested areas in the south and west, sloping valleys through the center and the gentle northern plateau provide good resistance to landslide disasters. The impact and damage associated with landslides in Schoharie County have been limited to specific or localized sites and have not resulted in major losses or widespread community disruption. In fact, landslides are primarily linked to development issues, mostly the result or a consequence of road and drainage design, and were not technically natural events.</p> <p><i>Events:</i> The New York State Geological Survey has recorded six (6) landslides that have occurred in Schoharie County over 100 years. A landslide in the Town of Seward off Patrick Road and West Creek was more a failure of the road base or supporting infrastructure, that resulted in the closing of one lane until it was reconstructed. Other landslides were in Richmondville at the intersection of Routes 7 and 10 , on Route 7 in Warnersville, in Middleburgh, on Route 30 in North Blenheim, and Huntersland Road in Middleburgh.</p> <p><i>Determination:</i> In much of the steeper zones of Schoharie County that would pose the greatest risk and vulnerability for landslides, there is only sparse and scattered development and a slide would not have significant impacts. Most landslides result in damage to a roadway, utilities and drainage at a single or isolated location and do not threaten large portions of the community. The Schoharie County Soil and Water Conservation District cautions, however, against clear cutting on steep slopes, which can dramatically increase landslide risk, especially if the grade is 15% or more.</p>

**Comparison of New York State Geological Survey Landslide Inventory with USGS National Landslide Overview Map of the Conterminous US**



Source: NYS Hazard Mitigation Plan (2011)

<i>Hazard</i>	<b>Land Subsidence (Cave Failure)</b>
<i>Impact Area</i>	Carlisle, Cobleskill, Esperance, Schoharie, Seward, Sharon and Wright
<i>History</i>	None
<i>Determining Factors</i>	<p><i>Synopsis:</i> Schoharie County has over 170 caves. The caves are part of a geologic formation that extends through Schoharie, Albany and Columbia counties. The Howe's Cave is a well-known tourist destination and cave exploring is a popular, although high-risk recreational pursuit.</p> <p><i>Events:</i> There are no recorded incidents of cave or land subsidence in Schoharie County. The NYS Hazard Mitigation Plan notes only one natural subsidence event involving the Schoharie-Albany-Columbia geologic formation that occurred in Columbia County.</p> <p><i>Determination:</i> Since there is no history of an occurrence, land subsidence is not considered a 'hazard of concern' for Schoharie County. The NYS Hazard Mitigation Plan notes there have been natural land subsidence events in New York State, but it also indicates the risk to population and property is very low, and the virtually unpredictable nature of land subsidence makes reliable planning nearly impossible. Schoharie County must still consider planning requirements for recreational activities that occur in the caves, but such risks are not associated with a natural hazard and not addressed in this plan.</p>



Schoharie Cave lit with tea lights (photo courtesy of Eric Porter)

<i>Hazard</i>	<b>Tsunami</b>
<i>Impact Area</i>	
<i>History</i>	None
<i>Determining Factors</i>	No coastal exposure. The lowest elevation in Schoharie County is 520 feet above sea level.

<i>Hazard</i>	<b>Volcano</b>
<i>Impact Area</i>	None
<i>History</i>	None
<i>Determining Factors</i>	There are no volcanos in or near Schoharie County

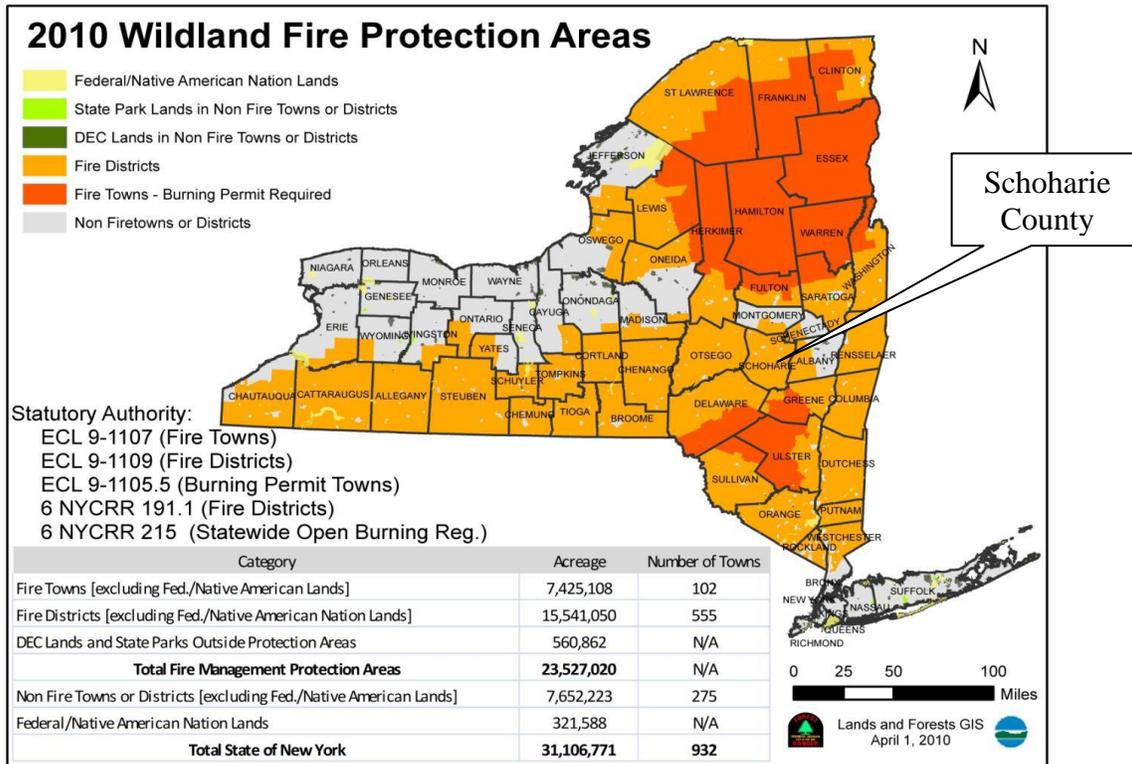


Environmentalists study chestnut oaks on the steep slopes of the Schoharie escarpment Photo: DYarrow

Schoharie escarpment looking east from Middleburgh Photo: FBreglia

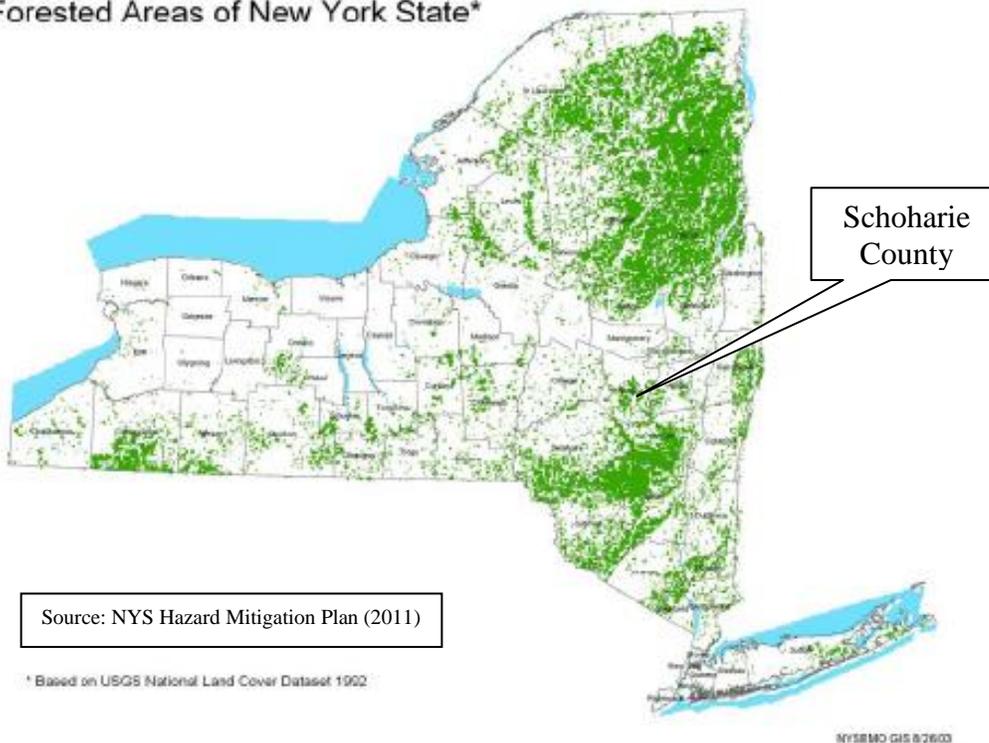


<i>Hazard</i>	<b>Wildfire</b>
<i>Impact Area</i>	Blenheim, Broome, Conesville, Fulton, Gilboa and Jefferson
<i>History</i>	2 events in 60 years
<i>Determining Factors</i>	<p><i>Synopsis:</i> Development patterns in rural Schoharie County are such that a wildfire is not likely to impact a large number of structures. Most buildings in areas that are subject to wildfires are surrounded by lawns and open space, and have roofs made of asphalt shingles or metal, which reduces the risk of wildfire.</p> <p>The risk of wildfire is greatest in the County's southern towns of Blenheim, Broome, Conesville, Fulton, Gilboa and Jefferson where densely wooded areas and steep slopes exist. Much of the area is monitored by the NYS Department of Environmental Conservation, which manages the forest undergrowth to reduce fuel sources. Only one site, the hamlet of Eminence that borders the towns of Blenheim, Jefferson and Summit has more densely clustered homes that are adjacent to a forested area.</p> <p><i>Events:</i> The Schoharie County Fire Coordinator reports that past wildfires have been limited in size, usually impacting less than 10 acres and rarely are any structures threatened. Only two (2) notable wildfires have occurred in the past 60 years, one in the Town of Conesville in 1950 that burned several hundred acres, but no improved property; and the 2004 Town of Fulton wildfire that involved six (6) acres near Patria, injuring 2 firefighters, although no property was damaged.</p> <p><i>Determination:</i> The county recognizes a risk of wildfire in certain areas, but due to the forest profile, limited and well-managed development and protective actions in place, the overall risk and vulnerability are considered low.</p>



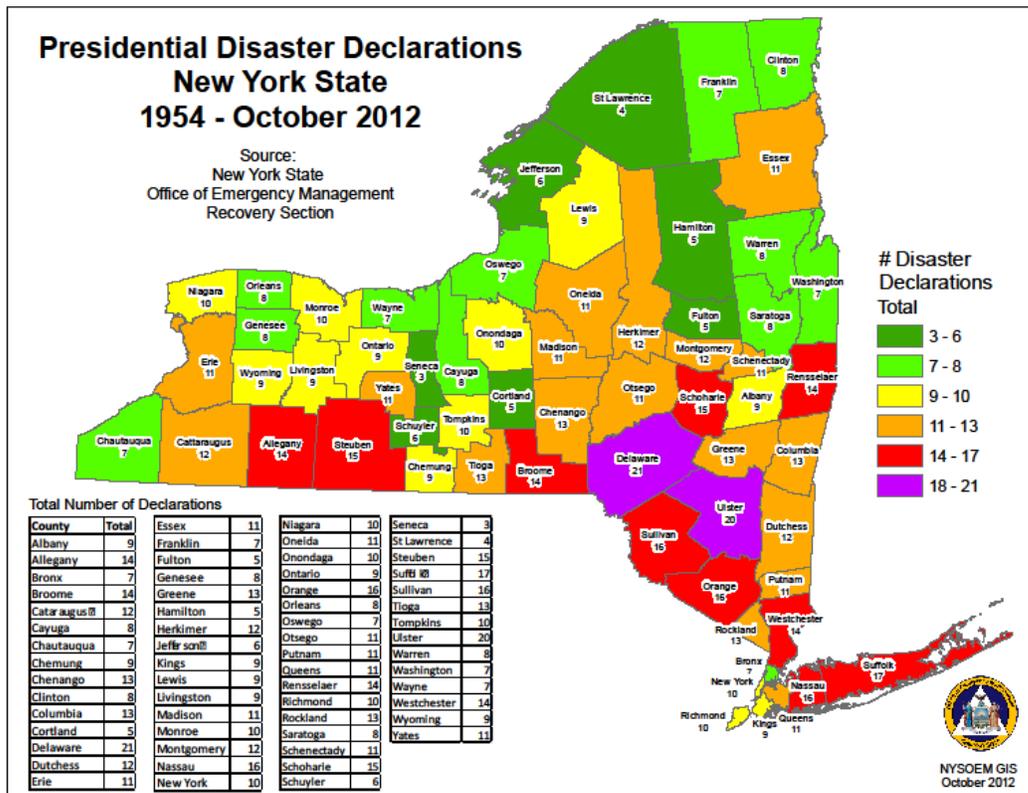
Source: NYS Hazard Mitigation Plan (2011)

### Forested Areas of New York State\*



**E. Major Disaster Declaration History**

Since 1954, Schoharie County has been declared a disaster area by the President and received federal assistance for fifteen (15) major disasters.



Ten (10) of these fifteen (15) federal disaster declarations were for flooding, three (3) for severe winter storms, one (1) for severe spring thunderstorms and one (1) for the 2003 northeast power outage.

