



APPENDIX H. RISK ASSESSMENT SUPPLEMENTARY DATA

This appendix contains information and details to support information provided in Section 5 (Risk Assessment).

H.1 HISTORY OF HAZARD EVENTS WITHIN THE COUNTY

To supplement the information provided in this plan, events prior to the update of this plan are included below by hazard of concern type. Many sources provided historical information regarding previous occurrences and losses associated with hazards throughout New York and Monroe County. It is noted that, with a number of sources reviewed for the purpose of this HMP, loss and impact information for many events could vary depending on the sources.

For more information on past events and impacts, refer to the 2017 Monroe County Hazard Mitigation Plan.

H.1.1 Earthquake

Known earthquakes events that have impacted New York State and Monroe County between 1857 and 2015 are identified in Table H.1. Many sources were researched for historical information regarding earthquake events in Monroe County; therefore, Table H.1 may not include all earthquake events that have impacted the County.



Table H.1. Earthquake History in Monroe County, 1857-2015

Dates of Event	Event Type	Location	FEMA Declaration Number	County Designated?	Losses / Impacts
October 23, 1857	“VI” on the Modified Mercalli Scale	Darien, Genesee County, New York	N/A	No	An earthquake in Darien, Genesee County, was measured as a “VI” on the Modified Mercalli Scale (HAZNY, 1999).
August 12, 1929	Magnitude 5.2	Attica, Wyoming County, New York	N/A	No	A magnitude-5.2 earthquake occurred in Attica, Wyoming County, new York (HAZNY, 1999).
1935	Magnitude 6.1	Along the Northern New York-Western Quebec Seismic Zone	N/A	No	A magnitude-6.1 earthquake occurred along the Northern New York-Western Quebec Seismic Zone (Democrat & Chronicle, 6.24.10).
1944	Magnitude 5.8	Massena, St. Lawrence County, New York	N/A	No	A magnitude-5.8 earthquake centered near Massena, St. Lawrence County was recorded as New York’s largest earthquake to date. Its epicenter was near Massena, St. Lawrence County. Shaking was felt from Canada to Maryland and from Indiana to Maine. \$2 million in damage was reported in Massena and in Cornwall, Canada (Democrat & Chronicle, 11.3.05).
January 1, 1966	Magnitude 4.7	Attica, Wyoming County, New York	N/A	No	A magnitude-4.7 earthquake in Attica, Wyoming County, New York, damaged the smokestack at the Attica Correctional Facility (Democrat & Chronicle, 11.3.05).
June 13, 1967	Magnitude 4.4	Attica, Wyoming County, New York	N/A	No	A magnitude-4.4 earthquake was recorded in Attica, Wyoming County.
October 7, 1983	Magnitude 5.2	Adirondacks, Blue Mountain Lake area, New York	N/A	No	A magnitude-5.2 earthquake in the Adirondacks, New York, Blue Mountain Lake area prompted RG&E to declare an “Unusual Event” Classification at Ginna Station (Peter Polfleit letter, 8-11-03). At the time, this was the third-largest earthquake ever recorded in the State of New York (Democrat & Chronicle, 9-26-98, 6.24.10) (Democrat & Chronicle, 6.24.10).
November 25, 1988	Magnitude 6.0	95 miles west of Quebec City, Canada	N/A	No	The epicenter of this earthquake was 95 miles west of Quebec City, in Canada. Measure was 6.0 on the Richter Scale (County Office of Emergency Management file).
October, 1990	Magnitude 4.7	120 miles northwest of Montreal, Canada	N/A	No	A magnitude-4.7 earthquake centered 120 miles northwest of Montreal, Canada, occurred. (Democrat & Chronicle, 9-26-98).
June, 1991	Magnitude 3.9	Schoharie County, New York	N/A	No	A magnitude-3.9 earthquake centered in Schoharie County, 40 miles west of Albany, New York, was felt by residents in the Monroe County towns of Irondequoit and Greece (Democrat & Chronicle, 6.24.10).
September 25, 1998	Magnitude 5.2	15 miles north of Sharon, Pennsylvania	N/A	No	A magnitude-5.2 earthquake whose epicenter was 15 miles north of Sharon, Pennsylvania, resulted in damage at two Monroe County residences, one with ceiling damage and one with front porch damage. (Gene Lenhardt, U.S. Army Corps of Engineers, telephone interview, 1-6-99)(County Office of Emergency Management Response File).



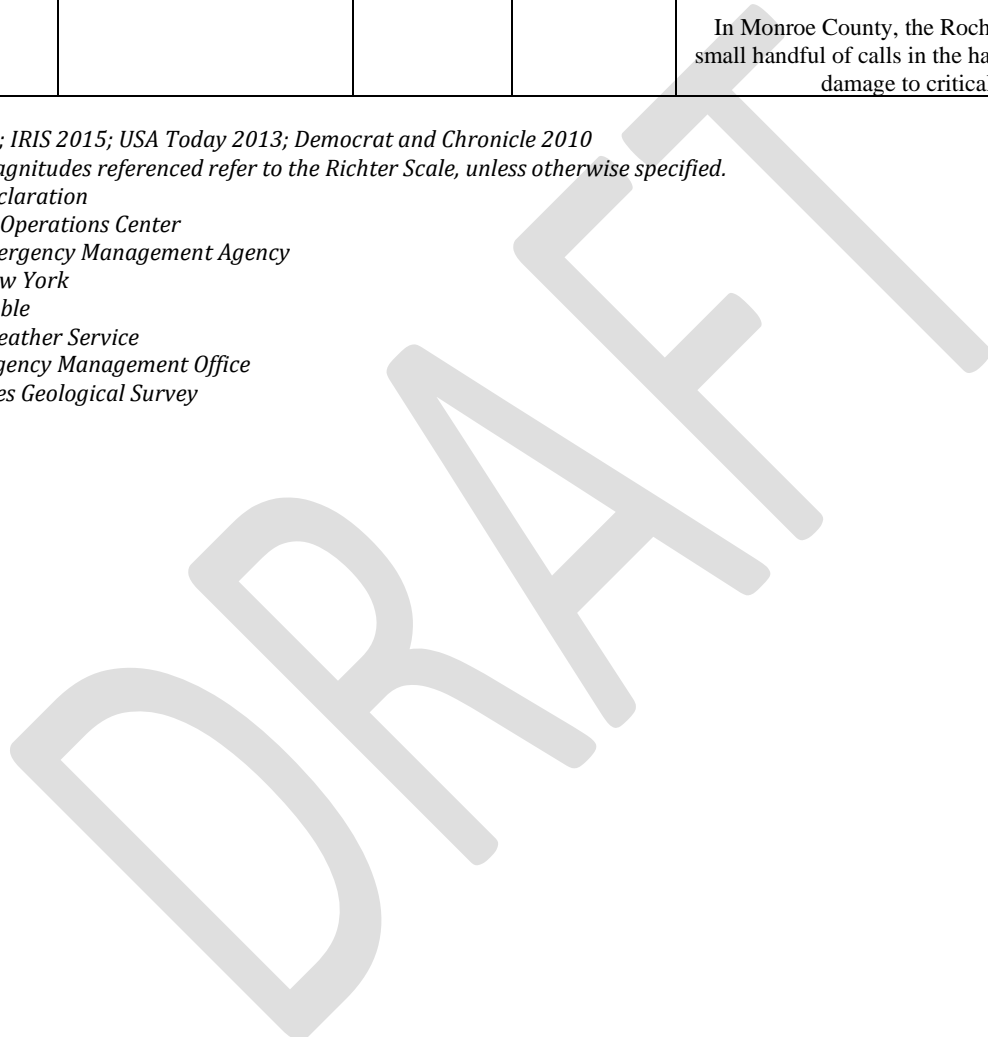
Dates of Event	Event Type	Location	FEMA Declaration Number	County Designated?	Losses / Impacts
January 1, 2000	Magnitude 4.5	North Bay, Ontario, Canada	N/A	No	A magnitude-4.5 whose epicenter was North Bay, Ontario, Canada, produced tremors felt in the Rochester area (Democrat & Chronicle, 4-2-02).
April 20, 2002	Magnitude 5.1	Town of Black Brook, Clinton County, New York	N/A	No	An earthquake with its epicenter roughly 15 miles southwest of Plattsburgh in the Town of Black Brook, Clinton County, New York, measured 5.1 on the Richter Scale and produced shaking which lasted about 30 seconds. Two aftershocks were reported. More than 300 people called Monroe County's 911 Center within 30 minutes of the quake. No reported injuries or damage in the County, although the State EOC was activated (Democrat & Chronicle, 4-21-02). (SEMO, "Emergency Management Times," Spring 2002, p.1).
October 31, 2005	Magnitude 2.6	Wayne County, New York	N/A	No	Two earthquakes occurred in Wayne County, New York, rattling the area over the course of 3 hours. USGS confirmed that the first of the 'micro-earthquakes,' which was felt about 7:00 p.m., had a magnitude of 2.6 and was centered in the Town of Ontario. The second was weaker, and struck at 11:38 p.m. under Lake Ontario, 15 miles northwest of the Town of Sodus (Wayne County). The second quake had a magnitude of 1.5, according to the USGS. The quakes did not produce enough disturbance to show on the Ginna Nuclear Power Plant's seismic register. (Democrat & Chronicle, 12.24.05).
March 8, 2008	Magnitude 2.7	10 miles north-northeast of Lancaster, New York	N/A	No	An earthquake with a depth of 6 kilometers had its epicenter 10 miles north-northeast of Lancaster, New York (Erie County) and a magnitude of 2.7. The USGS website indicated that there were 25 reports from people having felt this event, with a majority of reports located in the Buffalo, New York area (Erie County) (NWS, Judy Levan, e-mail, 3.19.08).
June 5, 2009	Magnitude 2.9	Attica, Wyoming County, New York	N/A	No	A 2.9-magnitude earthquake centered in Attica, Wyoming County, occurred at 11:07 a.m. The epicenter was 3 miles SSE of Attica and 5 miles south of Alexander, Genesee County. No damage was reported. (Democrat & Chronicle, 6.6.09).
Jun. 23, 2010	Magnitude-5.0	Centered north of Ottawa, Canada	N/A	No	A magnitude-5.0 earthquake struck at the Ontario-Quebec border region of Canada, shaking homes and businesses from Toronto to the states of New York, Michigan, and Vermont, according to the U.S. Geological Survey. The earthquake was centered at a depth of about 12 miles. Monroe County's 911 center had more than 80 calls about the earthquake just minutes after it occurred. The tremor was felt at numerous buildings in the City of Rochester, and some buildings were briefly evacuated.
May 17, 2013	Magnitude-4.4	13 miles northeast of Shawville, Quebec, Ontario, Canada	N/A	No	A 4.4-magnitude earthquake in Ontario, Canada, was felt starting at 9:43 a.m. May 17 from upstate New York to the Vermont border. People in communities along the St. Lawrence River and as far east as Lake Champlain on New York-Vermont border reported feeling their homes shake.



Dates of Event	Event Type	Location	FEMA Declaration Number	County Designated?	Losses / Impacts
					In Monroe County, the Rochester City 911 dispatch center received a small handful of calls in the half-hour after the earthquake. No injuries or damage to critical infrastructure were reported.

Source(s): FEMA 2014; IRIS 2015; USA Today 2013; Democrat and Chronicle 2010
 Note: All magnitudes referenced refer to the Richter Scale, unless otherwise specified.

- DR Disaster Declaration
- EOC Emergency Operations Center
- FEMA Federal Emergency Management Agency
- HAZNY Hazards New York
- N/A Not Applicable
- NWS National Weather Service
- SEMO State Emergency Management Office
- USGS United States Geological Survey





H.1.2 Extreme Temperature

Information regarding specific details of temperature extremes in Monroe County is scarce; therefore, previous occurrences and losses associated with extreme temperature events are limited. Table H.2 summarizes the extreme temperature events in the County from 2005 through 2015.



Table H.2. Extreme Temperature Events between 2005 and 2015

Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
January 21 – 27, 2005	Extreme low temperatures	N/A	N/A	Record low temperatures were set on the 21st (-10 degrees) and 22nd (-nine degrees), with below normal low's on the 23rd, 24th, 26th, 27th and 28th. There was an extended cold period from January 17 to February 2, with temperatures at zero or below on eight of these overnights.
July 12 – 13, 2005	Extreme Heat	N/A	N/A	This extreme heat event caused power outages throughout the county. The extended periods of heat and humidity, combined with an increase in air conditioning loads, put a significant stress on the power system. RG&E reported outages on July 12, which was caused by equipment malfunctions, some of which could have been heat related.
Summer 2005	Extreme Heat	N/A	N/A	The summer of 2005 was the warmest summer since 1973, and the fifth-warmest summer on record. The City of Rochester saw 13 days with temperatures in the 90s, with a high of 94 degrees on August 4). The summer also set five records for power use. The peak came July 18, when 1,626 megawatts of power were used. The summer recorded the fifth warmest June, the 20th-warmest July, and the 10th-warmest August in Rochester's history.
July 14 – 18, 2006	Extreme Heat	N/A	N/A	Temperatures began in the mid-to-high 80s with a corresponding heat index in the high 80s. Rochester General Hospital treated six patients with heat-related illnesses between the 15th and the 17th. RG&E customers set a 1-day usage record of an estimated 1,630 megawatts. The NWS reported that July 2006 was the hottest July in the City of Rochester since 1955.
August 1-2, 2006	Extreme Heat	N/A	N/A	<p>The National Weather Service, Buffalo Office issued an "Excessive Heat Warning" beginning August 1 at noon until August 2 in anticipation of high humidity combining with hot temperatures to make it feel like 105 degrees or greater (NWS Urgent- Weather Message, August 1, 2006, 0351 hours).</p> <p>Temperatures and their corresponding heat index were 94 degrees, 106 heat index on August 1 and 98 degrees 105 heat index on August 2.</p> <ul style="list-style-type: none"> • Power status as reported by RG&E: <ul style="list-style-type: none"> ○ August 1: Outage for 1,500 customers; power consumption set new record at 1,744 megawatts ○ August 2: Outage for 1,500 customers (These were new outages - the previous day's outages had already been restored.) • Activity influenced by this extreme temperature condition included: <ul style="list-style-type: none"> ○ County Health Department and Red Cross opening and staffing four cooling centers within the county ○ County Health Department opening and staffing a "Special Needs Cooling Center" for mobility impaired ○ City enforced the "Cool Sweep" (fire hydrants) program and extended swimming pool hours ○ Homeless Shelters adjusted hours of operation for access during the daytime hours



Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
				<ul style="list-style-type: none"> ○ Cancellations included" school district summer schools, community special events, summer day camps, Buffalo Bills Summer Camp Training Schedule; Finger Lakes Race Track (horse races) ○ Operations adjusted for DPW projects and construction workers, fire fighters ○ Sidewalk vendors altered and/or cancelled their lunch wagon services ○ The Governor waived fees for NYS Parks and NYSDEC sites on August 2 ○ Hospitals reported about a dozen heat-related Emergency Room visits <p>The Humane Society treated one dog suffering heatstroke</p>
January 26 – 30, 2007	Extreme low temperatures	N/A	N/A	Cold temperatures on the 26th prompted school closings, were blamed for traffic accidents as it was too cold for road salt to be effective, and prompted homeless shelters to extend hours of operation. Temperatures during this period were in the single digits.
February 3 -7, 2007	Extreme low temperatures	N/A	N/A	<p>January 28 began the longest stretch (22 days) of below-freezing temperatures in more than 25 years, and February was the coldest recorded in 14 years. This cold came from the same storm that affected a wide swath of the northern United States from the north Plains through the Great Lakes, with temperatures as low as minus 42 degrees. At least four cold-related deaths were recorded.</p> <p>Across this period from February 3 to 7, temperatures ranged from lows of 3 to 10 degrees below zero, with steady winds of 20-plus mph and gusts in the 40 mph range. The National Weather Service, Buffalo Office, issued a Wind Chill Advisory beginning on the 5th and ending the morning of the 6th. The following disruptions to community routine were reported during the weekdays (February 5 to 7):</p> <ul style="list-style-type: none"> • Many schools closed • Spencerport School District buses became stranded when their diesel fuel jelled, clogging fuel filters. No injuries, just significant transportation delays. • 700 AAA calls for service (double the norm) for dead batteries, stranded vehicles, and other cold weather-related problems. • Requests from the Open Door Mission in the City of Rochester for donations of warm clothing for the homeless • Traffic problems that were a result of ineffective snow melting <p>Amtrak passenger trains cancelled on the 4th and 5th, resumed with delays on the 6th.</p>
January 2009	Extreme low temperatures	N/A	N/A	The January temperature averaged more than 5 five degrees colder than normal, with 18 of the first 23 days recorded below freezing, breaking the previous 30-year record of 16.4 of 30 days in January. USDA crop losses reported in Monroe County for 2009 related to frost totaled \$6,848.
July 5-8, 2010	Extreme Heat	N/A	N/A	<p>Four days of 90-degree temperatures and higher in the City of Rochester prompted the following:</p> <ul style="list-style-type: none"> • Rochester City “Cool Sweep” program opened fire hydrants and extended swimming pool and beach hours



Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
				<ul style="list-style-type: none"> • Operations adjustments for Department of Public Works (DPW) projects and construction workers, fire fighters • Air Quality Advisory or Alert issued on July 4, 5, and 7. • The Humane Society issued reminders about pet safety in extreme heat conditions. • County Executive extended hours of operation for swimming at Ontario Beach Park • County Health Department planning for potential need to open a Special Needs Shelter at Monroe Community Hospital and issued a reminder of heat-related health symptoms and safety tips for high temperatures (Monroe County News Release, July 6, 2010) • Rochester Gas and Electric (RG&E) partnered with the Red Cross to distribute 250 electric fans at no charge to seniors and individuals or families receiving Social Security Income (SSI) or Social Security Disability (SSD) assistance. <p>USDA crop losses reported in Monroe County for 2010 related to heat totaled \$343,634, with the greatest losses affecting the sweet corn crop.</p>
January 22, 2011	Freeze and Extreme Cold	N/A	N/A	Monroe County experienced losses caused by a freeze and extreme cold event that occurred January 22, 2011. Conditions caused hundreds of farmers to suffer significant production losses around the region. USDA crop losses reported in Monroe County for 2011 related to frost totaled \$34,104 in apple crops.
March – April, 2012	Frosts, Freezes	N/A	N/A	<p>After a winter of record high temperatures, many crops in New York blossomed earlier than usual and were destroyed when exposed to early spring freezing temperatures occurring between March 1 and April 30.</p> <p>In March 2012, the county was designated a contiguous county in USDA Disaster (S3250) which resulted from frosts, freezes, unseasonable warm temperatures, and excessive heat, and was later designated as a primary county in Disaster S3249 resulting from frosts and freezes. USDA crop losses reported in Monroe County for 2012 related to freeze and frost totaled \$984,583.</p>
June 2012	Drought / Excessive Heat	N/A	N/A	<p>Temperatures averaged above normal in June for the Great Lakes climate division of New York State, where it was the 18th warmest June since 1895. At the same time, the climate division posted below normal rainfall for the fourth out of the 5 previous months.</p> <p>This event resulted in a USDA Disaster Declaration (S3427), and Monroe County was included as a contiguous county in this declaration. The county was considered to be abnormally dry for this time of year. USDA crop losses reported in Monroe County for 2012 related to excessive heat totaled \$79,286.</p>
December 2013 – March 2014	Frost / Freeze	N/A	N/A	The winter of 2013-2014 was one of the coldest in recent history for New York State. Temperatures finished below normal every month for the Rochester climate station, with the average temperature between November and April being 30.3°F, which was 3.4°F below normal. The January through March timeframe finished more than 4 degrees below normal. The Rochester station recorded seven new daily low temperature records: November 13 and 24, December 17, January 3 (low max and low min records), and 7, and March 6.



Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
				<p>The long winter of sub-zero temperatures led to deep winter freezes, severely damaging farms, orchards, and vineyards across upstate New York. A survey of damaged farms by Cornell University reported primary bud damage as high as 85 percent in the Finger Lakes region and 97 percent in Lake Erie region.</p> <p>This event resulted in a USDA Disaster Declaration (S3672), and Monroe County was included as a contiguous county in this declaration. USDA reported 2014 indemnity losses in Monroe County of more than \$160,000 to its apple crop caused by frosts and freezes. Another \$10,626 was paid to apple crops as a result of the freeze in 2013, which may have been a result of the 2013-2014 winter season.</p>

Sources: NOAA-NCDC 2014; NWS 2014

Note (1): Monetary figures within this table were U.S. Dollar (USD) figures calculated during or within the approximate time of the event. If such an event would occur in the present day, monetary losses would be considerably higher in USDs as a result of increased U.S. Inflation Rates.

NOAA-NCDC National Oceanic Atmospheric Administration – National Climatic Data Center
 NWS National Weather Service
 NYS New York State



H.1.3 Flood

Known flooding events that occurred from 1972 to 2015 are identified in Table H.3. With flooding documentation for New York State and Monroe County being so extensive, not all sources have been identified or researched. Therefore, Table H.3 may not include all events that have occurred in the County.



Table H.3. Flooding Events in Monroe County Between 1972 and 2015

Date(s) of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
June 23-26, 1972	Hurricane Agnes	DR-338	Yes	<p>Tropical Storm Agnes and associated weather systems produced the most destructive widespread flooding of record over eastern United States. In the Genesee Basin, the predominant portion of rainfall occurred from 9 p.m. on 20 June, to 6 a.m. on 23 June. The maximum total storm rainfall, 13.72 inches, and maximum daily rainfall, 6.57 inches, were recorded at the Wellsville gage. A “bucket survey” of the Genesee Basin by USACE personnel indicated a maximum of about 16 inches of rainfall in the upper reaches of Dyke Creek near Andover, New York. Average total basin rainfall during the period 20-25 June was 7.1 inches, while the average for the same period on the upper basin (above Mount Morris dam) was 10.20 inches.</p> <p>Regulation during a portion of this flood required controlled release of dam outflows exceeding downstream channel capacity to prevent overtopping the spillway with debris-laden flows. The reservoir pool reached a maximum elevation of 755.8 feet, thus occupying approximately 96 percent of total reservoir storage. This was the highest pool elevation ever attained in the Mount Morris Reservoir. Detailed information on this flood appears in Buffalo District’s “Report of Flood, Tropical Storm Agnes, 21-23 June 1972, Genesee River Basin,” dated August 1973 (USACE “Genesee River Flood Emergency Exercise Manual, February 1992,” p. H-4). Rochester received more than 4 inches of rain. Meanwhile, destructive floods washed out roadways and bridges, and even caused building damage on the upper Genesee River. It took nearly all summer to drain local fields (Democrat & Chronicle, June 22, 2006).</p>
1972	Lake Ontario - High Levels	N/A	N/A	None recorded.



Date(s) of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
March 21, 1973	High Winds, Wave Action, Flooding	DR-367	Yes	FEMA Disaster Declaration.
Spring 1973	Coastal (Lacustrine) Flooding	N/A	N/A	The most severe flooding along the Lake Ontario shoreline was during spring 1973. Lake Ontario's water levels rose to 249.6 feet above sea level as a result of excessive rain in 1972 throughout the Great Lakes Basin. This level of water rise was recorded as having an approximately 100-year recurrence interval. Damages resulting from the water rise and associated flooding included extensive property damage, public utility interruption, and destruction of roads. Flooding also contaminated local water supply and reduced the effectiveness of effluent disposal (FEMA FIS 2008).
October 29, 1974	Localized Flooding	N/A	N/A	<p>A sewer tunnel being constructed under the Barge Canal in Bushnell's Basin cracked and gave way, sending over 200 million gallons of water down Tributary 21 and into Brook Hollow Rd. Because the flood was so localized, it was not designated a disaster area.</p> <p>41 homes damaged, 2 demolished Power outages in 165 homes 100 homes without gas Displaced residents Roads destroyed Millions of dollars in property damage 1 minor injury</p>



Date(s) of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
February and July 1976	Severe Storms, Heavy Rains, Flooding, and Thunderstorms	N/A	N/A	<p>During the period 16-23 February, approximately 2.6 inches of rain fell over the upper basin. This rainfall, augmented by about 2 inches of snowmelt runoff, resulted in a peak reservoir elevation on 23 February of 727.6, or about 71 percent of available storage. During the remainder of February, every effort was made to discharge as much water as possible consistent with downstream conditions. At the end of the month, the pool elevation was 709, or about 56 percent of capacity. During the period 1-6 March, about 2.5 inches of rain, including some snowmelt, caused the pool to rise again.</p> <p>On 6 March, the reservoir pool peaked at 744.1 feet, thus utilizing 85% of total storage. Peak inflows to Mount Morris Reservoir during the February and March runoff events reached 32,500 cfs and 28,000 cfs, respectively. Although the peak inflows were not particularly impressive, the volume of water received caused the pool elevation to be the second highest of record, exceeded only by that of Tropical Storm Agnes (USACE, "Genesee River Flood Emergency Exercise Manual, February 1992," p. H-4).</p>
March 28-30, 1993	Flood	N/A	N/A	<p>Flooding on some creeks and rivers. "The most significant occurred along Black Creek in Monroe County. A dozen homes along the creek were surrounded by water. Large segments of roads were inundated and still closed at months end. The Genesee River rose just above floodstage at Avon and Rochester even with closure of all gates at the Mt. Morris Dam. The dam stored over 5 inches of runoff and used 85% of its storage capacity." The County EOC was activated on March 30th for 4 hours.</p>
April 1-5, 1993	Flood	N/A	N/A	<p>Flooding continued as a result of additional rain and snowmelt—the worst flooding since Hurricane Agnes in 1972. The County EOC was activated on April 1st for 39.5 hours. Additional information is available at County OEM: USACE, "After Action Report for the Flood of 1993"; NOAA's, "Natural Disaster Survey Report: The Great Flood of 1993," and the County's Disaster Response File.</p>
April 1993	High Levels	N/A	N/A	<p>Lake Ontario. County files available at the OEM.</p>
March 23-24, 1994	Flood	N/A	N/A	<p>Rainfall combined with snowmelt caused flooding. Black Creek at Churchville reached flood stage on the 23rd. Oatka Creek reached flood stage at Garbutt on the 24th.</p>



Date(s) of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
April 14, 1994	Flood	N/A	N/A	Spring rains, together with saturated ground, raised the level of the Genesee River about a foot and a half above flood stage. A few roads had minor flooding.
January 21, 1995	Flood	N/A	N/A	Heavy rains on the 20th caused Black Creek to exceed flood stage and overtop its banks at various locations along its reach.
August 3, 1995	Flash Flood	N/A	N/A	Flash flooding in Monroe County caused \$35,000.00 in damages.
January 19, 1996	Rising Waters	N/A	N/A	The County EOC was activated for 2 hours to assess and coordinate agency activity associated with rising waters due to a "January Thaw" and rainfall.
April 14-15, 1996	Flood	N/A	N/A	A general 1- to 2-inch rainfall, combined with lingering snowmelt from higher elevations, resulted in considerable lowland flooding. Most major creeks and rivers rose to bankful. The Genesee River was above flood stage for 5 hours. Oatka Creek was above flood stage for 31 hours. Black Creek was above flood stage for 8 hours and caused \$15,000.00 in damages.
June 12, 1996	Flash Flood	N/A	N/A	Thunderstorms moving across the southern portion of the county produced torrential rains and caused flash flooding on the west side. Several roads in Chili were flooded and had to be closed until sewers could handle the storm runoff. Estimated property damage was \$20,000.00.
July 30, 1996	Flash Flood	N/A	N/A	Thunderstorms during the late afternoon hours dropped over 2 inches of rain within 4 hours, resulting in flash floods. The waters flooded over 200 basements in the City of Rochester and caused an estimated \$45,000.00 in damages.
October 19-20, 1996	Flash Flood	N/A	N/A	Flash flooding occurred, causing an estimated \$100,000.00 in damages.
1997	High Levels	N/A	N/A	Lake Ontario. County response files available at the OEM.
February 5, 1997	Dam Failure/Flood	N/A	N/A	An earthen dam gave way, causing flood waters to spill onto roadways and several backyards. Damage was estimated at \$4,000.00.
1998	High Levels	N/A	N/A	Lake Ontario. County response files available at the OEM.



Date(s) of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
January 8 and 11, 1998	Flood	DR-1196	Yes	Western (and Central) NYS was drenched with unprecedented January rainfalls over a 36-hour period. Generally, 3 to 4 inches of rain fell on bare, saturated ground across the Genesee basin. The Genesee River crested at 36.4 feet at Avon (the highest since 1972) and at 16.8 feet in Rochester (the highest since 1984). Black Creek crested at Churchville at 9.2 feet (the highest since 1960). At Garbutt, Oatka Creek crested at 8.7 feet (a record flood). Damages were estimated at \$375,000.00. Local fire fighting and public works departments were called to pump water from flooded basements. The floodwaters overwhelmed several municipal wastewater treatments plants, and water emergencies were declared. Several States of Emergency were declared at various locations in Western/Central NYS. The Town of Webster had estimated damages of \$100,000.00 resulting from flash flooding. The County EOC was activated for 30 minutes on January 8th. This event prompted a Disaster Declaration by President Clinton, FEMA-1196-DR-NY.
June 13, 1998	Flood	N/A	N/A	Thunderstorms crossed the western Finger Lakes during the early evening hours, dropping several inches of rain in less than an hour. The heavy rains flooded roads and forcing closures throughout Monroe County. Chili Center had estimated damages of \$30,000.00.
June 25-July 10, 1998	Severe Storms and Flooding	DR-1233	Yes	FEMA Declared Disaster.
June 30, 1998	Flood	N/A	N/A	Thunderstorms throughout the day dropped several inches of rain over the same area. The heavy rains resulted in urban and drainage flooding in the Rochester metro area. The Town of Brighton had estimated damages of \$13,000.00.
July 8, 1998	Flood	N/A	N/A	Nearly 3 inches of rain fell at the Rochester airport, with slightly higher amounts reported over the southern suburbs. Urban flooding resulted in Rochester, Pittsford, and Penfield. In Penfield, basements of the Forest Hills Condominium complex flooded for the second time that year. Many of the basements and appliances had just been repaired and replaced following floods in January. The Town of Penfield had damages estimated at \$100,000.00, and the Town of Pittsford reportedly had \$150,000.00 in damages.



Date(s) of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
August 25, 1998	Flood	N/A	N/A	Slow moving thunderstorms moved across the Rochester metro area producing 2 to 4 inches of rain in just a few hours. Widespread urban flooding occurred. The Sheriff reported numerous roads closed across the south and southeast areas of the County. Estimated damages were \$35,000.00.
January 23-24, 1999	Flood	N/A	N/A	Warm temperatures melted the snowpack from record snowfall in late December and early January. Nearly 2 feet of ripe snowpack dissolved to just a few inches. The runoff caused flooding in poor drainage and low lying regions across the area, with roads closed at some locations for a couple of days. One of the hardest hit areas in Monroe County was the Town of Chili, where evacuations occurred. Damages were estimated at approximately \$55,000.00.
May 12, 2000	Flash Flood	N/A	N/A	Thunderstorms rolled across the Niagara Peninsula and then along the Lake Ontario shore counties. Only small hail was reported with the storms; however, the storms produced hurricane-force winds. An 86 mph wind gust was recorded at the Niagara Coast Guard Station in Youngstown. The high winds buffeted the area, taking down trees and power lines. Various communities reported power outages of 12 hours or more. In Irondequoit, Monroe County, Kings Highway and Bayview Road caved in as a result of erosion.
May 13, 2000	Flash Flood	N/A	N/A	A second round of thunderstorms crossed the area during the early afternoon hours. The heavy rains that fell on already saturated ground resulted in flash flooding in Monroe and Wayne Counties. In Webster, for example, 4 to 6 inches of water covered Schlegel Road. Road closures were common in the area for several hours.
July 16, 2000	Flash Flood	N/A	N/A	Thunderstorms brought heavy rains to the area, dropping 2 to 3 inches of rain. West Henrietta and Jefferson, roads had to be closed due to the flood waters. In the City of Rochester, police closed Romona Street, Mt. Read Boulevard, and Lexington, Driving Park, and LaGrange Avenues. Damages were estimated at \$15,000.00.



Date(s) of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
March 18, 2003	Flood	N/A	N/A	<p>An abrupt change to warmer weather at mid-month resulted in a quick meltdown of the winter snowpack. Area creeks rose to near or above bankful, with three creeks in western NYS exceeding flood stage. At Churchville, Monroe County, the Black Creek crested at 6.7 feet or about a half a foot above flood stage. Oatka Creek at Garbutt, Monroe County, crested at 6.2 feet, just above its 6-foot flood stage. Tonawanda Creek overflowed its banks, with flooding along the Erie/Niagara county border. The creek crested at 13.8 feet, almost 2 feet above the flood stage.</p>
May 24, 2004	Flash Flood	N/A	N/A	<p>A weak cold front crossed the area during the overnight hours. The slow moving thunderstorms that accompanied the front produced damaging winds and torrential rains. Trees and power lines were downed, with scattered power outages reported. Roads were closed in Irondequoit and Isha.</p> <p>Additionally, NWS Buffalo Office data on flash floods indicated basement and road flooding in Irondequoit.</p>
August 29, 2004	Flash Flood	N/A	N/A	<p>A cold front stretching across the lower Great Lakes became nearly stationary. Occasional showers and thunderstorms persisted along the front during the late morning and early afternoon hours. The thunderstorm winds, estimated to 60 mph, downed trees and power lines in Caledonia, Livingston County; Henrietta and Brighton, Monroe County; Croghan, Lewis County; and Lorraine, Jefferson County. The training thunderstorms produced heavy rains, leaving parts of Monroe and Wayne Counties under water up to waist high. Weather radar estimated that rainfall totaled 4 to 6 inches over parts of those counties.</p> <p>Additionally, NWS Buffalo Office data on flash floods indicated widespread street flooding in Rochester.</p>



Date(s) of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
August to September, 2004	Severe Storms and Flooding	DR-1564	Yes	<p>Monroe County did not activate the EOC for this event. Hurricane Frances, "...inundated western and central New York with drenching rain as its remnants drifted north across the region. Areawide rainfall totaled 3 to 5 inches with the bulk of it falling in a 6- to 9-hour period from very late September 8th to midday September 9th. Several creeks recorded their greatest flows and highest gage levels ever in a non-winter/spring season. The heaviest rain was in a swath ...across Monroe and western Wayne counties, with between 3.5 to 4.5 inches" (NWS, The Lake Breeze, Spring 2006). The NYS, Buffalo Office issued a Flood Warning (0300 hours). Three villages and one town declared States of Emergency due to flooding and road closures. The Hilton Fire Department evacuated its Fire Station due to flooding. The Red Cross and local community shelters housed 163 evacuees. The Ogden Highway Superintendent evacuated two houses on Washington Street because flood waters from the Erie Canal had reached the first floor windows. OEM distributed 1,350 sandbags. The Red Cross distributed 75 clean-up kits. FEMA opened a Disaster Recovery Center at the Ogden Town Hall (November 22 – December 3, 2004) and deployed a Community Relations Team. FEMA financial assistance: \$256,481 – Public Assistance; \$1,964,092.96 – Individual Assistance; and \$72,426 – Mitigation, HMGP (OEM Disaster Response File).</p>
September 9, 2004	Flood	N/A	N/A	<p>Western and central New York were inundated by drenching rains as the remnants of hurricane Frances drifted north across the region on Thursday September 9th. Areawide rainfall totaled 3 to 5 inches, with the bulk of it falling within a 6- to 9-hour period from very late Wednesday to midday Thursday. Several creeks in the Buffalo and Rochester areas recorded their greatest flows and highest gage levels ever in a non-winter/spring season.</p>
April 3, 2005	Flood	N/A	N/A	<p>Deep low pressure over Pennsylvania brought copious amounts of precipitation to western and central New York...falling mainly as rain across much of the area. Rainfall totals generally ranged from 2 to 3 inches. The rain, combined with snowmelt, produced flooding. Basement flooding was reported in Gorham and Rochester. The heavy rains produced slick roads that were blamed for numerous automobile accidents in Monroe and Wayne Counties. Six area creeks and rivers reached flood stage.</p>



Date(s) of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
June 10, 2005	Flash Flood	N/A	N/A	<p>Slow moving thunderstorms produced 2 to 2.5 inches of rain within an hour over parts of Livingston and Monroe Counties. Creeks overflowed, and roads and homes flooded.</p> <p>Additionally, NWS Buffalo Office data on flash floods indicated basement flooding in Charlotte.</p>
July 14, 2005	Flash Flood	N/A	N/A	<p>Thunderstorms developed in an unseasonably hot and humid airmass during the late afternoon and early evening hours. The storms downed trees and power lines in Rochester, Lockport, Evans, Batavia, Orchard Park, and Spencerport. A house chimney was damaged by the downburst winds in Rochester. In Chili, a woman was slightly injured while talking on the telephone when lightning traveled through the home's telephone line. Also in Chili, a house fire on Chili Avenue Extension was blamed on a lightning strike. The heavy rains that accompanied the storms resulted in flash flooding in parts of Lewis and Monroe Counties. In the Rochester metro area, numerous reports were received of flooded roads and basements. In Turin, the flood waters washed out a portion of Fish Creek Road.</p> <p>Additionally, NWS Buffalo Office data on flash floods indicated basements flooded in Chili.</p>
July 16-17, 2005	Flood	N/A	N/A	<p>More than 0.5 inch of rain fell within 60 minutes and 20 minutes, respectively, during these evenings. The NYS, Buffalo Office reported that strength of the rain caused streets to look and feel like creeks. Lightning struck a house and caused a fire” (Democrat & Chronicle, July 18, 2005).</p>
September 16, 2005	Flood	N/A	N/A	<p>“...More than 2 inches of rain fell in the Rochester area within the span of three hours and 3.08 inches for the entire day. The amount broke a 130-year record of the day. ...Some residents experienced a severe backup of sewer lines into their basement. Water from flooded streets was blamed...as well as surcharging of basement drains” (Democrat & Chronicle, October 22, 2005). “This rainfall fits the definition of flash flooding” (Democrat & Chronicle, September 18, 2005).</p>



Date(s) of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
June 26-28, 2006	Flooding	N/A	N/A	<p>Monroe County resources responded to flooded Southern Tier counties when called for Mutual Aid. Ambulances, Special Operations tactical teams from the Fire Service, and 911 Dispatchers deployed in Task Forces and Strike Teams through requests from the NYS Fire Mobilization Plan, the NYS Department of Health, and local Emergency Managers for assistance with specific assets (OEM Disaster Response File).</p>
July 12, 2006	Flash Flood	N/A	N/A	<p>A warm front stretching across the region focused heavy rain over the counties along the south shore of Lake Ontario. Two to 4 inches fell across Orleans and Monroe Counties, with more than 5 inches over a portion of Wayne and northern Cayuga Counties. The rains inundated roads, buildings, and crops. Sections of roads were washed away in Wolcott, Irondequoit, and Webster, among others. Cars damaged in high water numbered in the thousands. States of Emergency were declared in several towns and villages, including Wolcott. The rain water inundated agricultural fields, and hundreds of thousands of dollars' worth of squash, potatoes, and corn were ruined.</p> <p>Rochester's rainiest July day on record (3.33 inches) overflowed creeks, flooded basements, and even created sinkholes behind some Irondequoit homes. Thirty percent of city firefighters' calls were for water-related problems. In Irondequoit, the force of water pushing through a drainage system forced the ground to implode, creating a 25-foot-wide by 10-foot-deep crater. The heavy showers came in a series of training storms. Flooding closed a portion of Interstate Route 390, and stranded cars in several shopping center parking lots. NYS Route 404 was closed after a 25-foot-wide sinkhole formed. Localized flash flooding resulted in drain and sewer back-ups, many of them clogged by debris. The County Health Department discouraged swimming in Lake Ontario for 72 hours due to heavy discharge from streams, bays, and the Genesee River (Democrat & Chronicle, July 13, 2006; July 14, 2006). The Erie Canal was re-opened. A significant stretch had been closed due to flooding, stranding boaters for up to 2 weeks (Democrat & Chronicle, July 15, 2006).</p> <p>Additionally, NWS Buffalo Office data on flash floods indicated Rochester I-390 closed.</p>



Date(s) of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
July 28, 2006	Flood	N/A	N/A	<p>“Heavy rain... caused flooding and accidents throughout the area. Parts of the Empire State Games were delayed. Nearly 2 inches of rain fell at the Airport, and 3 inches fell in Webster. Numerous accidents were reported and NYSDOT closed a portion of Route 104 due to flooding. Rochester firefighters pumped water from the roof of Rural/Metro Medical Services. And, the rainfall is believed to have caused a landslide in Irondequoit at German Village” (Democrat & Chronicle, July 29, 2006).</p>
March 14, 2007	Flood	N/A	N/A	<p>Saturated ground, snowmelt from warm weather, and additional rainfall constituted ideal conditions for spring flooding. Thirteen of the area river and creek forecast points exceeded flood stage.</p>
March 15, 2007	Flood	N/A	N/A	<p>Saturated ground, snowmelt from warm weather, and additional rainfall constituted ideal conditions for spring flooding. Thirteen of the area river and creek forecast points exceeded flood stage. (Continuation of event from day prior.)</p>
April 15-28, 2007	Coastal Flood	N/A	N/A	<p>A Nor’easter that battered the East Coast affected our area beginning on the 15th, with the NWS, Buffalo Office issuing a Coastal Flood Advisory that included the Lake Ontario shoreline in Monroe County. The 911 Center deployed “HyerReach” calls to more than 2,200 homes along the shore to inform occupants of the impending flood threat and to encourage them to take precautionary measures in response to the rising water. The County Parks Department placed sandbags around the historic carousel at Ontario Beach Park to mitigate wave run-up and water damage. NOTE: Subsequent to this storm, Monroe County provided sandbags to shoreline municipalities for residential and business flood fighting efforts. Conditions in other areas affected airline transportation, imposing delays and cancellations at the Rochester Airport. About 4.7 inches of snow prompted extended shifts for DPW crews and several motor vehicle accidents. Black Creek flooded on the 17th, prompting a Flood Warning by the NWS, Buffalo Office. Monroe County closed Ellison Park due to flooding on Irondequoit Creek. The city fire department responded to about 25 structural damage calls due to the weather. Precipitation on the 16th set a new daily record of 1.1 inches of rain at the Airport (Democrat & Chronicle, April 16, 2007; April 18, 2007; OEM Disaster Response File; Monroe County New Release, April 30, 2007).</p>



Date(s) of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
April 2007	High Levels	N/A	N/A	<p>“A nor’easter earlier in April, recent rainfall and snow that’s still melting have delayed the opening of New York’s canal system, traditionally scheduled to open on May 1st. Until water levels recede, operations to place water control structures in position and set buoys and other critical navigational aids cannot commence” (Democrat & Chronicle, April 30, 2007).” “ ‘The flooding from last month’s nor’easter might seem mild if the thousands of dams in the state continue to decline,’ Senator Charles Schumer said. There are nearly 2,000 federally recognized dams in New York...and the April storm exposed serious flaws in dams.” (Democrat & Chronicle, May 8, 2007).</p>
July 23, 2008	Flash Flood	N/A	N/A	<p>Thunderstorms developed across the area, including in Monroe County, as an upper level low was centered over the Great Lakes region. Storms developed rapidly along an outflow boundary from the Niagara Peninsula to Erie County. Thunderstorms that developed produced damaging winds estimated to 60 mph and hail measured up to 1 inch in diameter. Scattered power outages were reported. The storms also dropped several inches of rain within a short span of time over parts of Rochester, resulting in flash flooding. Nearly 1 foot of water across the road resulted in closing of portions of Interstates 490 and 390 for several hours right at the start of the evening rush hour.</p> <p>Additionally, NWS Buffalo Office data on flash floods indicated 2W Rochester Rte 490 closed between Mt. Read and 390.</p>
December 28, 2008	Flood	N/A	N/A	<p>Unseasonably warm temperatures in the 60s, combined with 1.25 inches of rain, melted a snowpack of 4 to 8 inches. This resulted in flooding of creeks and streams in western NYS. In Monroe County, low-lying areas, roadways, and basements flooded, and some evacuations were ordered.</p>
February 12, 2009	Flood	N/A	N/A	<p>A major thaw and additional rainfall resulted in rapid snowmelt and runoff, with several area creeks exceeding their flood stages. Two to 5 inches of water in the snowpack quickly melted as temperatures climbed into the upper 50s and 60s. Some backyard and basement flooding occurred from Churchville to Chili.</p>



Date(s) of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
March 9, 2009	Flood	N/A	N/A	Soaking rains over a 4-day period beginning on the 7th provided the region (including Monroe County) with nearly all of the month’s precipitation, between 2 and 3 inches. The rain combined with the melting winter snowpack and frozen ground to result in widespread flooding on area rivers and creeks. Numerous reports of road closures along those rivers and creeks were received. This was the third winter flood event this season, a rare occurrence in western NYS.
June 2009	Flood	N/A	N/A	“The last week of June featured a variety of weather (including) thunderstorms that produced localized flooding (in Monroe County)...” (Democrat & Chronicle, July 2, 2009).
July 13, 2010	Flash Flood	N/A	N/A	<p>An area of low pressure slowly moved across the region, bringing rainfall amounts of up to 2 inches in some areas. The heavy rains produced localized flash floods that flooded some homes and roads. Roads reported closed by flood waters included: Blossom Road in Rochester (three cars stuck in water at least 3 feet deep), County Route 26 in Canadice and Richmond (a mudslide deposited up to 4 feet of mud in some areas), State Route 64 in Bristol Center (closed from County Rte 32 to Dugway Road), and County Route 33 in Honeoye.</p> <p>At 1447 hours, the NYS, Buffalo Office issued a Flash Flood Warning for “Eastern Monroe County, including the City of Rochester, Irondequoit, East Rochester and Brighton until 1745 hours” (NWS Bulletin, July 13, 2010).</p>
August 14, 2011	Flash Flood	N/A	N/A	Heavy rains and embedded thunderstorms dropped up to 4 inches of rain over parts of the region within just a few hours. Flash flooding occurred in Allegany County, where roads were flooded and closed in Cuba and Canadea. In metro Rochester, Monroe County, major roads such as I-490 and I-590 were closed. Cars were submerged to the windows in some areas. Flash flooding was also reported in Webster and Irondequoit.
April 13, 2013	Flood	N/A	N/A	A warm frontal boundary lifted north and stalled across the lower Great Lakes, leading to a period of significant rainfall across the region between the 9th and 12th. The rainfall pushed many area streams and creeks in western NYS above action stage. Black Creek at Churchville exceeded flood stage (6 feet) for around 21 hours, cresting at 6.37 feet. This resulted some backyard and basement flooding in Churchville and Chili.



Date(s) of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
June 13, 2013	Flood	N/A	N/A	A warm front associated with a low pressure system that moved across the Ohio Valley and Pennsylvania resulted in a swath of 1 to 2 inches of rain from the Rochester metro area east to near Fulton. This created minor flooding issues on area roadways, along with flooding of Ellison Park in Rochester when Irondequoit Creek rose above bankful. The creek crested at 9.23 feet around 4 p.m. on the 14 th , and receded to its banks on the morning of the 15 th .
July 3, 2013	Flood	N/A	N/A	Thunderstorms developed over the northern Finger Lakes along a lake breeze in a warm humid air mass. The thunderstorms produced damaging winds that downed trees and power lines. These were reported in Shelby Center, Fairport, Pittsford, Macedon, Palmyra, Newark, and Lyons. The thunderstorms also produced hail up to 1 inch in diameter in Waterport. Between 1.5 and 2.5 inches of rain was measured across parts of Monroe and Wayne Counties. This amount of rain within a very short time resulted in poor drainage flooding in the City of Rochester. Several city streets were inundated, included Amsterdam Road and Monroe Avenue.
December 22, 2013	Flood	N/A	N/A	A surface front stalled across the region acted as a pathway for periods of heavy precipitation. Rainfall amounts of 1.5 to 3.0 inches fell across the Niagara Frontier and parts of the Genesee Valley and Finger Lakes. The heavy rain combined with snowmelt to produce flooding. In addition to many of the gauged rivers and creeks reaching flood stage, flooding in low-lying and poor drainage areas was common. In urban areas, runoff of the heavy rain and snowmelt was hindered by snow- and ice-clogged storm drains.
May 13-22, 2014	Flood	DR-4180	No	On the 16 th , heavy rain along a slow moving cold front produced flooding across parts of the Genesee River valley and Finger Lakes region. Rainfall amounts of 2 to 3 inches fell on already rain-soaked soils. Honeoye Creek crested at 5.63 feet, a moderate flood. It was the fourth highest crest on record, causing flooding in and around the Village of Honeoye Falls. Roads were reported flooded in Monroe County in Brighton and Fairport. Resulting damages were enough to warrant a State Disaster Declaration. Monroe County had a public sector cost of \$87,377.48 for flood damages or other costs (i.e. labor costs associated with maintaining sewer systems) for this event.



Date(s) of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
July 28, 2014	Flash Flood	N/A	N/A	Low pressure slowly moved across western and central New York, and brought heavy rains and embedded thunderstorms to the region. Rainfall totaled 3 to 6 inches during the afternoon hours and resulted in flash flooding in several areas of the Finger Lakes region. In Monroe County, flooding was reported in Riga, Caledonia, and South Chili. The NYS Thruway was forced to close between Exits 46 and 47. In Honeoye, a bridge on Cole Road washed out, as did portions of Egypt Road in Bristol.
August 1, 2014	Flood	N/A	N/A	Thunderstorms developed in a moderately unstable airmass along the lake breeze boundary that extended across the lower Genesee Valley and Western Finger Lakes. The thunderstorms produced damaging winds that downed trees and wires in Greece and Newark. Hail also fell during the storms: 1-inch hail was reported in Rochester, and 0.75-inch hail covered the ground in Newark. Heavy rains resulted in urban flooding. Storm sewers could not contain flows from the intense rainfall, and streets closed in Newark and Greece.

Source(s): FEMA 2014, NYS DHSES 2014, NCDC 2014, NWS 2010; Democrat & Chronicle 2010; USACE 2010; Monroe County 2010

Notes:

Monetary figures within this table are U.S. Dollar (USD) figures calculated during or within the approximate time of the event. If such an event would occur in the present day, monetary losses would be considerably higher in USDs as a result of increased U.S. Inflation Rates.

- DHSES Division of Homeland Security and Emergency Services
- DPW Department of Public Works
- DR Federal Disaster Declaration
- EOC Emergency Operations Center
- FEMA Federal Emergency Management Agency
- FIS Flood Insurance Studies
- HMGP Hazard Mitigation Grant Program
- mph Miles per hour
- N/A Not applicable
- NCDC National Climate Data Center
- NOAA National Oceanic and Atmospheric Administration
- NYS New York State
- NYSDOT New York State Department of Transportation
- OEM Office of Emergency Management
- USACE U.S. Army Corps of Engineers





H.1.4 Severe Storm

Known severe storm events that occurred from 1972 to 2015 are identified in Table H.4. With severe storm documentation for New York State and Monroe County being so extensive, not all sources have been identified or researched. Therefore, Table H.4 may not include all events that have occurred in the County.



Table H.4. Severe Storm Events between 1972 and 2015

Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
June 23, 1972	Tropical Storm Agnes	DR-338	Yes	Not listed.
June 6, 1973	Thunderstorm Wind	N/A	N/A	Unofficially, the Rochester Airport (at the FAA Tower) had a wind gust of 100 mph (Democrat & Chronicle, 2.22.06, 2.12.09).
November 12, 1992	Thunderstorm Wind	N/A	N/A	The County EOC was activated for 13.25 hours for a severe wind storm that knocked out power, and downed trees and power lines (County Office of Emergency Management, Disaster Response File: 1992 Wind Storm).
August 13, 1993	Thunderstorm Wind	N/A	N/A	Thunderstorms developed in a moist flow ahead of a cold front. The thunderstorm winds downed trees and power lines. Hail up to an inch in diameter was reported with the storms. Some structural damage was reported from fallen trees and limbs. Damage was estimated at \$4,000.00 for Fairport.
August 28, 1994	Thunderstorm Wind	N/A	N/A	Thunderstorms developed in a moist, southwest flow ahead of a cold front. The thunderstorm winds downed trees and power lines, resulting in power outages scattered across the region, including Webster and Spencerport. Damage was estimated at \$4,000.00.
June 26, 1995	Thunderstorm Wind	N/A	N/A	Severe thunderstorms moved across portions of Western and Central New York. The thunderstorm winds downed trees and power lines. Power outages were scattered across the entire area. Damage estimates were \$6,000.00 for Pittsford and \$10,000.00 for Macedon Center.
July 6, 1995	Thunderstorm Wind	N/A	N/A	Severe thunderstorms moved across the area ahead of a cold front. There were numerous reports of downed trees and wires and power outages. Damage was estimated at \$8,000.00 for Penfield.
July 15, 1995	Thunderstorm Wind	N/A	N/A	The County EOC was activated for 3 hours to assist coordination of resource identification and deployment to northern New York State after a “Wind Burst” (County Office of Emergency Management, Disaster Response File: July 1995 North Country Wind Burst).
July 17, 1995	Thunderstorm Wind	N/A	N/A	Thunderstorms with wind caused damage estimated at \$4,000.00 for Brockport.
August 3, 1995	Thunderstorm Wind	N/A	N/A	Severe thunderstorms crossed the area resulting in fallen trees and power lines, nearly continuous lightning and record rainfall. In Monroe County, traffic was disrupted by flash flooding caused by over 2 inches of rain in a very short time. Numerous power outages were also reported. Damage was estimated at \$25,000.00 for Rochester, \$5,000.00 for Henrietta, and \$35,000.00 for the county.



Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
August 31, 1995	Thunderstorm Wind	N/A	N/A	A fast moving line of severe thunderstorms crossed the region causing widespread damage. There were countless reports of downed trees and power lines, many onto cars and houses. Several SKYWARN observers recorded wind gusts of 60-70 mph as the storms moved through. Damage was estimated at \$8,000.00 for Irondequoit.
January 27, 1996	Thunderstorm Wind	N/A	N/A	Deep low pressure over the upper Great Lakes brought strong winds to the area. The high winds downed trees and power lines in Mendon. Damage was estimated at \$15,000.00.
March 25, 1996	Thunderstorm Wind	N/A	N/A	Thunderstorms accompanying a cold front produced damaging winds, which downed trees and power lines. Damage was estimated at \$20,000.00.
April 20, 1996	Thunderstorm Wind	N/A	N/A	Severe thunderstorms developed in the late afternoon. The thunderstorms dropped large hail across the region. Thunderstorm winds downed trees and power lines. Damage was estimated at \$15,000.00 for Hamlin.
May 20, 1996	Thunderstorm Wind	N/A	N/A	A line of severe thunderstorms crossed the area producing damaging winds. The thunderstorm winds downed trees and power lines. In Riga, the winds damaged a large road sign. Damage was estimated at \$35,000.00.
June 22, 1996	Thunderstorm Wind	N/A	N/A	Severe thunderstorms produced damaging winds, which downed trees and power lines. Damage was estimated at \$8,000 for Irondequoit.
October 30, 1996	Thunderstorm Wind	N/A	N/A	Low pressure moving northeast across Lake Superior brought strong winds to the area. The winds brought down trees, tree limbs, and power lines. In Penfield, two persons were injured when a tree fell on the car they were driving. Winds gusted to 52 mph. Damage was estimated at \$25,000.00.
February 22, 1997	Thunderstorm Wind	N/A	N/A	A strong cold front crossed the region during the morning hours. Temperatures dropped 40 to 45 degrees with the passage of the front. The funneling effect of the Great Lakes combined with rapid pressure rises behind the front combined to produce hazardous winds. Trees, power lines, and poles were downed across the entire area. Hundreds of thousands were left without power. Reports of homes and autos damaged by the falling trees and branches were numerous. The strong winds caused structural damage in some locations tearing off roofs and shingles, blowing-out windows, and collapsing walls. Air travel from the Buffalo and Rochester airports was interrupted. A 54-year-old volunteer fireman was killed in Spencerport while responding to an emergency call when a large tree fell on his car, crushing him. His 15-year-old son also riding in the car suffered injuries. Reported gusts included: 61 knots at Rochester. Damage was estimated at \$500,000.00.



Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
February 27, 1997	Thunderstorm Wind	N/A	N/A	Deep low pressure moved from Indiana to Ontario bringing high winds to the area. The strong winds downed trees and telephone and power lines. Power outages were reported throughout the area. Several cities and towns declared States of Emergency because of the prolonged lack of power. Windows were blown-out of buildings. The strong winds caused structural damage in some locations tearing-off roofs and sidings and collapsing walls. Home and autos were damaged by falling limbs. An electric lineman was injured in Perinton, when he was knocked from a pole by a falling tree. Damage was estimated at \$150,000.00.
July 15, 1997	Thunderstorm Wind	N/A	N/A	Strong thunderstorms crossed the region during the afternoon hours. The thunderstorm winds downed trees and power lines. Scattered power outages lasting several hours were reported. In Henrietta, numerous utility poles were downed by the thunderstorm winds leaving nearly 24,000 customers in the Rochester area without power for several hours. Damage was estimated at \$75,000.00 for Henrietta.
September 29, 1997	Thunderstorm Wind	N/A	N/A	Severe thunderstorms rolled across the area during the evening hours producing damaging winds estimated at sixty to seventy miles per hour. The winds downed trees and power lines and resulted in thousands being left without power. Damage was estimated at \$15,000.00 for Penfield.
March 28, 1998	Thunderstorm Wind	N/A	N/A	A fast moving squall line crossed the area during the afternoon hours. Winds, gusting over 70 mph, downed numerous trees and wires. Power outages were reported throughout the area. Damage was estimated at \$40,000.00.
May 31, 1998	Thunderstorm Wind	N/A	N/A	<p>An outbreak of severe storms began across the region during the early morning hours. The storms were particularly dangerous because of their speed moving across the region – sometimes in excess of 60 mph. Most of the damage associated with these storms occurred from a combination of high winds and hail. There were reports of numerous trees and wires down as well as power outages. Tens of thousands were without power. Several flights were delayed or cancelled at the Buffalo and Rochester airports due to the storms. Damage was estimated at \$18,000.00 for Gates Center, \$17,000.00 for Hamlin, \$15,000.00 for Scottsville, and \$15,000.00 for Rochester. A person in Henrietta was struck by lightning.</p> <p>A second round of storms for the day moved across the region during the evening hours. Again the thunderstorms produced high winds, large hail and torrential rains. Trees and power lines were downed across western New York. In the Rochester area, the power company reported 30 poles snapped by the winds and 40,000 customers were without power. Lightning throughout the area shattered trees and set a number of fires. At Locust Hill Country Club, the nationally televised Ladies Pro Golf Association tournament was delayed four times by the storms. Damage was estimated at \$30,000.00 for Rochester.</p>
June 16, 1998	Thunderstorm Wind	N/A	N/A	Scattered thunderstorms crossed the area during the early evening hours. The thunderstorm winds downed trees and power lines. The heavy rains, which accompanied the thunderstorms, resulted in widespread poor drainage and urban flooding in the Rochester metro area. Damage was estimated at \$40,000.00 for Rochester.



Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
June 25, 1998	Thunderstorm Wind	N/A	N/A	Thunderstorms, accompanied by almost continuous lightning, torrential rains, damaging winds, and pea to marble-sized hail swept across the area. Over 15,000 were without power when thunderstorm winds downed power lines and poles. Damage was estimated at \$10,000.00 for Webster.
August 24, 1998	Thunderstorm Wind	N/A	N/A	Thunderstorms moved across the southern Lake Ontario counties during the early morning hours. The thunderstorms produced damaging winds, which downed trees and power lines. Several thousand customers were left without power for several hours. Winds were estimated in some areas at 60-70 mph. Damage was estimated at \$50,000.00 for Greece.
September 6-7, 1998	Thunderstorm Wind	N/A	N/A	<p>Several thunderstorms moved onshore over northeast Niagara County shortly before midnight. The line of storms quickly moved across Orleans, Monroe, Wayne, Ontario and northern Cayuga counties. Across the area the damage path was nearly 100 miles long and 5 to 10 miles wide. Winds were estimated between 80 and 100 mph throughout the 2-hour event. Along the entire path, damage and debris all laid in an easterly direction consistent with the damage from straight-line winds. Most of the damage consisted of downed trees and limbs. The falling trees and limbs in-turn downed power and telephone lines and resulted in damage to buildings and automobiles. Power outages, some lasting nearly a week, were widespread across parts of Orleans, Monroe and Wayne counties. Hundreds of thousands of customers were without power. The strong winds themselves also resulted in structural damage to homes, barns and buildings along the path including some in Brockport and Bushnell's Basin among other locations. Several aircraft were damaged at the Rochester Airport where wind gusts were measured at 89 mph. States of Emergency were declared throughout Monroe and Wayne counties and sections of Orleans County. Monroe, Wayne, and Cayuga counties were declared federal disaster areas. The strong winds severely damaged apple crops and trees from Niagara across Orleans and Monroe through Wayne counties. Damage was estimated at \$20 million for the Rochester Airport, \$350,000.00 for Brockport, \$1.2 million for Pittsford, and \$2 million in crop damages.</p> <p>This storm, known locally as the "1998 Labor Day Windstorm," was later classified by the National Weather Service as a derecho. Its associated straight line winds were predominant on a path that followed the Erie Canal and NYS Route 31, from Orleans County stretching almost to Albany. The County EOC was open for 113.75 hours. The Presidential Disaster Declaration on September 22, 1998 for seven counties identified this storm as FEMA-1244-DR-NY. Reimbursement to all counties for public assistance was \$36.1M. Of that amount, Monroe County communities received \$4M (County Office of Emergency Management, Disaster Response File: 1998 Labor Day Windstorm).</p>



Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
November 10, 1998	Thunderstorm Wind	N/A	N/A	Low pressure over the central plains moved across the Great Lakes and brought high winds to western New York and the North Country. The strong winds, gusting to 62 mph, brought down tree limbs and power lines across the region. Several windows were blown-in. In East Rochester, several buildings were damaged as walls were blown-in. One cinderblock wall was over 30 feet high and 100 feet long. Thousands were without power as outages were scattered across the area. Power outages were reported in Victor and Rochester as well as other cities and towns in the region. Damage was estimated at \$150,000.00.
July 3, 1999	Thunderstorm Wind	N/A	N/A	Several thunderstorms crossed the region during the late afternoon hours. The thunderstorms produced heavy downpours, up to three inches in some spots, strong winds and large hail. The heavy downpours resulted in localized poor drainage flooding. The strong winds downed trees and power lines throughout the region. Structural damage was also reported. Greece reportedly had \$25,000.00 in damage.
July 24, 1999	Thunderstorm Wind	N/A	N/A	Severe thunderstorms developed across the counties along the south shore of Lake Ontario. The thunderstorms produced downpours and strong winds. The damaging winds downed trees and power lines with scattered outages reported. Greece reportedly had \$15,000.00 in damage.
July 31, 1999	Thunderstorm Wind	N/A	N/A	Violent thunderstorms ripped across western New York and the Finger Lakes Region during the evening hours. The strong thunderstorms downed trees and power lines and left hundreds of thousands without power. Several roads were blocked by fallen debris. Several of the falling trees caused damage to houses and automobiles. In Monroe County, at the Freeman Park in Mumford four people at a company picnic were injured when high winds picked up a tent and dragged it through the crowd. They were treated and released from an area hospital.
August 4, 1999	Thunderstorm Wind	N/A	N/A	Severe thunderstorms crossed the Finger Lakes during the late afternoon hours. The thunderstorms produced damaging winds, which downed trees and power lines. Damage was estimated at \$8,000.00 for Rochester.
October 13, 1999	Thunderstorm Wind	N/A	N/A	A strong cold front crossed the area. The thunderstorms that accompanied the front produced damaging winds and large hail. The winds downed trees and power lines. About 10,000 customers lost their power. Falling trees damaged houses in Webster among other areas. Damages in Webster were estimated at \$35,000.00.
November 2, 1999	Thunderstorm Wind	N/A	N/A	An intense storm, which moved from the eastern Gulf of Mexico to New Western New York, brought high winds to the region. Trees and lines were downed and power outages were scattered throughout the area. In Rochester, an overhead highway sign was blown into the path of a minivan. A 41-year-old male driver died, while his wife and daughter were not injured in the accident. Damage was estimated at \$100,000.00.
January 4, 2000	High Wind	N/A	N/A	Strong winds accompanied the passage of a cold front across the area during the late morning and early afternoon hours. Trees and power lines were downed by the winds. In Rochester, a smokestack was blown over. Gusts of 55 mph at Rochester were recorded. Power outages were scattered throughout the area. Damage was estimated at \$50,000.00.



Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
March 9, 2000	Thunderstorm Wind	N/A	N/A	Spring thunderstorms rolled-in off Lake Ontario during the afternoon hours. The storms produced 3/4 inch hail and damaging winds that downed trees and power lines. Damage was estimated at \$25,000.00.
May 12, 2000	Thunderstorm Wind	N/A	N/A	Thunderstorms rolled across the Niagara Peninsula and then along the Lake Ontario shore counties. Only small hail was reported with the storms, however the storms produced hurricane-force winds. The high winds buffeted the area taking down trees and power lines. Various communities reported power outages of 12 hours or more. In Irondequoit, Kings Highway and Bayview Road caved-in as a result of erosion. Damages in Gates Center were estimated at \$35,000.00.
May 24, 2000	Thunderstorm Wind	N/A	N/A	Thunderstorms roared across the Genesee Valley and the Finger Lakes Region during the late morning and early afternoon hours. In addition to producing hail up to one inch in diameter, the thunderstorms produced damaging winds. Damage was estimated at \$8,000.00 for Henrietta.
August 1, 2000	Thunderstorm Wind	N/A	N/A	Thunderstorms developed along lake breezes during the afternoon hour. The thunderstorm winds downed trees and power lines. In addition to producing hail up to an inch and a quarter in diameter, the thunderstorms produced torrential rains, which resulted in localized poor drainage flooding. Damage was estimated at \$25,000.00 for Brockport.
December 12, 2000	Thunderstorm Wind	N/A	N/A	Deep low pressure over Ohio tracked northeast across the region. The strong pressure gradient on the back side of the low combined with rapid pressure rises resulted in very strong northwest winds across the region. The damaging winds downed trees and lines throughout the area. Specific reports of damage were received from Spencerport along with many other areas outside of Monroe County. Nearly 100,000 customers were without power across the region. Flights on the morning of the 12th were either delayed or cancelled at both the Buffalo Niagara International Airport and the Rochester Airport. Damage was estimated at \$200,000.00.
February 10, 2001	Thunderstorm Wind	N/A	N/A	Deep low pressure over the western Great Lakes moved across Ontario to Quebec and dragged a cold front across the area. Sustained winds of 20 to 30 mph were reported across the area with recorded gusts up to 76 mph. The strong winds downed trees and utility lines throughout the 14-county area. Several hundred thousand customers were without power. Roads were blocked by downed trees. There were numerous reports of property damage from the winds, mostly from trees falling on buildings and cars. Specifically, this was reported from Pittsford and Honeoye Falls along with many other areas outside of Monroe County. In Fairport, a winter carnival had to be cancelled because the high winds tore apart a large tent erected for the carnival. Damage was estimated at \$300,000.00.
February 25, 2001	Thunderstorm Wind	N/A	N/A	Deep low pressure over the northern Great Lakes moved northeast to Quebec and pulled a strong cold front across the area. The strong winds that accompanied the system downed trees and power lines. Sustained winds of 51 mph were reported at the Rochester Airport. Damage was estimated at \$100,000.00.



Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
May 27, 2001	Thunderstorm Wind	N/A	N/A	Thunderstorms crossed the area during the afternoon hours producing hail up to ¾ inch in Gates Center and damaging winds estimated to 68 mph. Trees and power lines were downed by the strong winds in western Monroe County. Damage was estimated at \$5,000.00 in Gates Center and \$20,000.00 in Rochester.
July 1, 2001	Thunderstorm Wind	N/A	N/A	Thunderstorms ahead of a cold front crossed the western Finger Lakes Region and Eastern Lake Ontario counties during the morning hours. The storms produced damaging winds, which downed trees and power lines across the area. Damage was estimated at \$10,000.00 in Webster.
July 10, 2001	Thunderstorm Wind	N/A	N/A	Strong thunderstorms moved across parts of the Finger Lakes Region during the late evening hours. The storms downed trees and power lines in Chili. Damage was estimated in Chili Center at \$10,000.00.
February 1, 2002	Thunderstorm Wind	N/A	N/A	An intensifying storm moved across the Great Lakes and lifted northeast to the St. Lawrence Valley. Very strong winds behind the low blasted the region with wind gusts exceeding 55 mph. Trees and power lines were downed by the strong winds. Hundreds of thousands were without power...some for several days. Fallen trees and limbs littered the area and closed roads. Numerous reports of damage to homes and automobiles were received from throughout the area. Driving bans and States of Emergency were declared in several counties. Numerous school districts were forced to close on the first and several remained closed through the beginning of the following week. In Monroe County, two injuries resulted from the high winds. A man was briefly hospitalized after gusts blew apart the trailer he was working in at the Greater Rochester Airport. Also in Rochester, a woman was blown from the sidewalk into the street where she was hit by an oncoming car. Damage was estimated at \$750,000.00.
March 3, 2002	Thunderstorm Wind	N/A	N/A	Low pressure over Indiana deepened as it moved northeast. Trees and power lines were downed. Damage was estimated at \$100,000.00.
March 9, 2002	Thunderstorm Wind	N/A	N/A	Low pressure over Wisconsin deepened as it moved across Lake Superior and into northern Ontario. Strong winds accompanied and followed the passage of a cold front. The damaging winds affected the entire area, downing trees and power lines and causing some structural damage. Nearly 100,000 customers completely lost power with thousands of others experiencing brief power outages. In Rochester, a roof was blown-off a building supply store. In Mendon, a two-story, 100-year old barn was pushed over. Damage was estimated in Webster at \$50,000 and overall at \$500,000.00.
April 28, 2002	Thunderstorm Wind	N/A	N/A	Thunderstorms developed across the eastern Great Lakes Region during the afternoon hours. The thunderstorm's downburst winds ripped down trees and power lines. Scattered power outages were reported. Several structures and automobiles were damaged by falling trees. Wind damage was estimated at \$10,000.00 in Henrietta.



Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
May 29, 2002	Thunderstorm Wind	N/A	N/A	Thunderstorms developed in warm, moist, unstable air during the afternoon and evening hours downing trees and power lines. Up to 5,000 homes were without power at the peak of the storm. Damage was estimated at \$25,000.00 for the Rochester Airport.
May 31, 2002	Thunderstorm Wind	N/A	N/A	Thunderstorms moved across the region ahead of a cold front. The thunderstorms produced damaging winds and hail up to ¾ inch in diameter. The winds downed trees and power lines and scattered power outages were reported. A home suffered damage in Bushnell’s Basin. Damage was estimated at \$50,000.00 in Bushnell’s Basin.
June 26, 2002	Thunderstorm Wind	N/A	N/A	Thunderstorms developed in a warm, moist, unstable flow during the late morning and afternoon hours. Eight thousand customers lost power in the Rochester metro area. Damage was estimated at \$35,000.00 in Rochester, and \$30,000.00 in Irondequoit.
June 27, 2002	Thunderstorm Wind	N/A	N/A	Thunderstorms developed ahead of an approaching cold front. The thunderstorms produced damaging winds which gusted to near 70 mph. Damages consisted mainly of downed trees and power lines, although some structural damage occurred. Damage was estimated in Greece at \$20,000.00.
May 11, 2003	Strong Winds	N/A	N/A	Spencerport had straight-line winds (60-70 mph) with a localized microburst. A microburst is defined as a, “Highly localized downburst of air released from within a thunderstorm. Winds associated with microbursts can exceed 150 mph. That is equal to the force of an F-2 tornado” (Glenn Johnson, Meteorologist, Democrat & Chronicle, 5-14-03).
April 18, 2004	Hail	N/A	N/A	Spencerport: 0.88 inches; Fairport: 0.88 inches
May 14, 2004	Thunderstorm Wind	N/A	N/A	In Greece, trees fell down on a house, E50 KT; Rochester had trees down, E50KT
May 20, 2004	Lightning	N/A	N/A	An electrical storm followed by a heavy downpour rolled into the Rochester area shortly after 8:00 p.m.” Lightning struck the First Presbyterian Church in the Village of Pittsford. About 30 people were attending choir practice. Everyone was safely evacuated, but there was major damage to the structure (Democrat & Chronicle, 5.21.04, 5.22.04).
May 22, 2004	Thunderstorm Wind	N/A	N/A	Spencerport had numerous trees down, E50KT



Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
May 23, 2004	Thunderstorm Wind	N/A	N/A	Henrietta’s Memorial Day Parade was canceled due to thunderstorms. “Frontier officials say recent storms have knocked out telephone service for an estimated 1,100 business and residential customers across the Rochester region. The company has no official estimate for when most customers will regain service (some maybe 3 days)” (Democrat & Chronicle, 5.24.04, 5.25.04). Thunderstorms on the 23rd and 24th, “...delivered as much as 2 to 4 inches of rain over most of western New York. On the 24th, the National Weather Service issued two severe thunderstorm warnings for Monroe County within six hours’ time. With the ground being saturated, any rainfall will create the potential for significant additional flooding” (Democrat & Chronicle, 5.25.04).
May 24, 2004	Thunderstorm Wind	N/A	N/A	In Webster, power lines were down, E55KT Durand-Eastman Park closed portions of the park due to standing water. Pine Brook Elementary School in Greece had the day off because a lightning strike cut power. Rochester firefighters pumped 72 basements. RG&E reported outages for 6,700 customers (Democrat & Chronicle, 5.25.04). The Rush Fire Department canceled their routine water rescue training because of unsafe conditions on Honeoye Creek. They were subsequently called to rescue four people who were rafting in the creek near the bridge on NYS Route 15A. One person was trapped in the creek. “Two of the rescuers and the person trapped were brought to shore by ropes” during the rescue (Democrat & Chronicle, 5.26.04).
July 20, 2004	Hail	N/A	N/A	Pittsford: 0.75 inches
August 29, 2004	Thunderstorm Wind	N/A	N/A	Henrietta Power Lines Down, E50KT; Brighton Large Tree Down, E50KT
June 13, 2005	Thunderstorm Wind	N/A	N/A	Mendon Trees Down, EG50KTS; Clarkson Trees/Limbs down, EG50KTS
July 14, 2005	Thunderstorm Wind	N/A	N/A	Rochester ASOS, MG56KTS; Rochester Tree limbs/chimney down, EG55KTS; Spencerport Wires and Trees down, EG50KTS Thunderstorms that ripped through parts of Monroe County, are to blame for power outages, localized flooding, at least one house fire and one minor incident of a person struck by lightning. The woman struck was shocked by lightning that traveled through the home’s telephone line. The National Weather Service, Buffalo Office said strong storms blew through western Monroe County between 7:30 and 8:30 p.m. They reported indications of rainfall greater than 3 inches an hour, which is the whole monthly average rainfall in about an hour. The rain caused numerous flooded basements and some flooded roadways. The power outages affected about 5,700 RG&E customers” (Democrat & Chronicle, 7.15.05).



Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
July 26, 2005	Thunderstorm Wind	N/A	N/A	Honeyoe Falls Trees Down, EG50KTS Violent Thunderstorms...toppled trees and power lines in Honeoye Falls. Emergency Services and DPW crews cleared debris from roadways and attended occupants of a car who were trapped when a falling tree struck their vehicle. Local damage was reported on TV13 newscast the following morning” (The Sentinel, 8.4.05). “Peak gusts of 37 mph were recorded at the Airport. The winds downed tree limbs and power lines. A man was struck by lightning in his home when it traveled through electric wiring in his house” (Democrat & Chronicle, 7.27.05).
August 29-October 1, 2005	Hurricane Katrina Evacuation	EM-3262	Yes	Not listed.
September 29, 2005	Thunderstorm Wind	N/A	N/A	Brockport Trees/Wires down, EG50KTS The winds were strong enough to cause damage to trees, homes and scattered power outages to more than 5,600 RG&E customers. A wind gust of 45 mph was registered at the Rochester Airport. .The strong winds accompanied by thunderstorms were leading a cold front into New York” (Democrat & Chronicle, 9.30.05, 10.2.05, The Sentinel, 10.6.05).
November 6, 2005	Thunderstorm Wind	N/A	N/A	Hamlin Wires Down, EG50KTS Supercell thunderstorms raced across the area at 60 mph. Supercells are capable of producing tornadoes, large hail, and dangerous bursts of wind or flash flooding, as well as significant lightening. ...The separation between updraft and downdraft leads to longer storm life, helping the storm maintain itself for several hours. 4,000 RG&E customers lost power. Most of the problems were from tree limbs on power lines. The peak wind gust at the Airport was 47 mph” (Democrat & Chronicle, 11.8.05). “WHAM-TV13 was knocked off the air for about half an hour, until 6:35 p.m., by transmitter problems” (Democrat & Chronicle, 11.7.05).
November 9, 2005	Hail	N/A	N/A	Henrietta: 0.75 inches Heavy rains, lightening and hail tore through the Rochester area causing strange weather. Four people on the Wesleyan College Campus were treated for non-life-threatening injuries when lightning struck nearby. Multiple accidents, multiple alarm calls and some flooding the low areas were reported to the 911 Center. About 500 RG&E customers lost power (Democrat & Chronicle, 11.10.05).
February 17, 2006	High Wind	N/A	N/A	Greater Rochester International Airport (ROC) ASOS – MG67KT The area had an official wind gust of 77 mph; this is second on the all-time list” (Democrat & Chronicle, 2.12.09).



Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
April 13, 2006	Hail	N/A	N/A	Greece: 1.00 inches
May 13, 2006	Hail	N/A	N/A	Rochester: 1.0 inches
June 28, 2006	Thunderstorm Wind	N/A	N/A	Webster Trees Down, Garage door blown in, EG53KT
June 28, 2006	Hail	N/A	N/A	Penfield: 1.5 inches; Henrietta: 1.50 inches
July 10, 2006	Thunderstorm Wind	N/A	N/A	Webster Trees down, on shed, EG52KT
July 29, 2006	Thunderstorm Wind	N/A	N/A	Lockport Trees down, EG50KT
August 2, 2006	Thunderstorm Wind	N/A	N/A	Hilton Power Lines down, EG50KT
October 29, 2006	High Winds	N/A	N/A	Winds ranged from 25 to 35 mph, with gusts above 40 mph coming off Lake Ontario. Drivers were warned to use caution on roadways and bridges. At its peak, more than 4,500 customers were without power. The NWS, Buffalo Office, issued a wind advisory until 6:00 p.m. There were no cancellations or delays at the Rochester Airport. The high winds caused tree branches to fall on homes and take down power lines” (Democrat & Chronicle, 10.30.06).
December 1, 2006	High Wind	N/A	N/A	ROC EG50KT The NWS, Buffalo Office, reported a wind gust of more than 40mph at the Airport. RG&E had about 3,600 customers without power. Several flights were cancelled at the Airport (Democrat & Chronicle, 12.2.06). The high winds produced a seiche on Lake Ontario. “Water is pushed from one end of the lake and piles-up on the opposite side. Seiches can cause changes in water level of several feet before diminishing over time” (Democrat & Chronicle, 12.3.06).



Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
June 8, 2007	Thunderstorm Wind	N/A	N/A	Henrietta Trees/wires down, EG50KT Strong winds, frequent lightening and briefly heavy rain caused scattered power outages. Fallen tree limbs were reported throughout the area. A house was struck by lightning but no injuries were reported. About 8,000 RG&E customers lost power” (Democrat & Chronicle, 6.9.07).
June 19, 2007	Thunderstorm Wind	N/A	N/A	Rochester Trees down, 1 dead, 1 injured; Rochester Trees down, EG50KT; Brockport Trees/wires down, EG50KT A man on an ATV was killed near Riverside Cemetery when a treetop snapped and landed on him during a fast-moving heavy thunderstorm that brought wind gusts of more than 60 mph.” In the city, a 500-pound street vendor cart was lifted by the wind and slammed into a car. The fire service responded to calls for people trapped in their cars from falling trees, and DPW crews responded to remove trees that blocked streets. Multiple reports of trees on houses, into houses and obstructing building access were received at the 911 Center. More than 11,500 RG&E customers lost power, and some traffic signals were dark as a result (Democrat & Chronicle, 6.20.07, 6.21.07).
June 21, 2007	Hail	N/A	N/A	Penfield: 1 inch; Honeoye Falls: 0.75 inches
August 16, 2007	Thunderstorm Wind	N/A	N/A	Scottsville Wires down, EG50KT
September 11, 2007	Thunderstorm Wind	N/A	N/A	Mendon Trees/Wires down; tree on home, EG55KT
January 9, 2008	High Wind	N/A	N/A	Brighton Trees Down, EG74MPH
January 9, 2008	Thunderstorm Wind	N/A	N/A	ROC ASOS MG75MPH The winds gusted to hurricane force at 75 mph, downing trees and causing power outages. This is the fourth-highest recorded gust in Rochester history (Democrat & Chronicle, 2.4.08, 2.16.08).
January 30, 2008	High Wind	N/A	N/A	ROC ASOS MG60MPH The peak wind speed was 63 mph, again downing trees and causing power outages (Democrat & Chronicle, 1.31.08, 2.4.08).



Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
April 26, 2008	Hail	N/A	N/A	Rochester: 1 inch
June 5, 2008	Thunderstorm Wind	N/A	N/A	Rochester Roof blown off building, EG50KT
June 10, 2008	Hail	N/A	N/A	Honeoye Falls: 0.75 inches
June 10, 2008	Thunderstorm Wind	N/A	N/A	Pittsford Trees and wires down, EG50KT
June 13, 2008	Thunderstorm Wind	N/A	N/A	Greece Wires down, EG50KT
June 16, 2008	Hail	N/A	N/A	Chili Center: 0.88 inches; 3S Penfield: 0.75 inches; Fairport: 0.75 inches; 2SE Fairport: 0.88 inches; Fairport: 0.75 inches; 3S Fairport; 0.75 inches; 2S Brockport: 0.75 inches
June 29, 2008	Thunderstorm Wind	N/A	N/A	Hamlin Trees down, EG50KT
July 16, 2008	Hail	N/A	N/A	Brockport: 0.75 inch
July 23, 2008	Hail	N/A	N/A	Henrietta: 1 inch
July 23, 2008	Thunderstorm Wind	N/A	N/A	1NW Honeoye Falls Trees down, EG50KT; Gates Trees down, EG50KT
February 12, 2009	High Wind	N/A	N/A	Brighton EG60MPH
June 2009	Thunderstorm Wind, Hail	N/A	N/A	The last week of June featured thunderstorms that produced localized flooding and damaging hail, which was reported up to 1.75 inches in diameter” (Democrat & Chronicle, 7.2.09).



Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
June 26, 2009	Hail	N/A	N/A	Greece: 1 inch; N. Brockport 0.75 inches; 5SW Brockport: 1.5 inches; Brockport: 0.75 inches; Rochester: 1 inch
July 25, 2009	Tornado	N/A	N/A	Hilton F0 1755-1805
July 25, 2009	Thunderstorm Wind	N/A	N/A	Brockport Trees/wires down; Churchville Trees/wires down; West Webster Tree on house; Irondequoit – Power transformers down; Rochester – Trees down in city
July 26, 2009	Thunderstorm Wind	N/A	N/A	Rochester –Lyell Road Trees down
August 22, 2009	Hail	N/A	N/A	2W Spencerport: 0.75 inches
September 28, 2009	Thunderstorm Wind	N/A	N/A	Brockport Trees/wires down; Hilton Trees/wires Railroad/Underwood; 4NW Rochester Trees down West Ridge Rd
May 8, 2010	High Wind	N/A	N/A	Deep low pressure passed over western New York with its trailing cold front rapidly sweeping east across the region. Winds increased within a few hours of the approaching front to gust speeds of 60 to 65 mph. Tens of thousands were left without power. There were reports of vehicles and/or buildings damaged by falling trees in: Niagara Falls, Ransomville, Rochester, Olean, and Perry just to name a few. The high winds were blamed for several delayed flights at both Buffalo and Rochester airports. “14,000 customers lost power due to winds that took down trees and power lines.” Two-tenths of an inch of snow fell in Charlotte and a trace was measured at the Airport on Sunday morning (Mother’s Day). A freeze warning was in effect the morning of May 10th as the cold front that brought the high winds made its way across the region (Democrat & Chronicle, 5.8.10, 5.10.10).



Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
July 21, 2010	Thunderstorm Wind	N/A	N/A	<p>Thunderstorms developed ahead of an approaching cold front. The thunderstorms produced large hail and damaging winds. Hail up to an inch and three-quarters was reported in Ontario, Wayne and Jefferson counties. The thunderstorm winds downed trees and power lines in the City of Rochester and Town of Brighton. Utility companies reported thousands without power.</p> <p>Just before 1:00 p.m., a Thunderstorm produced downpours, quarter-sized hail and damaging winds up to 60 MPH in Monroe County. About 3,000 RG&E customers, including Highland Hospital were without power for hours. Wind also knocked down trees, branches and power lines. Worst hit were Perinton, Pittsford, Chili, Henrietta, Rochester, and Irondequoit. NWS Buffalo reported a total of 1.88 inches of rain fell at the Airport by 5:00 p.m., breaking the record of 1.77 inches for the day set in 1919” (Democrat & Chronicle, 7.22.10). The National Weather Service, Buffalo Office issued a Severe Thunderstorm Warning and a Flood Warning in Monroe County related to this storm (NWS Bulletins, 7.21.10).</p>
August 19, 2010	Thunderstorm Wind	N/A	N/A	<p>Thunderstorms developed ahead of an approaching cold front during the late afternoon hours. In Monroe County, the thunderstorms produced strong winds that downed trees and power lines. At the Long Pond Shores apartment complex in Greece, a large tree fell on part of the building. Fallen limbs were scattered along Lakeshore Road in Irondequoit. Electric Utilities reported about 150 homes without power in Irondequoit and Webster.</p>
September 13, 2010	Hail	N/A	N/A	<p>A cold front crossed western New York during the early afternoon hours. Thunderstorms which accompanied the front produced hail up to one inch in diameter near Brighton and Greece.</p>
April 28, 2011	High Wind	DR-1993	No	<p>Following the passage of a strong cold front, strong synoptic winds developed across western New York. The strong winds downed trees and power lines. Specific measured wind gusts included 62 mph at Rochester Airport.</p>
May 29, 2011	Thunderstorm Wind	N/A	N/A	<p>A slow moving cold front crossed the region during the late evening and early overnight hours. The thunderstorms produced wind gusts measured to 65 mph. Numerous localities across the region report trees and power lines downed.</p>
August 13, 2011	Thunderstorms and Hail	N/A	N/A	<p>Thunderstorms that moved across the area produced winds gusting to 60 mph. The winds downed trees and power lines in Ontario and Marion (Wayne County) and in the Village of Fairport (Monroe County). Hail up to three quarter inch in diameter fell in Greece, Monroe County.</p>
August 28, 2011	Hurricane Irene	EM-3328 / DR-4020	Yes / No	<p>Hurricane Irene tracked northeast along the Atlantic Coast and brought gusty winds to the eastern sections of the area. Measured winds gusted to 40 to 45 mph. Normally winds of this magnitude are not strong enough to cause damage however the ground was wet and the north to northeast flow opposite of the prevailing direction for the region. Trees are anchored for the prevailing direction and are susceptible to even marginally strong winds from the opposite direction. Downed trees and lines were reported in the Town of Greece and the City of Rochester. Utilities reported several thousand customers without power.</p>



Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
January 17, 2012	Thunderstorm Wind	N/A	N/A	Low pressure moved across southern Ontario and pulled a strong cold front across the region during the evening hours. Thunderstorms which accompanied the front produced wind gusts up to around 70 mph. The strong winds downed trees and power lines and poles. Power outages were scattered throughout the region with utilities reporting several thousand without power at its worse.
January 17, 2012	High Wind	N/A	N/A	Strong winds developed across the entire area in the wake of a strong cold front and associated with a deep low pressure center that moved across southern Ontario. Winds gusts to around 70 mph and remained quite strong all night. The strongest winds occurred along the Lake Erie shoreline to the Chautauqua Ridge and the Lake Ontario shoreline from Henderson Bay to the St. Lawrence River. Throughout the region, the strong winds downed trees and power lines. Several autos were reported damaged by falling trees. Several reports of downed signs and minor structure damage were also received. Some school districts in the area either cancelled classes or delayed start as a result of wind damage. Utilities reported tens of thousands without power at the peak of the storm. Specific gusts included: 72 mph at Rochester.
February 24, 2012	High Wind	N/A	N/A	Low pressure over the Ohio Valley deepened as it lifted northeast across the Great Lakes then down the St. Lawrence Valley. The low brought strong winds to the region. Trees and power lines were downed. Scattered power outages were reported. Measured gusts included: 53 mph at Rochester Airport.
March 3, 2012	High Wind	N/A	N/A	Deep low pressure moved from the Midwest across Lake Huron into Quebec. Southeast winds gusting to 55 mph quickly shifted to southwest and increased to 30 to 40 mph with gusts nearing 70 mph. The strong winds downed trees and power lines. A few autos were reported damaged by falling trees. Several reports of downed signs and structural damage to roofs and awnings were also received. Some school districts in the area either cancelled classes or delayed start as a result of wind damage. Utilities reported several tens of thousands without power at the peak of the storm. Specific gusts included 66 mph at Rochester Airport and 59 mph at Irondequoit.
May 29, 2012	Hail	N/A	N/A	A strong cold front crossed the region bringing an end to oppressive heat and humidity. The front however was accompanied by severe thunderstorms which produced hail up to one-and-three-quarter inches in diameter and damaging winds that downed trees and power lines. Utilities reported tens of thousands without power scattered throughout the region. Only minor structural damage was reported, mainly broken windows and ripped off shingles. Several automobiles were damaged by falling trees and limbs.
July 31, 2012	Thunderstorm Wind	N/A	N/A	While a slow moving cold front eased south across southern Ontario, a 30-mile wide band of showers and thunderstorms developed over Western New York. Initially the thunderstorms produced heavy rains. The thunderstorms continued to strengthen as they moved into the southern tier and eastern Lake Ontario Region. Reports of downed trees and wires were scattered throughout the region. Falling trees damaged homes in Savannah and Fairport. Hail, up to three-quarter inch in diameter, was reported with the storms.



Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
August 5, 2012	Thunderstorm Wind	N/A	N/A	Showers and thunderstorms developed in a warm, moist atmosphere ahead of an approaching cold front. Wind gusts were measured to 60 mph. The thunderstorm winds downed trees and power lines throughout the region. In many areas, downed trees blocked roads and highways.
September 7, 2012	Thunderstorm Wind	N/A	N/A	Thunderstorms developed in unseasonably warm and muggy conditions across the Genesee Valley, away from the stabilizing effects of the Great Lakes. The thunderstorm winds downed trees and power lines in the Towns of Brighton and Webster.
October 29, 2012	High Wind	EM-3351	Yes	<p>Remnants of Hurricane Sandy brought strong winds and heavy rains to western and north central New York. Rainfall amounts of two to five inches were measured across the area with some area creeks reaching the top of banks. The high winds downed trees and power lines throughout the region. Wind gusts were measured to 60 mph. Tree damage was greater than usual with such wind speeds because of saturated ground and northeast winds - opposite of the normal prevailing southwest direction. Utilities reported tens of thousands of customers without power across the entire region. Specific measured gusts included: 60 mph at Irondequoit Bay.</p> <p>In addition to the remnants of Superstorm Sandy (i.e., high winds and heavy rains) causing road closures and power outages across the County, the hurricane also activated the County's mutual aid agreement. Monroe County provided almost 45 firefighters to assist the cleanup and recovery efforts following Superstorm Sandy. Firefighters hailed from nearly a dozen fire departments, including Gates, Brighton, Spencerport, West Webster, and Fairport (Cleare 2012). Monroe County reported costs of \$127,375.03, and non-county costs of \$755,799.35.</p>
January 20, 2013	High Wind	N/A	N/A	A deepening storm system moved across the Upper Great lakes. The system brought strong, damaging winds to the entire region late Saturday night into Sunday (20th-21st). Trees, power poles and wires were brought down by the winds. Numerous roads were blocked by fallen trees, wires and debris. Some structural damage was also reported. Utilities reported tens of thousands without power for a time. Specific measured gusts included 59 mph at the Rochester Airport.
January 31, 2013	High Wind	N/A	N/A	Low pressure moved across the lower Great Lakes bringing a strong cold front across the region. In the wake of the front, strong westerly winds overspread the area. The wind downed trees and power lines. Utilities reported scattered outages across the region. Specific wind gusts recorded included 59 mph at the Rochester Airport.
May 15, 2013	Hail	N/A	N/A	An isolated thunderstorm moved on-shore from Lake Ontario and crossed Orleans and Monroe counties. The thunderstorm produced hail which reached 1 inch in diameter near Albion. At peak, the hail covered the ground.



Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
May 21, 2013	Hail	N/A	N/A	Thunderstorms developed along various boundaries within a warm and moist air mass over the region. Storms first developed across the Finger Lakes midday along the Lake Ontario lake breeze and then in the midafternoon along the Lake Erie lake breeze boundary as it pushed inland across the Southern Tier. The strongest storms produced 1- to 2-inch hailstones. Specific hail reports were received from Stanley, Geneva, Newark, Walworth, Marion, and Brockport. In several of those locations, automobiles were damaged by the hail stones.
June 1, 2013	Thunderstorm Wind	N/A	N/A	Two distinct lines of thunderstorms developed ahead of a weak boundary during the late afternoon and became more organized toward evening. One line developed across the Genesee Valley and the other across the eastern Lake Ontario Region. In some areas, scattered power outages were reported as the falling limbs and trees brought down power lines. In Rochester, lightning struck a house igniting a fire and damaging the chimney.
June 1, 2013	Lightning	N/A	N/A	Law enforcement reported that house was damaged by a lightning strike. This event is associated with the thunderstorm event on the same day.
June 17, 2013	Hail	N/A	N/A	A weak cold front crossing the region was accompanied by showers and thunderstorms. The thunderstorms produced hail up to 3/4 inch in diameter.
July 3, 2013	Thunderstorms and Hail	DR-4129	No	Thunderstorms developed over the northern Finger Lakes along a lake breeze in a warm humid air mass. The thunderstorms produce damaging winds which downed trees and power lines in Fairport and Pittsford. Between one-and-one-half and two-and-one half inches of rain was measured across parts of Monroe and Wayne Counties. This amount of rain in a very short time resulted in flooding in the City of Rochester. Several city streets were inundated, included Amsterdam Road and Monroe Avenue. Monroe County OEM had costs related to food (for EOC representatives - \$2,575.29) and water (for shelters - \$596.38) for a total of \$3,171.67.
July 18, 2013	Thunderstorm Wind	N/A	N/A	Scattered thunderstorms developed during the afternoon hours. An isolated thunderstorm over Monroe County produced damaging winds which downed trees and power lines in the Town of Greece.
July 19, 2013	Tornado	N/A	N/A	A thunderstorm moving across Lake Ontario spawned a waterspout just north of Hilton, New York. The waterspout, caught on amateur video, came onshore and moved across a small section of Braddock Point before moving back out over water in Braddock Bay. Onshore, the tornado downed several large trees. A home on Ontario Boulevard and several automobiles were damaged by the falling trees. The overall path length was approximated at less than a mile however the exact location of formation and dissipation over the water was unknown. Over land, the tornado path length was about a quarter of a mile, width was about ten yards, and it was ranked an EF0. Winds were estimated at 65 mph.



Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
August 2, 2013	Hail	N/A	N/A	Showers and thunderstorms accompanied the passage of a short wave trough across the area. The thunderstorms produced hail up to one-inch in diameter. Hail was reported in Kent, Greece, and Clarence.
November 1, 2013	High Wind	N/A	N/A	Deep low pressure lifted across the Great Lakes region. The system brought strong winds to much of the region on Friday, November 1st. Winds gusted as high as 62 mph. The strong winds downed trees and power lines throughout the region. Power outages were in the tens of thousands. In addition to minor structural damage to homes and building, a number of houses and automobiles were damaged by falling trees and limbs. Reports of damage were received from Rochester. Specific measured wind gusts included 56 mph at Rochester Airport.
November 18, 2013	High Wind	N/A	N/A	Rapidly deepening low pressure tracked from the Upper Great Lakes to James Bay and brought strong winds to the entire region. The winds, gusting as high as 68 mph, brought down trees and power lines throughout the region with numerous reports of damage from downed trees. Power outages were in the tens of thousands. Specific measure wind gusts included 63 mph at Rochester Airport.
January 6, 2014	High Wind	N/A	N/A	A sharp cold front crossed the region during the overnight/early morning hours. For a brief period in the wake of the front winds increased across the region. The winds gusted as high as 60 miles per hour. Downed trees and power lines were reported from Chili Center.
May 3, 2014	Hail	N/A	N/A	A thunderstorm crossing Monroe County produced 3/4 inch hail in Rochester and Irondequoit.
June 17, 2014	Thunderstorm Wind	N/A	N/A	Scattered showers and thunderstorms developed in a warm, humid air mass during the afternoon hours. These were followed by a large area of showers and thunderstorms associated with low pressure moving across the Great Lakes into southern Ontario and then Quebec. Several of the thunderstorms produced strong, damaging winds. Damage was mainly reported as downed trees and wires however there were some reports of structural and other damage. The thunderstorms also produced hail up to 1-1/4 inch.
August 1, 2014	Hail	N/A	N/A	Thunderstorms developed in a moderately unstable air mass along the lake breeze boundary that extended across the lower Genesee Valley and Western Finger Lakes. The thunderstorms produced damaging winds that downed trees and wires in Greece and Newark. Also, 1 -inch hail was reported in Rochester and 3/4- -inch hail covered the ground in Newark. The heavy rains that fell resulted in urban flooding. Storm sewers were not able to keep up in the intense rainfall with streets closed in Newark and Greece.
August 1, 2014	Thunderstorm Wind	N/A	N/A	This event is associated with the hail event on the same day. Associated damage listed above.



Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
January 4, 2015	High Wind	N/A	N/A	Deepening low pressure tracked from western Lake Erie across far southern Ontario to Quebec dragging a cold front across the region. Strong winds increased to near 60 mph about 2 to 3 hours after the cold front passage. The strong winds downed trees and wires across western New York. Scattered power outages resulted. Some specific damage locations included St. Paul Boulevard in the Town of Irondequoit.

Sources: NOAA-NCDC, 2015; FEMA, 2015; NWS 2011; Beaver County 2011

Note: Monetary figures within this table were U.S. Dollar (USD) figures calculated during or within the approximate time of the event. If such an event would occur in the present day, monetary losses would be considerably higher in USDs as a result of inflation.

- ASOS Automated Surface Observing System
- E East
- EG Estimated Gusts
- FAA Federal Aviation Administration
- KT/KTS Knot(s)
- mph miles per hour
- ROC Greater Rochester International Airport
- S South
- SE Southeast
- W West



H.1.5 Infestation and Invasive Species

Known infestation and invasive species events that occurred from 1950 to 2015 are identified in Table H.5. With infestation and invasive species documentation for New York State and Monroe County being so extensive, not all sources have been identified or researched. Therefore, Table H.5 may not include all events that have occurred in the County.



Table H.5. Infestation and Invasive Species Events in Monroe County, 1950 to 2015

Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
1950s-1960s	Dutch Elm	N/A	No	Dutch Elm Disease destroyed a multi-state region of elms in the 1950s through the 1960s.
2010	Stink Bug	N/A	No	Populations of the brown marmorated stink bug caused catastrophic damage to most mid-Atlantic states in 2010, including New York State. Losses in Monroe County to the green pea and sweet corn crops totaled \$46,288 in 2010.
2010-2013	Emerald Ash Borers	N/A	No	<p>Emerald ash borers (EAB) were first found in North America in 2002 and have been blamed for killing tens of millions of ash trees in 15 states and two Canadian provinces. The tiny green beetles from Asia were first identified in New York in 2009.</p> <p>In 2013, EAB colonies had populated large swaths of ash trees in Monroe County within the municipalities of the Towns of Chili, Henrietta, and Rush, and the Village of Scottsville, and had entered adjoining sections of the Town of Brighton and City of Rochester. As of August 3, 2015, Monroe County remained under both state and federal quarantines due to EAB infestations. All Monroe County municipalities were included in the 2015 New York State EAB Quarantine Boundary Severe Risk Area as of April, 2015.</p> <p>Precise damage estimates from infestation are difficult to quantify, though municipal costs of clearing dead trees and downed power lines from dead limbs are expected to climb in infested areas. Further, severe loss of ash in riverine communities may lead to bank erosion, sedimentation, flooding caused by debris in waterways, and less groundwater absorption</p>
2012	Armyworm	N/A	No	A spring storm system brought adult armyworm moths to western New York (from the south). The early arrival of warm spring weather was blamed for the appearance of an unusually high number of army worms. Ordinarily, they arrive later in the season, when more of their natural predators are present. Monroe County was included in a USDA disaster declaration (S3411) for the armyworm outbreak.
2010 to 2015	West Nile Virus	N/A	No	<p>Between 2010 and 2015, Monroe County had a very low occurrence of WNV among birds, horses, humans, and pets.</p> <ul style="list-style-type: none"> • 2013 – 2 human cases, 1 equine • 2012 – 2 human cases • 2011 – 0 cases reported • 2010 - 0 cases reported

Source: USGS 2014; USDA 2015; NYSDOH 2015; CDC 2015
 CDC Centers for Disease Control
 EAB Emerald Ash Borer
 FEMA Federal Emergency Management Agency
 N/A Not applicable
 USDA U.S. Department of Agriculture





WNV West Nile Virus





H.1.6 Severe Winter Storm

Known severe winter storm events that occurred in Monroe County between 1990 and 2015 are identified in Table H.6. With severe winter storm documentation for New York State and Monroe County being so extensive, not all sources have been identified or researched. Therefore, Table H.6 may not include all events that have occurred in the County.



Table H.6. Winter Storm Events Between 1990 and 2015.

Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
February 1, 2008	Winter Storm	N/A	No	Initially a snow storm, then a mix of snow, freezing rain and sleet, spread across parts of the region. Snowfalls in Monroe County ranged from 5 to 11 inches, followed by 1 to 2 inches of sleet or ice. Property damage from the storm was estimated at \$10,000 in Monroe County.
February 10, 2008	Winter Weather	N/A	No	An arctic front roared across the eastern lakes region on Sunday morning, February 10. Snow squalls accompanied the front, which was trailed by strong northwest winds. The strong winds blew about the freshly-fallen snow producing whiteout conditions and blowing snow on Interstate 390 in the Town of Gates. A 36-car accident occurred in which a 17-year old girl died, and nearly two dozen others taken to the hospital. Property damage from the storm was estimated at \$500,000 in Monroe County.
March 4, 2008	Winter Storm	N/A	No	Low pressure developed over the lower Mississippi valley and lifted to the Ohio valley. The storm brought a mix of snow, sleet, and freezing rain to the region. About 4 to 6 inches blanketed the entire region and was followed by several inches of sleet and up to ½ inch of glaze from freezing rain. Schools were closed in many parts of the region. Some county officials declared a States of Emergency, while others recommended no unnecessary travel. Utility companies reported scattered power outages affected tens of thousands of customers across the region. Property damage from the storm was estimated at \$10,000 in Monroe County.
March 7-9, 2008	Winter Storm	N/A	No	One of the worst storms of the 2007-2008 winter season occurred from March 7 through March 9. This was an extended two-part event, but totals of 1 to 2 feet of snow were common, with some isolated higher amounts. The storm occurred over a weekend so impact to daily activities (school and businesses) was minimal. Numerous automobile accidents were blamed on the slippery conditions and poor visibilities in falling and blowing snow. The storm dropped about 16 inches of snow on Rochester during a 36-hour period. RG&E reported 3,300 customers without power. Blowing and drifting snow caused whiteout conditions on roads and visibility at the Rochester Airport was 0.8 mile. Thunder and lightning accompanied bands of heavy snow the afternoon and evening of March 8. Snowfall reports in Monroe County included 22 inches in the Town of Hamlin; 14 inches in the Town of Webster; and 13 inches in the Town of Greece. Property damage from the storm was estimated at \$25,000 in Monroe County.
December 19, 2008	Winter Storm	N/A	No	Low pressure moved out of the central plains and moved across Pennsylvania. The low brought an 8- to 12-inch blanket of snow to the entire region on December 19. Across the western southern tier, snowfall amounts were slightly lower; the snow mixed with freezing rain and sleet across that area. Some of the highest snowfall amounts included 11 inches in the Town of Perinton, 9 inches at



Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
				<p>the Rochester Airport, and 10 inches in the City of Rochester. Innumerable automobile accidents were reported throughout the region as the roads became hard to navigate in the heavy snow and reduced visibilities. Schools shut down across the region and many municipalities suggested avoiding unnecessary travel if possible. Property damage from the storm was estimated at \$20,000 in Monroe County.</p>
December 31, 2008	Winter Storm	N/A	No	<p>A deepening area of low pressure moved across the Ohio valley and Pennsylvania before moving off the southern New England Coast during the afternoon of December 31. Steady snow developed over the region and was accompanied by increasing northerly winds. Widespread snowfall amounts ranged from 8 to 14 inches during the 8-hour event. The strong winds produced areas of blowing and drifting snow and resulted in significantly reduced visibilities. Some of the highest snowfall reports included 9 inches in the Town of Greece and 8.9 inches at the Rochester Airport. Property damage from the storm was estimated at \$10,000 in Monroe County.</p>
December 10-12, 2009	Lake Effect Snow	N/A	No	<p>Lake-effect snows developed off Lakes Erie and Ontario in a well-aligned, cold, unstable west to southwest flow. Strong winds allowed the snow bands to extend well inland, but produced significantly reduced visibilities in blowing and drifting snow. The Lake Erie snows produced significant accumulations well into the Rochester metro area. Off Lake Erie, the event began across northern Erie and southern Niagara counties, and then settled south into southern Erie and Wyoming counties by mid-morning Thursday (December 10) after dropping 2 to 4 inches. The storm then moved northward for several hours across the metro Buffalo area and across Genesee and Monroe counties, then settled slowly south and stalled out for many hours during the evening with very intense snowfall rates across the Buffalo south towns and Wyoming county. Areas immediately adjacent to the east shores of the lakes received up to 40 inches. An unusual wind shift above Lake Erie blew blizzard-like conditions into the Rochester area on December 10th, slowing the evening commute, and causing dozens of accidents. Specific snowfall amounts included 3 to 9 inches in the City of Rochester (from north to south). Property damage from the storm was estimated at \$15,000 in Monroe County.</p>
January 1, 2010	Lake Effect Snow	N/A	No	<p>A strong cold front crossed the region on New Year's Day. A broad area of lake-effect snows develop along the south shores of Lakes Erie and Ontario late on the first, and impacted up to 20 miles inland. The activity continued through Saturday (January 3) and then strengthened in place Saturday night as a large area of moisture spiraled around a massive coastal storm off New England. About 12 to 24 inches fell over two days, with up to 18 inches in the Rochester area. Nine to 18 inches fell in Rochester (from north to south across the city). Property damage from the storm was estimated at \$20,000 in Monroe County.</p>



Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
January 3-9, 2010	Winter Storm	N/A	No	Rochester Airport recorded 116 straight hours of snow, with an accumulation of 12.3 inches.
February 25-26, 2010	Winter Storm	N/A	No	<p>A deep storm system off Long Island strengthened and stalled off the New York/New Jersey coast. The system circulated Atlantic moisture back across western and north central New York. About 6 to 10 inches of snow fell across the region with higher amounts to the east (closer to the low center) and downwind of the Great Lakes (where lake enhancement occurred). Rochester received 10 to 16 inches. Many schools throughout the region were closed because of the snow.</p> <p>Numerous automobile accidents were blamed on the treacherous driving conditions. RG&E restored power to 1,311 customers in an hour when heavy snow dropped tree branches on a power line in Webster. Reported storm totals included: 22 inches in the Towns of Webster and Hamlin. Property damage from the storm was estimated at \$20,000 in Monroe County.</p>
December 5, 2010	Lake-Effect Snow	N/A	No	<p>A strong northwest flow of arctic air produced long lasting lake-effect snow squalls to the southeast of Lakes Erie and Ontario. The event began on December 5 with strong bands off Lakes Huron and Ontario. The Ontario band worked across the Rochester area during the afternoon and then slowly settled south overnight, and combined with a Georgian Bay band to drop 4 to 8 inches around the City of Buffalo on Monday, December 6. This activity broke down later Monday but strong bands set up Monday night and continued through Wednesday night in an area from the City of Rochester to the City of Syracuse. Off Lake Ontario, reported snow totals included 24 inches in the City of Rochester. Property damage from the storm was estimated at \$10,000 in Monroe County.</p>
December 13-14, 2010	Lake-Effect Snow	N/A	No	<p>The fourth lake-effect event of the winter season followed on the heels of storm which brought a cold rain to most of the area. The event was long lasting and featured three sub-events. Most of the accumulation occurred during these three sub-event periods, the first of which was a north to northwest upslope flow from late December 13 through the morning of December 14, which brought 6 to 10 inches from Monroe to Wayne Counties and over 12 inches of snow in the Chautauqua ridge. The storm continued across the Niagara frontier during afternoon December 14 and then dropped 12 inches of snow over Oswego county Wednesday night to Thursday morning the 15th-16th. Lighter activity continued outside of these periods but accumulating snow fell at least until Friday. The 4-day totals topped more than 12 inches across the greater Rochester area. Reported totals included 18 inches in the City of Rochester. Property damage from the storm was estimated at \$25,000 in Monroe County.</p>
February 25, 2011	Winter Storm	N/A	No	<p>An intensifying area of low pressure moved across Pennsylvania then headed northeast across New England. The system brought a significant snowfall of 6 to 12 inches of snow to the entire area. A brisk northerly flow also resulted in a significant amount of blowing and drifting snow. Winds gusted to 40 mph along</p>



Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
				the Lake Erie Shore. A 30-mile stretch of the New York State Thruway was closed because of multiple accidents. There were several reports of building collapses throughout the region from the weight of the snow that had built up throughout the snowy winter. Property damage from the storm was estimated at \$15,000 in Monroe County.
February 12, 2012	Lake-Effect Snow	N/A	No	While this event proved to have minimal impact on the Rochester metropolitan area because it occurred over a weekend, it was the first significant lake-effect snowstorm of 12 inches or more for the major urban area in several years. A low pressure system situated over the southern half of Quebec brought cold, northwest winds to the region. Lake-effect snow developed off Georgian Bay into a band that gathered additional moisture off Lake Ontario as it curved more to the east across Monroe County. Moderate to heavy lake effect snow then fell across a large portion of Monroe County during the early morning hours of Sunday, February 12, with accumulations of 12 inches or more experienced by daybreak. Specific reported snowfall totals included: 12 inches in the City of Rochester and the Town of Greece. Property damage from the storm was estimated at \$15,000 in Monroe County.
December 26, 2012	Winter Storm	N/A	No	Low pressure over the deep south lifted across the Tennessee Valley to the Delmarva coast. The low pressure spread about 12 to 18 inches of snow across the entire region. Winds increased to 20 to 30 mph, gusting at times to near 40 mph. The winds produced blowing snow and reduced visibilities. Numerous automobile accidents occurred because of the wintry conditions. Some holiday travel was disrupted at Buffalo and Rochester airports. Specific snowfall reports received included: 14 inches in the Town of Greece; 12 inches in the Town of Chili; and 11 inches at Rochester Airport. Property damage from the storm was estimated at \$15,000 in Monroe County.
January 22, 2013	Lake-Effect Snow	N/A	No	Lake snows persisted as a deep trough of low pressure became entrenched across the northeast United States. Off Lake Ontario, an intense band of lake-effect snow developed east of the lake late Monday Night and drifted slowly south across Oswego County on Tuesday producing more heavy snow along the way. Snowfall rates reached 3 to 5 inches per hour during this time. The band then settled along the south shore of the lake Tuesday Night with heavy snow along the entire south shore. Periodic bands of somewhat weaker lake effect snow then continued along the south shore of the lake through midweek. Specific snowfall reports included 11 inches at Hamlin Beach in the Town of Hamlin. Property damage from the storm was estimated at \$10,000 in Monroe County.
November 26, 2013	Winter Storm	N/A	No	A strengthening area of low pressure moved north along the U.S. East Coast. The storm brought accumulating snow across western New York. Across parts of the North Country, the snow mixed with sleet and freezing rain. Although not exceptionally high snowfall totals, strong winds accompanying the system resulted in a considerable amount of blowing snow resulting in frequent white out



Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
				conditions. Several counties issued travel advisories because of hazardous road conditions. The fact that the storm occurred close to Thanksgiving added to the impact of the storm. Specific snowfall reports included 7 inches in the Town of Greece. Property damage from the storm was estimated at \$20,000 in Monroe County.
December 14, 2013	Winter Storm	N/A	No	Low pressure moved from the Ohio Valley to the East Coast and brought a general accumulating snow to much of the region. 6 to 10 inches of snow blanketed the region with the higher amounts across the higher elevations of the Eastern Lake Ontario region and areas south of Lake Ontario where lake enhancement occurred. The snow resulted in the usual traffic slowdowns and several accidents were blamed on the storm. Specific snowfall amounts that were reported included 7 inches in the City of Rochester.
December 21, 2013	Ice Storm	N/A	No	A surface front stalled across the region acted as a pathway for periods of heavy precipitation. To the north of the front, the precipitation fell as freezing rain. Ice coated trees, power lines and all exposed surfaces. Across the Niagara Frontier, ice accumulations of a half- to one-inch were reported. Across the north country, where the freezing rain persisted the longest, the ice accumulations ranged from one to two inches. The weight of the heavy ice brought down trees and power lines. Tens of thousands were left without power. In some cases, trees fell on homes, buildings and automobiles. At the RIT campus in the Town of Henrietta, cold temperatures and winds caused several pipes to burst in three apartment complexes. Total property damage on campus was \$67,000. Other property damage from the storm in Monroe County was estimated at \$50,000.
March 12, 2014	Blizzard	N/A	No	Low pressure moved across the Ohio Valley to the Mid-Atlantic coast then lifted northeast to the Canadian Maritimes. Snow began across the region during the pre-dawn hours of March 12. By morning, the combination of heavy snow and strong winds produced blizzard conditions across much of the region. Damage was mainly limited to economic loss of business and cost of cleanup as most businesses and schools announced closings early in the well forecast storm. The blizzard conditions led to cancellation of classes at the Rochester Institute of Technology (RIT) and closure of the university, and a power failure led to loss of service at a primary University data center, resulting in hardware and equipment damage. Sustained winds of 25 to 35 mph were accompanied by frequent gusts of 45 to 50 mph. Reported snowfall amounts included 19 inches at Hamlin Beach in the Town of Hamlin, 16.2 inches at Rochester Airport, and 14 inches in the Town of East Rochester. Property damage from the storm was estimated at \$42,000 in Monroe County, and Monroe County OEM had costs of \$628.93 related to food for EOC representatives.
March 29, 2014	Winter Storm	N/A	No	Low pressure moved across the Tennessee Valley to the Atlantic and then northeast along the coast. Precipitation began as rain across the region then changed to a brief period of freezing rain before changing to all snow. A blanket



Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
				of four to seven inches of snow covered the entire region. Snowfall accumulations were greater across the higher elevations and downwind of Lakes Erie and Ontario. Specific snowfall amounts included 10 inches in the City of Rochester and 9 inches at Rochester Airport. Property damage from the storm was estimated at \$20,000 in Monroe County.
December 10, 2014	Winter Storm / Nor'Easter	N/A	No	Low pressure developed off the mid-Atlantic coast then lifted to southern New England. The Nor'Easter brought a blanket of heavy snow to much of the region. The highest amounts were in Cayuga, Jefferson, Oswego, Wayne, Monroe, and Ontario Counties where a band of moderate to heavy snow fell on December 10 in the afternoon, and then another snow in the evening. The snow resulted in travel disruptions. Several school districts in the hardest hit areas were forced to close. Specific snowfall amounts received included 14 inches in the Town of Webster and 11 inches at Rochester Airport. Property damage from the storm was estimated at \$40,000 in Monroe County.
November 17-26, 2014	Severe Winter Storm, Snowstorm, and Flooding	DR-4204	No	Snowfall amounts of up to 4 feet impacted parts of Southern Erie County and Wyoming County on November 19th. The moderate to heavy snow extended east across Livingston and Ontario counties as well with accumulations approaching a foot over northern Livingston County. Millions of dollars were lost as area dairy farmers were unable to transport milk for processing. This event combined with the lake effect snow event following the next couple of days qualified the area for a Federal Disaster Declaration. Monroe County sent resources to Erie County to assist in the response to this storm. Assets were sent from County DOT, County Parks, County DES, County OEM, and County Fire Bureau. Costs incurred by Monroe County totaled \$28,304.81.
February 1, 2015	Winter Storm	N/A	No	Low pressure tracked across Ohio and Pennsylvania and brought a general 8 to 14 inches of snow to the entire region. Heaviest amounts were along the southern tier counties and over the counties along the south shore of Lake Ontario. Northeast winds became quite strong near Lake Ontario with near blizzard conditions occurring closer to the shore. While the snow did not result in many closings, the general snow across the entire region did result in many delays and late openings. Specific snowfall reports included 17 inches in the Town of Webster and 16 inches in the Town of Greece.
February 8, 2015	Winter Storm	N/A	No	Low pressure moved across Ohio and Pennsylvania to the Virginia Coast. The system brought a light general snowfall to the area. The northerly flow crossing the warmer waters of Lake Ontario and higher elevations resulted in enhanced snowfall amounts across parts of the Genesee Valley and northern Finger Lakes. Given the harsh winter conditions, the effects of this storm on the region were generally minimal with just some delays and longer travel times. Specific snowfall reports included 14 inches near Rochester.



Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
February 14, 2015	Winter Storm	N/A	No	A strong clipper crossed the Great Lakes and brought snow and blowing snow to the region and some of the coldest air of the season. The snowfall amounts were enhanced downwind of Lake Ontario and upslope east of Lake Erie where snowfall amounts around a foot were recorded. Gusty winds accompanied the system and produced reduced visibilities in blowing snow. On the back side of the system, temperatures plummeted and struggled to reach zero on February 15. Combined with the winds, wind chill temperatures of 25 to 35 degrees below zero were recorded.

Sources: NOAA-NCDC 2015; FEMA 2015

- FEMA Federal Emergency Management Agency
- NCDC National Climatic Data Center
- NOAA National Oceanic and Atmospheric Administration
- RG&E Rochester Gas and Electric
- RIT Rochester Institute of Technology



H.1.7 Wildfire

Known wildfire events that have impacted Monroe County from 1994 to 2015 are identified in Table H.7. Fire departments throughout the County respond to small brush fires each year. However, many of these fires are so small that little information is available. Therefore, Table H.7 may not include a complete record of all wildfire events that have occurred within the county.



Table H.7. Wildfire Events in Monroe County, 1994 to 2015

Date(s) of Event	Event Type	FEMA Declaration Number	Location / County Designated?	Losses / Impacts
October 16, 1994	Fire	N/A	No	3-Alarm Fire, City of Rochester for 6.75 hours. The event prompted activation of the Emergency Operations Center.
June 19, 2001	Landfill Fire	N/A	No	Mill Seat Landfill Fire in the Town of Riga for one hour. The event prompted activation of the Emergency Operations Center.
August 4, 2010	Wildfire	N/A	No	Fire detected in the Town of Webster
August 19, 2011	Wildfire	N/A	No	Fire detected in the Town of Webster
July 4, 2012	Wildfire	N/A	No	Fire detected in the Town of Webster
August 3, 2012	Wildfire	N/A	No	Fire detected in the Town of Webster
April 28, 2013	Brush Fire/Barn Fire (Orleans County)	N/A	No	The Kendall Fire Department was dispatched, along with the Carlton Fire Department, to a barn fire at 1857 Transit Road in the Town of Kent (Orleans County). The barn actually was situated in a triangular plot created by the Transit Road and the Roosevelt Highway. The header created by the large fire could be seen for miles from the incident. Kendall 1 arrived and immediately requested mutual assistance from several neighboring departments. Engines and tankers were requested from the Town of Hamlin. The fire consumed a large barn, spread to adjoining structures and vehicles, and created a brush fire that extended into a lightly wooded area north of the structures. It was reported that dynamite was stored in one standing building, and the Rochester Bomb Squad was called to the scene. Firefighters remained at the scene for several hours.
May 6, 2013	Brush Fire	N/A	No	Rochester firefighters responded for the report of a brush fire at Turning Point Park. Engine 19 went on location and reported a large area of brush burning. Additional equipment was dispatched to help extinguish the fire.
May 20, 2013	Wildfire	N/A	No	Fire detected in the Town of Hamlin
May 20, 2013	Wildfire	N/A	No	Fire detected in the Town of Hamlin
June 5, 2013	Brush Fire	N/A	No	Brighton firefighters responded for the report of a brush fire at the Town of Brighton dump on Browncroft Blvd. Engine 303 went on location with a 200 feet x200 feet pile of trees and brush on fire. Multiple mutual aid was called in to assist with fighting the fire. The cause of the fire is under investigation.
April 21, 2014	Wildfire	N/A	No	Between one and three fires were detected in the Town of Rush
August 9, 2014	Wildfire	N/A	No	Fire detected in the Town of Webster
May 26, 2015	Wildfire	N/A	No	Fire detected in the Town of Hamlin

Sources: NASA FIRMS, 2015; Monroe County Fire Wire, 2015

Note: Monetary figures within this table were U.S. Dollar (USD) figures calculated during or after the approximate time of the event. If such an event would occur in the present day, monetary losses would be considerably higher in USDs as a result of inflation.

FEMA Federal Emergency Management Agency N/A Not applicable





H.1.8 Hazardous Materials

Known hazardous materials events that have impacted Monroe County from 2010 to 2015 are identified in Table H.8. However, many of these fires are so small that little information is available. Therefore, Table H.8 may not include a complete record of all hazardous materials events that have occurred within the County.



Table H.8. Hazardous Materials Incidents in Monroe County, 2010 to 2015

Date(s) of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
May 14, 2010	Oil Spill	N/A	No	Leakage of 100 gallons of waste motor oil occurred at the Pallet Express facility at 1069 Lyell Ave. in the City of Rochester. Emergency responders were dispatched to the scene. No other damages and/or losses were reported for the County.
May 26, 2010	Poisonous Material Leak	N/A	No	A leaky drum released poisonous material at the Bridge Terminal Transport Facility at 145 Colfax Street in the City of Rochester. An employee discovered free product leaking from an intermodal container. Cleanup crews discovered one leaking 600-pound metal drum. Approximately 20 pounds of free product was released. Marcor Environmental recovered the free liquid and overpacked the leaking drum. No other damages and/or losses were reported for the County.
August 26, 2010	Hydrogen Gas Spill/Explosion	N/A	No	An explosion occurred at Monroe County Fuel Farm on 1157 Scottsville Rd. in the City of Rochester when a transfer hose connecting a tube trailer to a customer supply system ruptured and released gaseous hydrogen that ignited explosively. The contents of the trailer, estimated at 90,000 GCF, were consumed in the ensuing fire that was allowed to burn off the hydrogen remaining in the trailer. Total costs of damages (material loss, carrier damage, and property damage), response, and remediation cleanup were estimated at \$311,000.
September 22, 2010	Diesel Fuel Spill	N/A	No	Spillage of 200 gallons of diesel fuel occurred at Route 390 and Route 590 in the Town of Brighton. No other damages and/or losses were reported for the County.
September 27, 2010	Chlorine Dioxide Spill	N/A	No	Spillage of 150 gallons of chlorine dioxide occurred at the University of Rochester Central Utilities Plant on 390 Elmwood Ave in the City of Rochester. No other damages and/or losses were reported for the County.
October 12, 2010	Diesel Fuel Spill	N/A	No	Spillage of 142 gallons of diesel fuel occurred at the CSX rail yard at 419 Atlantic Ave in the City of Rochester. No other damages and/or losses were reported for the County.
December 23, 2010	Diesel Fuel Spill	N/A	No	A commercial vehicle accident at 900 Jefferson Road in the Town of Henrietta caused a Superior Trucking vehicle to spill 125 gallons of diesel fuel onto the impervious surface and into sewers along the road. No other damages and/or losses were reported for the County.
July 8, 2011	Chemical Product Spill	N/A	No	Spillage of 1300 gallons of driveway sealer occurred near the intersection of Route 204 and Route 490 in the Town of Gates. No other damages and/or losses were reported for the County.



Date(s) of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
May 20, 2011	Paint Spill	N/A	No	Release of 320 gallons of paint onto a trailer occurred at 15 Commercial Drive in the Town of Henrietta due to improper handling of the tote. An emergency response team was dispatched to handle cleanup at a cost of \$2,500. All product was absorbed with oil dry, placed into a salvage drum, and handled according to local, state, and federal regulations.
December 29, 2011	Nitric Acid Spill	N/A	No	SARA III – Between 500 and 1700 gallons of nitric acid was released at the Rochester Silverworks, 128 Ridgeview Ct., in the City of Rochester. The incident was the result of equipment failure, and the released materials affected soil and impervious surfaces. No other damages and/or losses were reported for the County.
January 4, 2012	Transform Oil Spill	N/A	No	Spillage of 25,000 gallons of transform oil occurred in the Town of Henrietta at the Rochester Gas and Electric substation on Lehigh St. No other damages and/or losses were reported for the County.
March 14, 2012	Diesel Fuel Spill	N/A	No	Spillage of 110 gallons by Cavalier Trucking occurred on 225 Buell Road in the Town of Gates. No other damages and/or losses were reported for the County.
December 6, 2012	Grease Spill	N/A	No	Spillage of 250 gallons of cooking grease occurred at Applebee's at Route 205 and Route 31 in the Town of Perinton. No other damages and/or losses were reported for the County.
March 7, 2013	Chlorine Leak	N/A	No	Henrietta firefighters responded to a report of a chlorine leak at RIT Building 17, the Micro Electronics Building, in the Town of Henrietta. The company assumed command and declared a Level 0 HAZ MAT. After an investigation of the chlorine leak, the assignment was upgraded to a Level 1 HAZ MAT, which brought the Monroe County HAZ MAT team to the scene. Firefighters secured the scene and turned the incident back over to RIT. No other damages and/or losses were reported for the County.
April 10, 2013	Ammonia Leak	N/A	No	Ridge Road firefighters responded this evening to a report of smoke from the front of the building on Lexington Ave in the Town of Greece. Command requested a Level 1 HAZ MAT for a 55-gallon drum of Chlorine Dioxide / Ammonia leaking. The Monroe County HAZ MAT team secured the leak, and the cause of the fire was investigated. No other damages and/or losses were reported for the County.
May 15, 2013	Dichlorosaline Leak	N/A	No	Town of Henrietta firefighters responded in the morning to a gas alarm at Building 17 on the RIT campus in the City of Rochester. 6C62 requested a Level 0 HAZ MAT response. Car 826 requested a Level 1 HAZ MAT response for an unknown hazard in the building. HAZ MAT team members made entry and secured the leak. No other damages and/or losses were reported for the County.



Date(s) of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
May 21, 2013	Chemical Fumes	N/A	No	The Town of Henrietta Fire Department responded with a Level 1 HAZ MAT team to an apartment at 80 Colony Manor Drive on the RIT campus in the City of Rochester. The investigation was tied to a student who had become ill and was later treated at Strong Memorial Hospital. No other injuries related to the incident occurred, and the complex was not evacuated.
August 15, 2013	Chemical Fumes	N/A	No	City of Rochester firefighters responded to a report of a person with trouble breathing on University Ave. Engine 17 went on location and declared a Level 0 HAZ MAT for a city worker overcome by fumes. Command requested a Level 1 HAZ MAT for a city worker overcome by an unknown chemical. Firefighters secured the leak and turned over the scene. No other damages and/or losses were reported for the County.
October 18, 2013	Train Derailment	N/A	No	7 rail cars carrying soybeans derailed and overturned in the Town of Perinton. No injuries or property damages were reported, but the event reaffirmed hazard potential for a HazMat spill in the area.
December 5, 2013	Unknown Product Spill	N/A	No	During the loading process of a transport tank trailer at the Buckeye south loading rack in the City of Rochester, the driver hooked up to a 1,000-gallon compartment and programmed the equipment to load 2,000 gallons. The overflow system on the cargo tank failed to immediately stop the flow of product, resulting in 30-150 gallons of gasoline released onto impervious surface. The spilled product was contained within the loading rack containment area and cleaned up. No other damages and/or losses were reported for the County.
January 3, 2014	Hazardous Substance Spill	N/A	No	SARA IIIINO – 800 gallons of an unknown HazMat was reportedly spilled at the Eastman Kodak Plant at 480 Maplewood Drive in the City of Rochester, contaminating soils on site. The spill was the result of an equipment failure. No other damages and/or losses were reported for the County.
February 25, 2014	Hazardous Substance Spill	N/A	No	SARA IIIINO – 5000 gallons of a hazardous substance was reportedly spilled at the Eastman Kodak Company at 1669 Lake Avenue in the City of Rochester, contaminating soils and groundwater. No other damages and/or losses were reported for the County.
May 8, 2014	Diesel Fuel Spill	N/A	No	City of Rochester firefighters responded to a report of a diesel fuel spill at the scene of a motor vehicle accident on State Route 490 and the Freddie Sue Bridge. Command requested a Level 1 HAZ MAT to assist with the cleanup and to stop the leak. Somewhere between 40 and 85 gallons of diesel fuel was spilled onto the pavement and into the sewer. No other damages and/or losses were reported for the County.



Date(s) of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
June 11, 2014	Unknown Product Spill	N/A	No	Roughly 20 gallons of material was released on the floor of a truck, and about 2 gallons was released on the side of the road in the City of Rochester. The damage to the tote occurred due to sudden braking from a near miss motor vehicle accident. A total of \$3,500 in damages was reported.
June 17, 2014	Chemical Spill	N/A	No	Employees at a transit storage facility at 335 McKee Road, City of Rochester were using a cargo tank vehicle to remove kerosene from a frack tank. Product from an earlier bulk tank spill that was mixed with water was being drawn into this tank wagon from a transmix tank when, during the recovery process, the Victaulic coupling underneath the tank wagon failed, and approximately 20 gallons of product spilled to the concrete/asphalt pad on which the truck was parked.
October 1, 2014	Fuel Spill and Fire	N/A	No	Rochester firefighters responded to a report of a fire in the yard of the Ben Weitsman Recycling company on Steel St. in the City of Rochester. Engine 3 went on location to find gasoline and other flammable liquids on fire next to a building. Battalion 2 assumed command and declared a working fire. Command requested Engine 10 to assist with water support and the HAZ MAT team. Command reported that 800-900 gallons of fuel was burning, and 250 gallons had spilled. No other damages and/or losses were reported for the County.
October 1, 2014	Chemical Spill	N/A	No	Kodak firefighters along with City of Rochester firefighters responded this afternoon to a reported leak from a 55-gallon drum of acetic anhydride. Command declared a Level 1 HAZ MAT. Firefighters contained the spill and secured the scene. No other damages and/or losses were reported for the County.
January 16, 2015	Fuel Spill	N/A	No	City of Rochester firefighters responded this afternoon to a reported fuel oil spill on Sylvester St. Engine 16 reported spillage of two 5-gallon buckets of oil inside the house and outside as well. Engine 16 declared a Level 0 HAZ MAT, which brought Engine 17, Rescue 11, and HAZ MAT 1 & 2. Battalion 1 assumed command and declared a Level 1 HAZ MAT. Thirty gallons of #2 fuel oil was spilled. No other damages and/or losses were reported for the County.
February 13, 2015	Chemical Spill	N/A	No	A 55-gallon poly drum of a water treatment chemical fell through the wood skid on which it had been staged during delivery at Winston Place in the Town of Henrietta. The broken skid resulted in a puncture in the bottom side of the drum and total release of the product to the floor of the trailer and the asphalt parking lot on which the trailer was parked. The cold weather froze the product in the trailer and the asphalt. The released material was shoveled up and collected by use of absorbents. The damaged drum was placed in an overpack. The recovered material was collected and taken for disposal. A total of \$3,500 in damages was reported.



Date(s) of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
March 18, 2015	Fuel spill	N/A	No	Egypt firefighters responded to a reported motor vehicle accident in the Town of Pittsford on Palmyra Rd. Command requested a Level 1 HAZ MAT for 15 diesel fuel leaking along with another chemical. Firefighters secured the scene and turned it over to the police. Fifteen gallons of diesel fuel was spilled. No other damages and/or losses were reported for the County.

Source: Monroe County 2015; Monroe County Fire Wire 2015; NYS DEC 2015; PHMSA 2015; U.S. EPA 2015
HAZ MAT or HazMat Hazardous Materials
GCF Gas Cubic Feet



H.1.9 Landslide

Known landslide events that have impacted Monroe County from 1993 to 2015 are identified in Table H.9. As landslide events are not well documented, Table H.9 may not include a complete record of all landslide events that have occurred within the County.



Table H.9. Landslide Events between 1993 and 2015

Dates of Event	Event Type	FEMA Declaration Number	Location / County Designated?	Losses / Impacts
1993, 1997, 1998	Shoreline Erosion	N/A	No	High water levels on Lake Ontario exacerbated erosion along its shoreline. When the lake level reached 246.3 feet, erosion escalated. In these years, erosion swallowed land mass, trees and other vegetation, and artificial fill that property owners utilized as bank stabilization, some of which was placed through a U.S. Army Corps of Engineers “Advanced Measures Program” in the 1970s. Natural features have also been adversely affected by landslide. In Monroe County, cliffs along the shoreline in the Town of Webster, and along the Irondequoit Bay have been eroded. In 1998, severe erosion exposed a sanitary sewage transmission main near Sea Breeze, in the Town of Irondequoit, prompting emergency measures for repair and a call for immediate protective relief from the International Joint Commission that regulates lake levels.
April 2, 1997	House slid off Foundation/Water Main Break	N/A	No	A house on the west side of Irondequoit Bay, in the Town of Irondequoit, slid off its foundation into the bay. It is unknown whether a water service break at the house site caused the slide, or if the slide ruptured the water service. No one was home at the time of this event and no other properties were damaged (Greg Merrick, Irondequoit Fire Marshal, telephone interview, 8-12-03)
January, 1998	Saturated Soils	N/A	No	In the Town of Webster, a basement wall on the uphill side of the house collapsed from the pressure of saturated soils and downhill drainage.
August 31, 2004	Washout/ Landslide	N/A	No	Town of Irondequoit Supervisor, David Schantz called OEM to report a major wash-out on the slope above “German Village,” off Point Pleasant Road on the Westside of Irondequoit Bay. Five private homes were jeopardized. Town Officials, geo-technical Engineers, and utilities were involved. OEM briefed SEMO. “...Excessive rain saturated the hillside. That deluge caused brush and dirt to slide 40 feet toward about a dozen bayside houses known as German Village” (Democrat & Chronicle, 7.29.06).
July 28, 2006	Landslide	N/A	No	An Irondequoit resident awoke, “...To find her lawn and walkway covered with water and debris, runoff from a neighboring hillside. “Water was gushing like a small river, and the sump pump is running constantly” (Democrat & Chronicle, 7.29.06).
August 10, 2009	Erosion, Unstable Banks	N/A	No	“County Executive, Maggie Brooks, today announced the County was forced to cordon off a section of Ellison Park from public use as a result of dangerous conditions created by unstable banks along Irondequoit Creek. Significant stretches of Irondequoit Creek within both Powder Mills and Ellison Parks have been greatly impacted by storm water flow and other forms of erosion, seriously compromising the structural integrity of its banks” (Monroe County News Release, 8.10.09).

Sources: Monroe County, 2015
 FEMA Federal Emergency Management Agency
 N/A Not applicable





H.1.10 Civil Unrest

Known civil unrest events that have impacted Monroe County from 1993 to 2015 are identified in Table H.10. As landslide events are not well documented, Table H.10 may not include a complete record of all landslide events that have occurred within the County.



Table H.10. Civil Unrest Events between 1993 and 2015

Date(s) of Event	Event Type	FEMA Declaration Number (if applicable)	Monroe County Designated?	Description
July 24-27, 1964	Riots	N/A	No	<p>Riots raged for 3 days in the City of Rochester in the aftermath of an arrest of a young black male at a street block party and dance off Joseph Avenue, during the late evening hours of July 24, 1964. The riots started with roughly 400 people in two of the City’s predominantly black wards, near the intersection of Nassau Street and Joseph Avenue. Adjacent areas of the City, including downtown, were involved over the coming days, when rioting crowds swelled to more than 2,000 people. City police, state troopers, and sheriff’s deputies were all called to the scene.</p> <p>On July 25, City Manager Porter Homer ordered an 8:00 p.m. city-wide curfew, and closed all liquor stores in the City and surrounding municipalities. However, violence surged as rioters threw Molotov cocktails, rocks, and bottles from rooftops and store windows. Governor Nelson Rockefeller declared a state of emergency and called in the New York National Guard—the first use of those troops for that purpose in a northern city.</p> <p>The riots left 4 people dead (3 in a helicopter crash) and 350 injured. Almost a thousand people were arrested, the majority between 20 and 40 years old, employed, with no prior record. Fifteen percent of those arrested were white. Stores either looted or damaged numbered 204.</p>
March 25, 2010	Vandalism	N/A	No	<p>A brick was thrown at the office door of the Monroe County Democratic Committee in the City of Rochester by opponents of President Obama’s contentious healthcare reform measure that had been signed into law earlier in the week.</p>
October 31, 2011	Protest	N/A	No	<p>Two men with the “Occupy Rochester” protesters were arrested for violating city ordinances at a park in the City of Rochester where 32 demonstrators had been rounded up on trespassing charges three nights earlier. One man was accused of violating Rochester’s municipal code for tying a “Liberation Square Rochester” sign to a Civil War monument in Washington Square Park. Another was ticketed for sleeping in the park. However, Mayor Thomas Richards said that the arrests had been intended to prevent confrontations over health and safety concerns related to the multi-week occupation.</p>
August 11, 2013	Riots	N/A	No	<p>The City of Rochester Police Department arrested 16 people following the annual Puerto Rican Festival after festival participants allegedly threw rocks, bottles, and eggs at police officers. Pepper balls, a helicopter, and other crowd control measures, along with about 100 police officers in riot gear, were deployed to calm the situation.</p>
September 15, 2014	Protest	N/A	No	<p>Homeless advocates were arrested and charged with criminal trespassing after protesting outside a Monroe County office building in the City of Rochester. The dissenters protested cancellation of a scheduled meeting of County officials to discuss the City’s homeless problem and emergency housing shelter availability.</p>
September 21, 2014	Unruly Crowd	N/A	No	<p>At least a thousand people took to the streets in the Village of Brockport overnight between Saturday night and Sunday morning when the Brockport Police Department ordered the bars to close an hour early at 1 a.m. over safety concerns. Homecoming weekend at the College at</p>



Date(s) of Event	Event Type	FEMA Declaration Number (if applicable)	Monroe County Designated?	Description
				Brockport: State University of New York was the cause of such a large crowd gathering in the Village, and when ordered to exit the bars, people flooded the streets and started shouting "U-S-A!" and "Let's Go Brockport." More than 30 police officers from 13 different departments arrived at the scene, arresting 28 people, at least 3 of whom were students. Police Chief Daniel Varrenti told a news reporter that the event was not a riot.
November 30, 2014	Rally	N/A	No	Hundreds rallied in the downtown area of the City of Rochester to protest a grand jury's decision not to indict Ferguson, MO Police Officer Darren Wilson for the killing of Michael Brown, an unarmed black teenager. The rally did not include city officials. No property damage or violence was reported.
April 14-15, 2015	March	N/A	No	Marchers gathered on East Avenue and Mount Hope Avenue in the City of Rochester to fight for wage equality, including equal pay for women, higher wages for workers, and more options for workers to form unions. The marches were organized by a number of advocacy groups, workers, and churches.
May 1, 2015	March/Protest	N/A	No	Protesters marched in the City of Rochester in solidarity with people marching in Baltimore, after that City's top prosecutor announced charges Friday against six officers involved in the arrest of a black man whose neck was broken in police custody. The court's decision came amid outrage around the country over police brutality against African Americans. The Rochester protesters called for an end to the violence.

Sources: Democrat and Chronicle 2013; PBS 2015; Rochester Homepage 2015; Syracuse.com 2011; Syracuse.com 2014; The Guardian 2010; Time Warner Cable News 2015



H.1.11 Terrorism

Known terrorism events that have impacted Monroe County from 2000 to 2015 are identified in Table H.11. As terrorism documentation is not always well documented, Table H.11 may not include a complete record of all terrorism events that have occurred within the County.



Table H.11. Terrorism Events in Monroe County between 2000 and 2015

Dates of Event	Event Type	Location	FEMA Declaration Number	County Designated?	Losses / Impacts
May 31, 2014	Terrorist Activity	City of Rochester	Not applicable (N/A)	N/A	A City of Rochester man was arrested and later indicted on charges that he tried to provide material support to the Islamic State. The 30-year-old store owner was arrested and charged with funding the Islamic terror group ISIS, trying to fuel them with jihadists, and plotting to kill U.S. troops, according to federal authorities. He was also charged with one count of attempting to gun down government officers and employees, two counts of having an unregistered firearm silencer, and one count of possessing guns or silencers.

Sources: NY Daily News 2014



H.1.12 Utility Failure

Known utility failure events that have impacted Monroe County from 1959 to 2015 are identified in Table H.12. As utility failure documentation is not always well documented, Table H.12 may not include a complete record of all terrorism events that have occurred within the County.



Table H.12. Utility Failure Events in Monroe County, 1959 to 2015

Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
1959 - 1965	Power Outage	N/A	N/A	Major blackouts occurred throughout the Northeast in 1959, 1961, and 1965. Anywhere from one to a few cables failed in isolated places, causing overloads in a few more cables, and then a larger cascade of failures. The cascade gained momentum, produced catastrophe through the medium of the grid, and finally produced a shutdown of the whole system.
November 9, 1965	Power Outage	N/A	N/A	<p>Monroe County was “in the dark” with most of the east coast after a faulty relay broke in an Ontario Hydro power plant in Queenston, Ontario, near Niagara Falls, triggering a cascade of power surges that shut down electrical systems throughout the Northeast. The Great Northeast Blackout, as it came to be known, caused outages for more than 4 hours in the City of Rochester, beginning just around the time of evening rush hour.</p> <p>Intersections became clogged as traffic signals went down, service stations could not pump gasoline, people were stuck in elevators, television stations were knocked off the air, and seven aircraft had to circle above what then was called Rochester-Monroe County Airport when landing strip lights blinked out. Civil defense officials mobilized, and off-duty police officers and firefighters were called to work in case of unrest. None occurred.</p> <p>RG&E costumers were affected, while customers of Niagara Mohawk Corp. in the Towns of Riga, Wheatland, Rush, and parts of Henrietta and Mendon still had power. RG&E’s power-generating system, which normally could produce enough power to cover its service area, was connected with other power companies in upstate New York that provided power through an eight-county area. When the relay broke in Ontario, power demands from the other utilities caused a power drain that overtaxed RG&E’s generators and shut them down.</p> <p>Once RG&E engineers disconnected their system from the other companies, their own generators resumed operation. By 7:15 p.m., restoration of power began to hospitals and other priority users, and full restoration had occurred by 9:45 p.m.</p>
August 14, 2003	Power Outage	EM-3186	Yes	<p>Known as one of the biggest blackouts in North America history, millions of people lost power shortly after 4:00 p.m. The blackout covered an area of 50 million people throughout the Northeast, affecting cities in New York, New Jersey, Ohio, Connecticut, Michigan, Massachusetts, as well as several major cities in Canada, including Toronto and Ottawa.</p> <p>In Monroe County, the Emergency Operations Center (EOC) was activated for 16.5 hours beginning on August 14th. County Executive Jack Doyle declared a State of Emergency for all of Monroe County on August 14th, and ordered no unnecessary travel. The declaration and order were rescinded on August 15th.</p>



Table H.12. Utility Failure Events in Monroe County, 1959 to 2015

Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
				<p>Approximately 67-80 percent of RG&E customers (about 400,000) in the County were without power. Niagara Mohawk customers within the County were also affected. Kodak Park shifted electric load back to company generation for mission-critical areas, but otherwise did not alter normal operations.</p> <p>Frontier, a distributor of telephone service in the region, reported that fewer than 1,000 telephone customers lost land-line service during Thursday’s power outage. The company operated some central offices and loop stations by use of batteries/back-up generators.</p> <p>City of Rochester Fire Chief Floyd Madison reported 12 minor fires on Thursday night and Friday morning, 6 of which were blackout-related. In addition, three fire stations lost power and were not able to acquire back-up power.</p> <p>Ginna Nuclear Generating Station in Wayne County shut down. Ginna is one of six in the State and nine nationally that were shut down. Dark traffic lights numbered 575. Hospitals operated by use of back-up generators. The generator at Park Ridge Hospital in the City of Rochester failed. County Pure Waters deployed a generator, and its electricians worked with RG&E crews to repair the hospital’s generator. Commercial power was restored in under 2 hours.</p> <p>The Rochester Airport lost outside power, and one of its two back-up generators failed, leaving passengers unable to board flights for nearly 3 hours. Monroe County Water Authority and the Pure Waters District (sewage) both had pump stations operating by use of generated power. Red Cross and County Health Department opened two venues for people with medical appliances who needed power access.</p> <p>On the morning of the 15th, RG&E and Niagara Mohawk both announced that “rolling blackouts” were ordered by the ISO to stabilize the restoration effort. Governor Pataki asked for federal emergency declaration to provide federal money for relief efforts.</p>
November 17, 2006	Gas Leak	N/A	N/A	<p>More than 300 Town of Greece families (700 residents) had to find temporary housing after a routine inspection of natural gas lines at the Cedar Commons apartment complex detected leaks so dangerous that the complex’s gas service had to be immediately disconnected for safety purposes. RG&E assisted Cedar Commons to locate materials and qualified workers needed to make the repairs as soon as possible. Jeff McCann, Greece Town Deputy Supervisor, said the town was made aware of the problem, and</p>



Table H.12. Utility Failure Events in Monroe County, 1959 to 2015

Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
				that complex managers told the town they would voluntarily relocate more than 316 families from the complex during repairs. All residents were able to return with availability of heat and hot water 5 days later after more than 9,000 feet of gas line had been replaced throughout the complex.
February 16, 2007	Power Outage	N/A	N/A	An equipment failure at a substation left about 2,500 RG&E customers without power for over an hour during the afternoon of February 16th. The power outage affected customers in Corn Hill and the western part of South Wedge in the City of Rochester.
January 28, 2007	Sanitary Sewer	N/A	N/A	Residents of aging suburbs like the Towns of Irondequoit, Brighton, East Rochester, and Greece faced flooding caused by insufficient storm sewer capacity. Irondequoit residents reported that heavy precipitation led to sewage in their basement and tens of thousands of dollars of damage to their properties. An Irondequoit DPW employee estimated that nearly 10,000 homes were impacted by decaying sewer infrastructure. Some infrastructure pipes were laid early in the 1900s.
September 7, 2007	Power Outage and Water Supply Failure	N/A	N/A	School was cancelled in Spencerport because of a failed electric transmission line that affected more than 38,000 RG&E customers in western Monroe County. Power was restored to most customers less than 2 hours after failure. OEM files indicate this was not an Electric Grid problem. This was a supply failure on a 115 kilovolt (KV) transmission line that was scheduled for comprehensive maintenance testing within a week of the failure. RG&E’s analysis of the problem and the system included inspection from the ground, the air, and thermal imaging. They also removed a section of the damaged line for testing and analysis. This failure resulted in some water pressure problems and water supply failure at the Wheatland-Chili School. With system redundancy through switching, all customers were restored.
June 2, 2008	Power Outage	N/A	N/A	Roughly 900 RG&E customers were without power for just over an hour, starting at 9:00 p.m. Power was restored by 10:23.
May 8, 2010	High Wind	N/A	N/A	Deep low pressure passed over western New York with its trailing cold front rapidly sweeping east across the region. Winds increased within a few hours of the approaching front to gust speeds of 60 to 65 mph. Tens of thousands were left without power. There were reports of vehicles and/or buildings damaged by falling trees. RG&E’s Monroe County and Canandaigua service areas were hardest hit.
July 17, 2010	Power Outage	N/A	N/A	About 1,000 households were temporarily without power in Monroe and Ontario Counties after a tree fell onto electrical wires at 2:45 p.m. Affected areas in Monroe County included the Town of Henrietta, the Village of Honeoye Falls, and the Town of Webster until restoration by 5:30 p.m.



Table H.12. Utility Failure Events in Monroe County, 1959 to 2015

Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
July 21, 2010	Thunderstorm Wind	N/A	N/A	Thunderstorms developed ahead of an approaching cold front. The thunderstorms produced large hail and damaging winds. Thunderstorm winds downed trees and power lines in the City of Rochester and Town of Brighton. Utility companies reported thousands without power.
August 19, 2010	Thunderstorm Wind	N/A	N/A	Thunderstorms developed ahead of an approaching cold front during the late afternoon hours. In Monroe County, the thunderstorms produced strong winds that downed trees and power lines. At the Long Pond Shores apartment complex in the Town of Greece, a large tree fell on part of the building. Fallen limbs were scattered along Lakeshore Road in the Town of Irondequoit. Electric Utilities reported about 150 homes without power in the Towns of Irondequoit and Webster.
August 28, 2011	Hurricane Irene	EM-3328	Yes	Hurricane Irene tracked northeast along the Atlantic Coast and brought gusty winds to eastern sections of the area. Measured winds gusted to 40 to 45 mph. Normally, winds of this magnitude are not strong enough to cause damage; however, the ground was wet and the north to northeast flow of wind was opposite of the prevailing direction for the region. Trees are anchored for the prevailing direction and are susceptible to even marginally strong winds from the opposite direction. Downed trees and lines were reported in the Town of Greece and the City of Rochester. Utilities reported several thousand customers without power.
January 17, 2012	Thunderstorm Wind/High Wind	N/A	N/A	Low pressure moved across southern Ontario and pulled a strong cold front across the region during the evening hours. Thunderstorms accompanying the front produced wind gusts to around 70 mph. The strong winds downed trees and power lines and poles. Power outages were scattered throughout the region, with utilities reporting several thousand without power at its worse. Utilities reported several tens of thousands without power at the peak of the storm. Specific gusts included one of 72 mph at Rochester.
February 24, 2012	High Wind	N/A	N/A	Low pressure over the Ohio Valley deepened as it lifted northeast across the Great Lakes then down the St. Lawrence Valley. The low brought strong winds to the region. Trees and power lines were downed. Scattered power outages were reported. Measured gusts included one of 53 mph at Rochester Airport.
March 3, 2012	High Wind	N/A	N/A	Deep low pressure moved from the Midwest across Lake Huron into Quebec. Southeast winds gusting to 55 mph quickly shifted to the southwest, and increased to 30 to 40 mph with gusts nearing 70 mph. The strong winds downed trees and power lines. Utilities reported several tens of thousands without power at the peak of the storm. Specific gusts included one of 66 mph at Rochester Airport and 59 mph in the Town of Irondequoit.
May 29, 2012	Hail	N/A	N/A	A strong cold front was accompanied by severe thunderstorms that produced hail up to 1.75 inches in diameter, and damaging winds which downed trees and power lines. Utilities reported tens of thousands without power scattered throughout the region.



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October 29, 2012	High Wind	N/A	N/A	Remnants of Superstorm Sandy brought strong winds and heavy rains to western and north central New York. The high winds downed trees and power lines throughout the region. Wind gusts were measured to 60 mph, for example, at Irondequoit Bay. Tree damage was greater than usual with such wind speeds because of saturated ground and northeast winds—opposite of the normal prevailing southwest direction. Utilities reported tens of thousands of customers without power across the entire region. On the 30 th , RG&E reported that 22,300 Monroe County customers were without power, though by the end of the day only 13,800 customers remained in the dark. Power was restored to all RG&E customers by November 2 nd .
January 20, 2013	High Wind	N/A	N/A	A deepening storm system moved across the Upper Great lakes. The system brought strong, damaging winds to the entire region late Saturday night into Sunday (20 th -21 st). Trees, power poles, and wires were brought down by the winds. Utilities reported tens of thousands without power for a time. Specific measured gusts included one of 59 mph at the Rochester Airport.
January 31, 2013	High Wind	N/A	N/A	Low pressure moved across the lower Great Lakes, swinging a strong cold front across the region. In the wake of the front, strong westerly winds overspread the area. The wind downed trees and power lines. Utility companies reported scattered outages across the region. Specific wind gusts recorded included one of 59 mph at the Rochester Airport.
February 2013 – January 2014	Power Outages	N/A	N/A	Parts of the Town of Webster were affected by repeated power outages over a series of months, including five mini-blackouts that affected the same 4,250 customers. A 1.5-mile stretch of a 49-year-old, sub-transmission line in the west part of the Town of Webster known as Circuit 745 went out of service twice in November because of contact by tree limbs, and then failed on Dec. 28, Jan. 6, and on Jan. 11, each time breaking at a point where it previously had been spliced together. Parts of the town not served by Circuit 745 also underwent repeated losses of electric service, and the town logged more customer-hours with no electricity over a one-year period than any other municipality in Monroe County.
July 18, 2013	Thunderstorm Wind	N/A	N/A	Scattered thunderstorms developed during the afternoon hours. An isolated thunderstorm over Monroe County produced damaging winds that downed trees and power lines in the Town of Greece. The Towns of Greece, Irondequoit, and Webster, and the northern portion of the City of Rochester took the brunt of the damage in Monroe County, where 2,900 RG&E customers were without power for up to 3 days.
November 1, 2013	High Wind	N/A	N/A	Deep low pressure lifted across the Great Lakes region. The system brought strong winds to much of the region on Friday, November 1 st . Winds gusted as high as 62 mph. Approximately 13,600 RG&E customers lost power after the high winds knocked down trees and branches, took down transmission and distribution lines, and snapped utility poles in the area. In total, more than 27,000 RG&E customers in Monroe, Wayne, and



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				Ontario counties lost power as result of the storm, with the towns along Lake Ontario bearing the worst of the damage. The most significant outages were in the Towns of Greece (3589), Ogden (2952), Webster (1481), Irondequoit (1298), Chili (1204), Gates (638), Penfield (411), and Parma (349); and in the City of Rochester (1175). Power was restored by the evening of November 2.
November 18, 2013	High Wind	N/A	N/A	Rapidly deepening low pressure tracked from the Upper Great Lakes to James Bay, and brought strong winds to the entire region. The winds, gusting as high as 68 mph, brought down trees and power lines throughout the region, reflected in numerous reports of damage from downed trees. Power outages were in the tens of thousands. Specific measured wind gusts included one at 63 mph at Rochester Airport.
November 26-28, 2013	Winter Storm	N/A	N/A	Power lines and electric utility equipment were damaged by an overnight storm that dumped between 6 and 10 inches of heavy, wet snow. RG&E estimated that more than 17,500 customers total and 1,331 in Monroe County lost power at some point during the storm that toppled trees, knocked down 216 power lines, and fractured 12 utility poles across its service area. The largest outages occurred in the Towns of Brighton (478), Pittsford (303), and Henrietta (146), and the City of Rochester (108). Power was restored to RG&E customers less than 2 days later.
December 20, 2013	Phone Outages	N/A	N/A	At approximately 9:25 a.m., the Monroe County 911 Center called Frontier, a telephone service company, to report a problem with 911 telephone service. Frontier started trouble shooting and called its 911 manager. While Frontier was trouble shooting, the 911 Center contacted local media to inform them of the situation. Frontier’s 911 manager instructed the 911 Center to activate the emergency backup switch, which routed all 911 traffic to the back-up Norstar system, displaying Caller-ID only. Frontier discovered a scan point circuit failure due to a defective trunking cable between Fitzhugh St. and Field St. in the City of Rochester, and made repairs.
December 21, 2013	Ice Storm	N/A	N/A	A surface front stalled across the region and acted as a pathway for periods of heavy precipitation. North of the front, the precipitation fell as freezing rain, coating trees, power lines, and all exposed surfaces with ice. Across the Niagara Frontier, ice accumulations of 0.5 to 1 inch were reported. Across the north country, where the freezing rain persisted the longest, ice accumulations ranged from 1 to 2 inches. Weight of the heavy ice brought down trees and power lines. In some cases, trees fell on homes, buildings, and automobiles. Tens of thousands were left without power.
July 8, 2014	Thunderstorms	N/A	N/A	A line of intense thunderstorms blew through the Rochester region the afternoon of July 7. High winds, torrential rains, and plentiful lightning damaged many parts of RG&E’s electric distribution system, and caused outages for more than 31,000 customers across all areas of its system. At the peak of the storm, more than 27,000 RG&E customers were out of service, 290 of them within Monroe County. Areas with the most outages in



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				Monroe County included the Towns of Pittsford (156), Perinton (43), and Webster (Town and Village) (75). Power was restored by the end of the next day.
August 1, 2014	Flood	N/A	N/A	Thunderstorms developed in a moderately unstable airmass along the lake breeze boundary that extended across the lower Genesee Valley and Western Finger Lakes. The thunderstorms produced damaging winds that downed trees and wires in the Town of Greece. The heavy rains that fell resulted in urban flooding. Storm sewers were not able to keep up with the intense rainfall, and streets closed in the Town of Greece.
January 4, 2015	High Wind	N/A	N/A	Deepening low pressure tracked from western Lake Erie across far southern Ontario to Quebec dragging a cold front across the region. Strong winds increased to near 60 miles per hour (mph) about 2 to 3 hours after the cold front passage. The strong winds downed trees and wires across western New York. Damage was reported along St. Paul Boulevard in the Town of Irondequoit. Scattered power outages resulted throughout the region.

Source: NOAA-NCDC, 2015; Monroe County 2010 HMP; Democrat and Chronical, 2006, 2007, 2008, 2010, 2014; RG&E 2015.

DPW Department of Public Works

ISO International Organization for Standardization

KV Kilovolt

mph Miles per Hour

NCDC National Climatic Data Center

NOAA National Oceanic and Atmospheric Administration

RG&E Rochester Gas and Electric