



## APPENDIX E. COUNTY PROFILE AND RISK ASSESSMENT SUPPLEMENTARY DATA

### E.1 Overview

This section contains information and details to support information provided in Section 4 – County Profile which provides general information for Broome County (physical setting, population and demographics, general building stock, and land use and population trends), a summary table of new development within the County and its municipalities, and critical facilities located within the County.

### E.2 Broome County Population Data

Table E-1. Broome County Population Statistics (2010 U.S. Census )

Municipality	U.S. Census 2010						
	Total	Pop. 65+	% Pop. 65+	Population Under 5	% Under 5	Low-Income Pop. *	% Low-Income Pop.
Barker (T)	2,732	331	12.1%	157	5.7%	304	11.1%
Binghamton (C)	47,376	7,264	15.3%	2,918	6.2%	17,101	36.1%
Binghamton (T)	4,942	760	15.4%	227	4.6%	527	10.7%
Chenango (T)	11,252	1,930	17.2%	577	5.1%	1,308	11.6%
Colesville (T)	5,232	732	14.0%	275	5.3%	756	14.4%
Conklin (T)	5,441	857	15.8%	253	4.6%	800	14.7%
Deposit (V)	819	122	14.9%	54	6.6%	202	24.7%
Dickinson (T)	3,637	753	20.7%	123	3.4%	603	16.6%
Endicott (V)	13,392	2,130	15.9%	875	6.5%	3,761	28.1%
Fenton (T)	6,674	1,166	17.5%	312	4.7%	898	13.5%
Johnson City (V)	15,174	2,484	16.4%	881	5.8%	4,547	30.0%
Kirkwood (T)	5,857	939	16.0%	308	5.3%	858	14.6%
Lisle (T)	2,431	341	14.0%	164	6.7%	336	13.8%
Lisle (V)	320	35	10.9%	24	7.5%	42	13.1%
Maine (T)	5,377	828	15.4%	274	5.1%	654	12.2%
Nanticoke (T)	1,672	202	12.1%	107	6.4%	195	11.7%
Port Dickinson (V)	1,641	249	15.2%	96	5.9%	306	18.6%
Sanford (T)	1,588	333	21.0%	77	4.8%	155	9.8%
Triangle (T)	1,982	281	14.2%	125	6.3%	237	12.0%
Union (T)	27,780	5,582	20.1%	1,360	4.9%	3,867	13.9%
Vestal (T)	28,043	4,501	16.1%	906	3.2%	2,870	10.2%
Whitney Point (V)	964	136	14.1%	69	7.2%	148	15.4%
Windsor (T)	5,358	734	13.7%	253	4.7%	471	8.8%



Municipality	U.S. Census 2010						
	Total	Pop. 65+	% Pop. 65+	Population Under 5	% Under 5	Low-Income Pop. *	% Low-Income Pop.
Windsor (V)	916	154	16.8%	65	7.1%	190	20.7%
<b>Broome County</b>	<b>200,600</b>	<b>32,844</b>	<b>16.4%</b>	<b>10,480</b>	<b>5.2%</b>	<b>41,138</b>	<b>20.5%</b>

Source: Census 2010 (U.S. Census Bureau)

Note: Pop. = population;

\*Individuals below poverty level - Data collected from the 2012-2016 American Community Survey 5-year estimate (Census poverty threshold for a 3-person family unit is approximately \$19,730). Low-income population calculated by summing household income less than \$20,000 from HAZUS-MH v4.2 and multiplying by 2.32 (Broome County Average Household Size) to get a population count.

**Table E-2. Broome County Population Statistics (2012-2016 American Community Survey Estimates)**

Municipality	American Community Survey 2012-2016						
	Total*	Pop. 65+*	% Pop. 65+	Population Under 5	% Under 5	Pop. Poverty	% Below Poverty Level*
Barker (T)	2,688	369	13.7%	119	4.4%	260	9.7%
Binghamton (C)	46,277	7,685	16.6%	2,781	6.0%	14,925	32.3%
Binghamton (T)	4,859	874	18.0%	222	4.6%	303	6.2%
Chenango (T)	10,998	1,903	17.3%	455	4.1%	1,306	11.9%
Colesville (T)	5,149	890	17.3%	354	6.9%	968	18.8%
Conklin (T)	5,313	828	15.6%	324	6.1%	575	10.8%
Deposit (V)	1,624	333	20.5%	100	6.2%	331	20.4%
Dickinson (T)	3,447	801	23.2%	60	1.7%	200	5.8%
Endicott (V)	13,073	2,327	17.8%	767	5.9%	929	7.1%
Fenton (T)	6,536	1,151	17.6%	374	5.7%	956	14.6%
Johnson City (V)	14,835	2,376	16.0%	1,041	7.0%	298	2.0%
Kirkwood (T)	5,735	1,108	19.3%	383	6.7%	67	1.2%
Lisle (T)	2,426	364	15.0%	180	7.4%	616	25.4%
Lisle (V)	267	49	18.4%	20	7.5%	181	67.8%
Maine (T)	5,301	1,056	19.9%	247	4.7%	-111	-2.1%
Nanticoke (T)	1,645	315	19.1%	51	3.1%	349	21.2%
Port Dickinson (V)	1,762	270	15.3%	96	5.4%	79	4.5%
Sanford (T)	752	258	34.3%	9	1.2%	190	25.3%
Triangle (T)	1,938	301	15.5%	84	4.3%	2,322	119.8%
Union (T)	27,387	5,794	21.2%	1,426	5.2%	2,491	9.1%
Vestal (T)	28,267	4,569	16.2%	854	3.0%	2,573	9.1%
Whitney Point (V)	942	195	20.7%	69	7.3%	2,412	256.1%
Windsor (T)	5,068	758	15.0%	171	3.4%	314	6.2%
Windsor (V)	1,092	138	12.6%	60	5.5%	90	8.2%
<b>Broome County</b>	<b>197,381</b>	<b>34,712</b>	<b>17.6%</b>	<b>10,229</b>	<b>5.2%</b>	<b>32,624</b>	<b>16.5%</b>



Source: Census 2010 (U.S. Census Bureau); American Community Survey 2012-2016

Note: Pop. = population;

\* Due to the breakdown of the data from the ACS, it cannot be determined how the population of the Village of Deposit is split between Broome and Delaware Counties, so the Village total is inclusive of the entire Village's population; therefore, the Town of Sandford's population is inclusive of the Village of Deposit. Other Village populations were able to be subtracted out from their respective Towns.

\*\* % Below Poverty Level = Percentage Of Families And People Whose Income In The Past 12 Months Is Below The Poverty Level; population counts were calculated by multiplying the % Below Poverty Level by the municipal population estimate.

It is noted that the census data for household income provided in HAZUS-MH includes two ranges (\$0-10,000 and \$10,000-\$20,000/year) that were totaled to provide the “low-income” data used in this study. This does not correspond exactly with the “poverty” thresholds established by the U.S. Census Bureau, which identifies households with an annual household income below \$15,000 per year as “low income” for this region. This difference is not believed to be significant for the purposes of this planning effort.

**Table E- 3- Population Trends 1950 to 2040 in Broome County, New York**

Year	Population	Change in Population	Percent (%) Population Change
1950	184,698	-	-
1960	212,661	27,963	15.14%
1970	221,815	9,154	4.30%
1980	213,648	-8,167	-3.68%
1990	212,160	-1,488	-0.70%
2000	200,536	-11,624	-5.48%
2010	200,600	64	0.03%
2020*	192,262	-8338	-4.16%
2030*	186,950	-5312	-2.76%
2040*	183,176	-3774	-2.02%

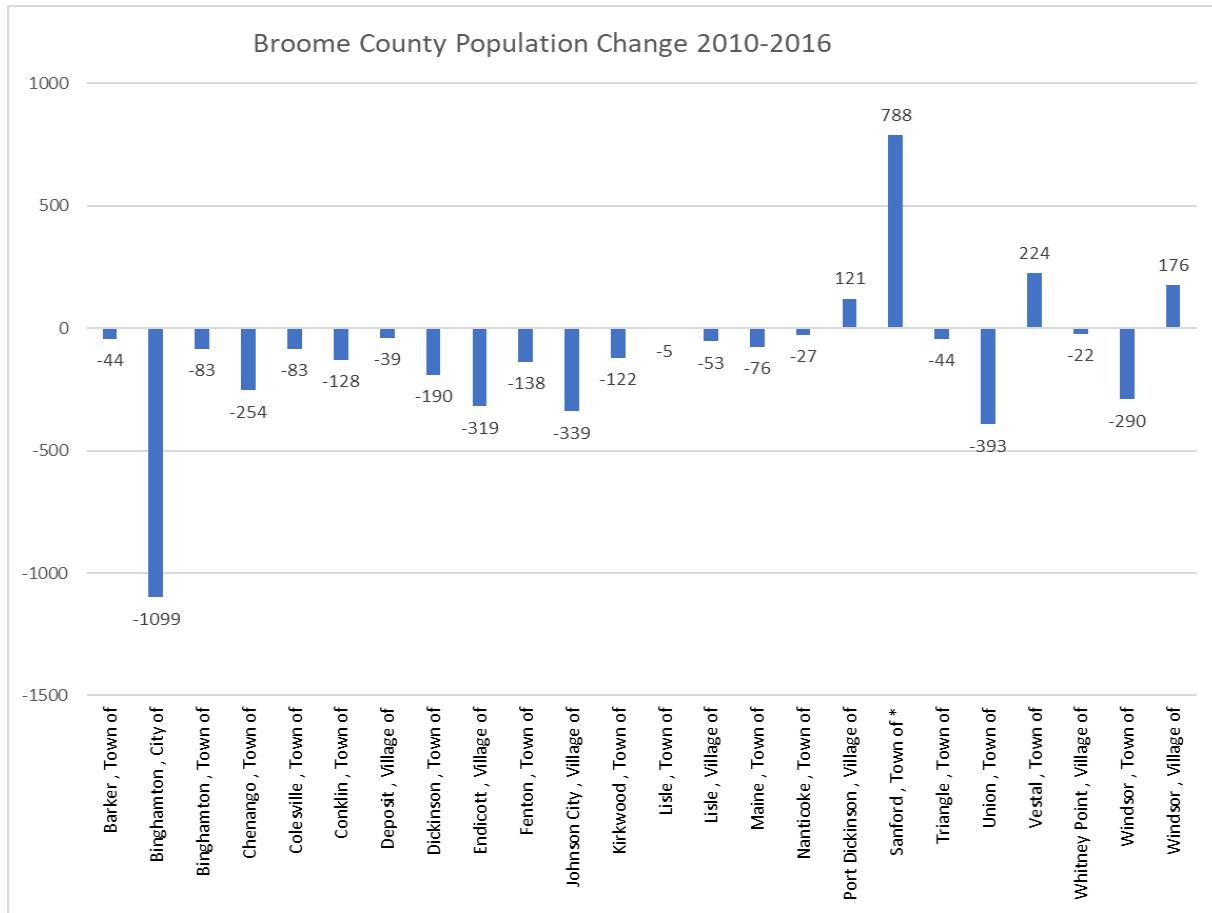
Source: U.S. Census Bureau 2012, University of Virginia 2007, Cornell University 2018

Note: Change in population and percent in population change was calculated from available data.

\* Years listed are population projections



Figure E-1. Broome County Population Change, 2010 to 2016



Source: U.S. Census Bureau 2010 Census, U.S. Census Bureau American Community Survey 2016

Note: The Town of Sanford 2016 ACS population includes the Village of Deposit population within Broome County due to the data collection methods of the Census Bureau.



Table E-4 - Building Stock Count and Replacement Value by Occupancy Class

Municipality	Count	Total RCV (Structure and Contents)	RCV (Structure Only)	Residential	Commercial	Industrial	Agricultural	Religious	Government	Education
Barker (T)	1,265	\$688,813,868	\$439,118,041	\$568,266,642	\$56,161,540	\$14,548,640	\$24,941,988	\$16,760,952	\$8,134,106	\$0
Binghamton (C)	25,243	\$77,847,328,827	\$49,423,441,320	\$62,998,661,436	\$10,663,059,241	\$758,443,187	\$20,108,485	\$841,384,307	\$2,002,922,016	\$562,750,156
Binghamton (T)	2,121	\$1,228,624,612	\$801,903,100	\$1,125,544,762	\$52,454,432	\$5,694,965	\$9,101,721	\$5,492,190	\$5,606,500	\$24,730,043
Chenango (T)	5,183	\$4,543,298,114	\$2,777,071,417	\$3,032,534,161	\$1,291,589,605	\$12,962,316	\$23,620,573	\$47,342,768	\$30,857,776	\$104,390,916
Colesville (T)	2,476	\$2,981,791,633	\$1,931,209,372	\$2,641,881,331	\$101,805,707	\$3,714,556	\$109,963,205	\$24,778,832	\$43,202,440	\$56,445,562
Conklin (T)	2,520	\$1,795,243,811	\$1,078,006,795	\$1,082,309,337	\$462,182,332	\$158,367,127	\$11,500,900	\$13,956,158	\$18,778,944	\$48,149,014
Deposit (V)	468	\$459,195,313	\$283,738,889	\$324,847,395	\$57,846,326	\$52,167,589	\$0	\$3,937,371	\$15,547,930	\$4,848,702
Dickinson (T)	1,446	\$1,446,559,666	\$854,122,423	\$785,055,538	\$47,143,021	\$12,916,851	\$0	\$30,592,579	\$312,623,987	\$258,227,690
Endicott (V)	7,011	\$11,814,240,767	\$7,583,787,954	\$10,060,005,422	\$1,020,473,281	\$290,677,282	\$650,311	\$193,498,481	\$46,364,932	\$202,571,058
Fenton (T)	3,166	\$1,763,698,720	\$1,091,318,949	\$1,256,817,532	\$155,032,772	\$143,402,864	\$53,812,442	\$59,165,504	\$31,867,979	\$63,599,628
Johnson City (V)	7,904	\$31,593,599,188	\$19,160,306,045	\$20,181,038,707	\$10,620,408,155	\$362,697,427	\$1,677,361	\$148,717,644	\$129,678,940	\$149,380,954
Kirkwood (T)	2,628	\$3,589,691,107	\$2,177,958,481	\$2,298,677,565	\$782,180,614	\$304,475,227	\$17,030,075	\$26,031,940	\$121,544,392	\$39,751,293
Lisle (T)	1,108	\$568,905,916	\$355,429,066	\$425,856,648	\$17,893,312	\$2,445,651	\$73,762,221	\$42,135,399	\$6,812,686	\$0
Lisle (V)	135	\$107,968,636	\$66,995,607	\$78,067,733	\$17,521,034	\$0	\$5,338,448	\$6,390,469	\$0	\$650,952
Maine (T)	2,431	\$1,702,703,387	\$1,041,084,855	\$1,138,398,973	\$463,835,359	\$26,343,185	\$5,499,407	\$18,827,250	\$16,567,878	\$33,231,335
Nanticoke (T)	762	\$395,739,757	\$252,368,984	\$326,994,633	\$30,371,216	\$576,235	\$15,908,719	\$14,047,004	\$7,841,951	\$0
Port Dickinson (V)	845	\$525,142,613	\$337,529,316	\$449,748,057	\$31,435,117	\$6,471,030	\$0	\$4,291,473	\$5,387,384	\$27,809,552
Sanford (T)	1,399	\$770,815,458	\$502,854,072	\$704,678,058	\$42,003,598	\$2,166,243	\$18,667,881	\$3,299,678	\$0	\$0
Triangle (T)	915	\$576,956,692	\$351,139,869	\$375,969,140	\$15,708,724	\$3,818,243	\$58,247,048	\$44,708,553	\$5,331,658	\$73,173,325
Union (T)	12,997	\$30,465,363,557	\$19,350,826,249	\$24,708,866,821	\$1,775,622,845	\$3,372,819,859	\$11,762,285	\$147,687,436	\$88,269,151	\$360,335,161
Vestal (T)	9,532	\$21,589,049,741	\$12,811,547,132	\$12,102,133,571	\$7,412,264,026	\$166,797,138	\$7,423,308	\$268,107,264	\$103,206,387	\$1,529,118,046
Whitney Point (V)	439	\$519,433,248	\$325,046,761	\$391,980,824	\$97,392,009	\$3,402,073	\$2,276,432	\$10,519,510	\$3,135,357	\$10,727,043
Windsor (T)	2,685	\$1,424,173,576	\$910,644,121	\$1,191,343,996	\$44,180,706	\$6,106,507	\$59,361,741	\$25,772,948	\$77,173,643	\$20,234,036
Windsor (V)	435	\$719,873,967	\$466,200,435	\$637,580,708	\$19,590,007	\$1,511,431	\$4,038,426	\$26,914,778	\$8,664,104	\$21,574,514
<b>Broome County</b>	<b>95,114</b>	<b>\$199,118,212,175</b>	<b>\$124,373,649,253</b>	<b>\$148,887,258,991</b>	<b>\$35,278,154,979</b>	<b>\$5,712,525,624</b>	<b>\$534,692,974</b>	<b>\$2,024,360,488</b>	<b>\$3,089,520,140</b>	<b>\$3,591,698,979</b>

Source: Broome County 2018

Note(s): T = Town, V = Village, C = City





Table E-5 - New and Proposed Development by Municipality, Broome County, New York

Municipality	Property Name	Type (Residential or Commercial)	Number of Structures	Address	Block and Lot	Known Hazard Zone	Description/Status
City of Binghamton	19 Chenango Street LLC	Commercial/Residential		19 Chenango Street		NEHRP: D&E	Year: 2013; Mixed use development, MF and Commercial use
City of Binghamton	2 Eldredge St	Commercial/Industrial	1	2 Eldredge St	160.25-1-7, 1-12	Flood	
City of Binghamton	203 Court Street, LLC	Commercial		203 Court Street	160.34-2-15	NEHRP: D&E	Year: 2014; Convert existing building into clinic and construct new parking area
City of Binghamton	21 Chenango Empire LLC	Commercial/Residential		21 Chenango Street		NEHRP: D&E	Year: 2015; commercial use of the first floor, mixed use housing for the upper two floors
City of Binghamton	21 Chenango LLC	Commercial/Residential		21 Chenango Street		NEHRP: D&E	Year: 2013; Mixed use project commercial and multi-unit dwelling
City of Binghamton	25 Chenango Street Associates, LLC	Residential		25 Chenango Street		NEHRP: D&E	Year: 2013; Conversion into MF Residential
City of Binghamton	41 Prospect Street, LLC	Residential		41 Prospect		NEHRP: D&E	Year: 2017; 12 bedroom dwelling in existing residential building
City of Binghamton	78 Front Property LLC	Residential	21	78 Front Street		NEHRP: D&E; Wildfire: Interface	Year: 2015; Convert 16-unit dwelling into single-unit dwelling with 21 bedrooms
City of Binghamton	A&W	Commercial	1	439 Court Street	161.23-1-8	Flood: 1% Annual Chance Flood; NEHRP: D&E; Wildfire: Interface	Year: 2015; applicant seeks to establish an 3,528 SF AW drive through restaurant (Completed.... Now vacant)
City of Binghamton	Alco LLC	Commercial/Residential		39 Chenango Street		NEHRP: D&E	Year: 2017; Convert upper stories of commercial building to 20 unit dwelling an 79 total bedrooms
City of Binghamton	Amron Lowry	Residential	6	92 Henry Street		NEHRP: D&E	Year: 2017; Convert building to fraternity house and/or two-unit dwelling with 6 bedrooms per unit and ground floor common area
City of Binghamton	AOM 221 Washington Street LLC	Residential		60 Henry Street		NEHRP: D&E	Year: 2017; Ground floor residential, single-unit efficiency/studio apartment
City of Binghamton	Caly Properties LLC	Residential	5	103 Susquehanna Street		Flood: 1% Annual Chance Flood; NEHRP: D&E; Wildfire: Interface	Year: 2015; Convert 5,673 SF two-story structure to MF dwelling 5 four-bedroom units in R-3 District
City of Binghamton	Court Street Binghamton, LLC	Residential	49	200 Court Street		NEHRP: D&E	Year: 2014; Convert 136,245 SF manufacturing building into MF dwelling with 49 units and 163 bedrooms
City of Binghamton	Daniel Sharp	Commercial	1	211 Washington Street		NEHRP: D&E	Year: 2015; Establish restaurant and beer garden in existing commercial building former auto repair shop
City of Binghamton	David M. Planavsky	Commercial		2271 Airport Road		Wildfire: Interface	Year: 2015; install indoor/outdoor storage space



Municipality	Property Name	Type (Residential or Commercial)	Number of Structures	Address	Block and Lot	Known Hazard Zone	Description/Status
City of Binghamton	Done Lutz	Residential	10	120 Liberty Street		NEHRP: D&E; Wildfire: Interface	Year: 2017; establish 10 bedroom rooming house
City of Binghamton	Ellis Bros. and Joseph Inc. Vermont Ave. Assoc LLC	Commercial		1 Hawley Street		NEHRP: D&E; Wildfire: Interface	Year: 2014; establish retail furniture store within an existing 32,000 + SF, 3-story commercial building
City of Binghamton	FAHS Construction	Residential	48	150 Fairview Avenue		Wildfire: Intermix	Year: 2017; 48-unit senior-housing facility
City of Binghamton	Fairview Recovery Services, Inc.	Residential	1	5 Merrick Street		Wildfire: Intermix	Year: 2015; Construct new residence/facility for chemical dependency recovery
City of Binghamton	Fairview Recovery Services, Inc.	Residential	1	110 Fairview Ave.	145.63-1-21	None	Complete and in operation
City of Binghamton	Fairview Recovery Services, Inc.	Commercial	1	110 Fairview Ave.	145.63-1-21	None	Funded and approval in progress
City of Binghamton	Family Enrichment Network	Residential	18	27-31 Virgil Street, 125-127, 128-130 Liberty St.	144.75-2-10	NEHRP: D&E; Wildfire: Interface	Year: 2018; Construct 12,369 SF, 2-story, 18-unit dwelling and 2 parking lots (Funding approved and in progress)
City of Binghamton	Family Enrichment Network & Fairview Recovery Serv	Residential		29 Fayette Street		NEHRP: D&E	Year: 2017; Allow establishment of human service agency in existing former school building
City of Binghamton	Freewheelin Anasco LLC	Residential	97	9 Emma Street	143.75-1-16	NEHRP: D&E; Wildfire: Interface	Year: 2017; Convert mixed-use building with subgrade parking, ground floor commercial/light industrial and 97 upper-story dwelling units and rezoning from I-2 to C-1
City of Binghamton	Gas Station	Commercial	1	198 Robinson St. and 38 Moeller	160.77-3-16 and 17	Flood, Explosive/flammable	Complete and in operation
City of Binghamton	George Gorton	Residential	3	172-178 State Street	160.33-2-14	NEHRP: D&E	Year: 2014; Conversion of commercial / industrial building to commercial / industrial with 3 units and 24 bedrooms total
City of Binghamton	Hawley Street Members LLC	Commercial	2	20 Hawley Street		Flood: 0.2% Chance; NEHRP: D&E	Year: 2016; Amend application for 2 5-story additions to proposed providing parking at two public parking facilities at alternatives to previously requested variance at 20 Hawley Street
City of Binghamton	Hawley Street Members LLC	Commercial		20 Hawley Street		Flood: 0.2% Chance; NEHRP: D&E	Year: 2015; Provide off-side parking at 1429 FT from site where 800 FT is the maximum
City of Binghamton	Hawley Street Members LLC	Commercial		20 Hawley Street		Flood: 0.2% Chance; NEHRP: D&E	Year: 2013; Minimum Off-Street Parking
City of Binghamton	Hawley Street Members LLC	Residential	180	20 Hawley Street		Flood: 0.2% Chance; NEHRP: D&E	Year: 2013; New construction of two 5-story additions to existing structures at the subject property to accommodate 40 residential units (180 total bedrooms) and site modifications to an existing mixed-use development



Municipality	Property Name	Type (Residential or Commercial)	Number of Structures	Address	Block and Lot	Known Hazard Zone	Description/Status (multi-unit dwelling and various commercial uses)
City of Binghamton	Hawley Street Members, LLC	Commercial/Residential	40	20 Hawley Street		Flood: 0.2% Chance; NEHRP: D&E	Year: 2013; Construct addition to (e) mixed use building to accommodate 40 new residential units
City of Binghamton	Human Service Agency	Commercial/Residential	48	435 West State Street and 10-12 West State Street		None	Funded and approval in progress
City of Binghamton	Humane Society	Commercial	1	167 Conklin Ave.	160.59-1-7	Flood	Complete and in operation
City of Binghamton	Jack Sherman Toyota	Commercial		404 Court Street		Flood: 1% Annual Chance Flood; NEHRP: D&E; Wildfire: Interface	Year: 2013; Variances for landscaping for off-street parking
City of Binghamton	Jim Slocum	Residential	24	81 State Street		NEHRP: D&E; Wildfire: Interface	Year: 2017; Conversion of upper stories of mixed use building to 24 dwelling units ranging from 2 - 1 4 BR units for total of 102 beds
City of Binghamton	JMT Logistics Properties	Commercial		336 Court Street		Flood: 1% Annual Chance Flood; NEHRP: D&E	Year: 2014; Medium industrial business into existing industrial facility
City of Binghamton	John Maczko	Commercial/Residential		172 - 178 State Street	160.33-2-13	NEHRP: D&E	Year: 2016; Convert buildings to mixed use development residential and commercial at 178 and commercial at 172
City of Binghamton	John Manculich	Commercial		339 Front Street		Flood: 1% Annual Chance Flood; NEHRP: D&E; Wildfire: Interface	Year: 2015; Construct addition to existing building for vehicle storage
City of Binghamton	John Manculich	Commercial	1	351 Front Street		Flood: 1% Annual Chance Flood; NEHRP: D&E; Wildfire: Interface	Year: 2014; Applicant will store heavy vehicles in the existing building and construct a 3000 SF second addition also for storage of vehicles
City of Binghamton	Marchez LLC	Residential	5	160.25-2-27		NEHRP: D&E	Year: 2017; Convert existing dwelling unit to two dwelling units for 5 total units in mixed use building
City of Binghamton	MB Yonaty Development LLC	Commercial/Residential	16	72 Court Street	160.41-4-14	NEHRP: D&E	Year: 2017; new construction 5 story mix use building (Funded and approved)
City of Binghamton	Nealon Transportation	Commercial	1	5 Pine Camp Drive		Flood: 1% Annual Chance Flood; NEHRP: D&E	Year: 2016; Build 9,600 SF single-story truck garage
City of Binghamton	Newman Development Group	Commercial/Residential	118	50 Front Street		Flood: 1% Annual Chance Flood; NEHRP: D&E; Wildfire: Interface	Year: 2016; Construct 5-story mixed use building parking garage and parking area, height variance (2019 opening)
City of Binghamton	Nick Pappas	Residential	1	225 State Street	160.33-1-21	NEHRP: D&E	Year: 2017; Convert 3 upper stories into multi-unit residential and construct adjoining stair tower





Municipality	Property Name	Type (Residential or Commercial)	Number of Structures	Address	Block and Lot	Known Hazard Zone	Description/Status
City of Binghamton	Pacemaker Steel and Piping Company	Commercial		2 N. Floral Ave and 12, 16, 20 Wells Avenue	143.67-1-7	NEHRP: D&E; Wildfire: Interface	Year: 2014; Rezone Property in JC to Industrial and build 10,118 SF addition to existing building in Binghamton
City of Binghamton	Pharoah Group	Residential	30	30 Fayette Street		NEHRP: D&E	Year: 2016; Convert existing office building to 30-unit rooming house
City of Binghamton	Philmar Holdings LLC	Residential	26	263 Washington Street		NEHRP: D&E	Year: 2018; Renovation and Quasi Restoration of existing structure into 26 studio apartments, waive parking due to landmark status
City of Binghamton	Pike Development	Commercial/Residential	1	7 Hawley Street		NEHRP: D&E; Wildfire: Interface	Year: 2018; Construct 6-story parking garage and 4 story mixed use commercial/residential building SENT PRELIMINARY COMMENTS 2 21 18 and FINAL 3 23 18 (Funded and approved)
City of Binghamton	Plexicomm, LLC	Commercial	1	188 Hiner Road	145.15-1-2	Wildfire: Intermix	Year: 2014; 150 FT Telecom Tower
City of Binghamton	Salvation Army	Commercial	1	530-532 State St	144.75-1-1; 144.75-1-2	None	Funded and approval in progress
City of Binghamton	Sarah Campbell	Commercial/Residential	1	123 Court Street		NEHRP: D&E	Year: 2014; convert 12000 SF 4-story commercial building into mixed use building containing ground floor commercial and 8 dwellings on 2-4 floors total 55 bedrooms
City of Binghamton	Scott Chattfield, AWRG	Residential	2	20 Hawley Street		Flood: 0.2% Chance; NEHRP: D&E	Year: 2015; Construct two five-story additions to existing residential building
City of Binghamton	South Mountain Development LLC	Residential	20	985 Gillen Drive		Wildfire: Intermix	Year: 2017; 20 Unit Townhouse Subdivision
City of Binghamton	Southern Tier High Technology Incubator	Commercial		120 Hawley Street		NEHRP: D&E; Wildfire: Interface	Year: 2015; Phase II includes an 11,500 SF addition (see attached plans)
City of Binghamton	Southern Tier High Technology Incubator, Inc.	Commercial		120 Hawley Street		NEHRP: D&E; Wildfire: Interface	Year: 2014; construction of Southern Tier High Technology Incubator, Inc.
City of Binghamton	Stellar 83 Court LLC	Commercial		83 Court Street		NEHRP: D&E; Wildfire: Interface	Year: 2013; Mixed-use project (multi-unit and light commercial) in C-2 District, 76 total dwelling units, 180 bedrooms, 6500 SF ground floor commercial space
City of Binghamton	SUNY Broome	Education		78 Exchange Street		NEHRP: D&E	Year: 2016; SITE PLAN MODIFICATION LARGER ADDITION JULY 2017 Culinary Center Carnegie Library Addition
City of Binghamton	SUNY Broome	Commercial/Institutional	1	78 Exchange Street		Historic land mark building	Existing building being renovated



Municipality	Property Name	Type (Residential or Commercial)	Number of Structures	Address	Block and Lot	Known Hazard Zone	Description/Status
City of Binghamton	Syed Ali	Residential		73 Court Street		NEHRP: D&E; Wildfire: Interface	Year: 2015; Conversion of upper stories of existing mixed-use building into residential units at 73 Court Street
City of Binghamton	Thai Time	Commercial	1	96 Front St	160.40-1-34	Flood	Complete and in operation
City of Binghamton	The Salvation Army	Commercial		9 Broad Avenue		Flood: 1% Annual Chance Flood; NEHRP: D&E; Wildfire: Interface	Year: 2017; No landscape buffers, SUP and SPR
City of Binghamton	Tom Hanes	Residential	5	196 State Street		NEHRP: D&E	Year: 2018; Series A Site Plan Review and SUP to convert the fourth floor of a mixed use building into 5 dwelling units for a total of 15 bedrooms
City of Binghamton	Trout Brook Housing Development Fund Corp.	Residential		158 Clinton Street		NEHRP: D&E; Wildfire: Interface	Year: 2016; Construct ancillary parking lot to serve senior housing development at 164 Clinton Street
City of Binghamton	UpState Tower Co. LLC	Commercial		1159 Conklin Road		Flood: 1% Annual Chance Flood; NEHRP: D&E; Wildfire: Intermix	Year: 2017; construct 140 FT self-support telecommunications tower
City of Binghamton	Upstate Tower Co., LLC	Commercial		494 Court Street		Flood: 1% Annual Chance Flood; NEHRP: D&E	Year: 2015; Site Plan to construct 155 FT telecommunications tower and area variance to allow height of tower
City of Binghamton	Yaron Kweller	Residential	13	159 Washington Street		NEHRP: D&E; Wildfire: Interface	Year: 2016; Convert commercial building to multi-unit dwelling with 13 units and 58 bedrooms total
Town of Barker	Senior Living Center/Charlotte Kenyon School	Commercial	40-50	Chenango Forks		None	Renovation of School to senior living center
Town of Binghamton	VHCC LLC	Residential	20-25	3115 Webb Road		Wildfire: Interface	Year: 2017; PRELIMINARY COMMENTS Rezone 214.5 acre former golf course from PDD to R-1 SF Residential to include 24.5 acre church parcel and 20 to 25 high end residential lots with existing road access see EAF for additional details
Town of Chenango	Abbey Business Properties LLC Jay Abbey	Commercial		17 Thomas Street		Wildfire: Intermix	Year: 2017; Binghamton Precast site plan update change ingress to egress to 17 Thomas from Highland to Fallon with no limitations on hours of operation
Town of Chenango	Adib Rouhan - Cars R Us	Commercial		1168 Upper Front Street		NEHRP: D&E; Wildfire: Interface	Year: 2016; Cars-R-Us auto sales and service facility display 35 cars, customer parking with handicap space and employee parking, less than required setbacks for employee break room and shed
Town of Chenango	Auto Zone, Inc. Kevin Muphy; Oneonta Bus KM	Commercial	4	1365 - 1359 Upper Front Street	111.12-2-4	Flood: 0.2% Chance; NEHRP: D&E; Wildfire: Interface	Year: 2015; LOT A: SP: construct 7300 SF AutoZone auto parts store; combine 4 parcels into 2 parcels; UV:



Municipality	Property Name	Type (Residential or Commercial)	Number of Structures	Address	Block and Lot	Known Hazard Zone	Description/Status
							allow retail use Auto Zone LOT A in residential zone and commercial use Oneonta Bus Lines in residential zone; LOT B: SP: Oneonta Bus Lines continued use for bus parking
Town of Chenango	Can Am West, LLC - Griffiths Engineering Eric Webb	Commercial	1	17 Chenango Bridge Road	112.05-2-23	NEHRP: D&E; Wildfire: Interface	Year: 2017; PRELIMINARY COMMENTS sent March 13, 2017. SECOND Comments sent March 16, 2017 Medical Office Building, SPR reconfigure 2 parcels, A for 2 story 18,000 SF Lourdes walk-in medical building, B future development, AV for lot size lot depth lot width UV for 2nd ground sign and AV for sign area, OTHER SEQRA prior buildings removed, access from NYS RTE 12 and NYS RTE 12A shared access via easements
Town of Chenango	Chenango Commons LLC (Terry and Barbara Kane)	Commercial		1 Kattelville Road		Flood: 1% Annual Chance Flood; NEHRP: D&E; Wildfire: Interface	Year: 2014; proposed 6000 SF pavilion with food preparations and bathroom, use existing entrance and exit driveway for access with shared parking
Town of Chenango	Chenango Partners LLC	Residential		58 Meadowood Lane		Wildfire: Intermix	Year: 2017; Log 30.26 AC in residential zone, 580 trees marked for removal to encourage future growth of residual stand, SEQR Full EAF submitted and ZBA will assume Lead Agency
Town of Chenango	Chenango Solar LLC Elie Schecter	Commercial		247 Airport Road		NEHRP: D&E; Wildfire: Intermix	Year: 2018; Ground mounted solar energy system 5.3 + or - megawatt solar panel electric generating system, access road and connection to NYSEG power distribution network, PB lead agency, ERB
Town of Chenango	Chenango Solar LLC Kevin Orchard Solar Development	Commercial		400 West Chenango Road		Wildfire: Intermix	Year: 2016; Solar Farm construction solar photovoltaic (PV) array with direct current 24 acres on 53.4 acres solar panels, mounting substrates, system foundations, wiring and connections, power inverters, service and metering equipment and interconnection with utility
Town of Chenango	David Warpup	Residential	1	290 Poplar Hill Rd	095.12-1-34	None	Partially Complete
Town of Chenango	DMK Development Matt Heneveld Tractor Supply Store	Commercial	1	1163 Upper Front Street	111.20-1-13	Flood: 0.2% Chance; NEHRP: D&E; Wildfire: Intermix	Year: 2017; tractor supply store 19000 SF new building, AV for lot size, width, parking spaces, UV allow commercial retail in agricultural zone
Town of Chenango	Eli Clark	Residential	1	16 Aitchison Rd	110.12-1-29	None	Not Started



Municipality	Property Name	Type (Residential or Commercial)	Number of Structures	Address	Block and Lot	Known Hazard Zone	Description/Status
Town of Chenango	Hillside Garden Center James and Lisa Hoteling	Commercial	1	751 Dimmock Hill Road		Wildfire: Intermix	Year: 2016; Construct 2,520 SF office building with less than required front yard setbacks 50 FT to 20 FT and accessory uses mulch bins with less than required setbacks from 50 FT to 5 FT
Town of Chenango	Hoffman Development Corporation	Commercial		1261 Upper Front Street	111.16-1-34	Flood: 0.2% Chance; NEHRP: D&E	Year: 2017; PRELIMINARY COMMENTS Construct car wash with less than required acreage from 6 acres to 1.07 acres, road frontage from 350 FT to 150.19 FT and lot depth from 450 FT to 302.61 FT and use variance for car wash not expressly permitted in PDDD-C zone (Partially Complete)
Town of Chenango	Jay Abbey (Phelps Street Corporation)	Commercial		9 Thomas Street		None	Year: 2014; allow storage of concrete precast products in a residential area
Town of Chenango	Jay Abbey OBO Phelps Street Corporation	Commercial		9 Thomas Street		None	Year: 2015; Store concrete precast products in residential zone; use variance approved, demolish house, install berm, limit hours
Town of Chenango	Jeremy Hilts - Kevin Murphy	Commercial			111.12-2-7	Flood: 0.2% Chance; NEHRP: D&E; Wildfire: Interface	Year: 2015; Parcel A for new construction of Auto Zone, Inc. Parcel B relocating tour bus parking lot conceptual site plan
Town of Chenango	Joseph Dell Binghamton Chrysler Jeep Dodge	Commercial		1250 Upper Front Street		Flood: 1% Annual Chance Flood; NEHRP: D&E	Year: 2017; Relocate Binghamton Chrysler Jeep Dodge from parking and storing at 1169 UFS to Northgate Plaza parking lot, use existing parking lot by AMES to park and store 387 vehicles
Town of Chenango	Luke Tokarz - First Baptist Church	Commercial		667 Brooks Road		Wildfire: Intermix	Year: 2016; Allow accessory building without principal use and allow the accessory structure in front of principal use and allow sandbag business in agricultural zone with less than required road frontage
Town of Chenango	Michael Haas Harmony Hill Ranch James Hoteling	Commercial		751 Dimmock Hill Road Binghamton NY		Wildfire: Intermix	Year: 2016; Hillside Garden Center, Inc. to operate landscape material growing, staging area, and office space, site grading for new construction of 2,520 SF office/garage
Town of Chenango	Sandbags Unlimited - Luke J. Tokarz	Commercial		667 Brooks Road		Wildfire: Intermix	Year: 2016; Operate a sandbag business
Town of Chenango	W & D Leasing, LLC c/o Sarah Campbell HHK	Commercial		75 Hospital Hill Road		Wildfire: Intermix	Year: 2014; Selective tree harvest of 55 acres in residential zone and Full EA submitted
Town of Colesville	Hess Retail Stores, LLC	Commercial		781 NYS Route 7 Sanitaria Springs	114.11-1-20	Wildfire: Interface	Year: 2014; install bigger fuel tank and 3-bay/4 island fuel canopy



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Town of Colesville	Jordan Patch	Commercial		95 Martin Hill Road		Wildfire: Intermix	Year: 2017; Construct 2000 SF welcome center for current Animal Adventures
Town of Colesville	Kevin M. Killmeier	Commercial		2903 NYS Route 7		None	Year: 2014; applicant to construct building 80 FT x 150 FT on parcel for use with his existing business, building to house storage area, assembly area and powder coating furnace
Town of Conklin	582 Conklin Road LLC / Stadium International Truck	Commercial		608 NYS Route 7		Flood: 1% Annual Chance Flood; Wildfire: Interface	Year: 2015; parking area 180 FT by 230 FT remove material from site and regrade with gravel and stone
Town of Conklin	Brett Barrett	Commercial		24 Terrace Drive		Flood: 1% Annual Chance Flood; NEHRP: D&E; Wildfire: Interface	Year: 2015; truck and trailer repair shop, working on commercial trucks
Town of Conklin	Conklin DNYYP LLC Bohler Engineering	Commercial	1	1538 Conklin Road		Wildfire: Interface	Year: 2017; construct 9100 SF Dollar General retail store
Town of Conklin	Dick's Merchandising and Supply Chain, INC	Industrial		1314 Conklin Road	194.04-1-40.1	NEHRP: D&E; Wildfire: Intermix	Year: 2017; Special Permit: Expansion DSG Distribution Center (Full operation)
Town of Conklin	DNYP Conklin LLC c/o Bohler Engineering	Commercial		1538 Conklin Road		Wildfire: Interface	Year: 2016; parking stalls less than required for retail store project
Town of Conklin	DNYP Conklin LLC c/o Bohler Engineering	Commercial		936 Conklin Road		Flood: 1% Annual Chance Flood; NEHRP: D&E; Wildfire: Interface	Year: 2017; Parking spaces less than required at proposed project store
Town of Conklin	Don Aton Paving Inc.	Commercial		850 Conklin Road	162.03-1-6	Flood: 1% Annual Chance Flood; NEHRP: D&E; Wildfire: Interface	Year: 2016; Blacktop paving business
Town of Conklin	Jim Farrelly	Commercial		816 Conklin Road		NEHRP: D&E; Wildfire: Interface	Year: 2016; operate golf car dealership
Town of Conklin	Jim Farrelly	Commercial		816 Conklin Road		NEHRP: D&E; Wildfire: Interface	Year: 2016; Operation of golf car dealership
Town of Conklin	Juan Loja	Commercial		200 Montrose Drive		None	Year: 2015; Bluestone exploration
Town of Conklin	JVA De-Icing JDT Realty Joseph Tuzze, Sr.	Industrial		132 Shaw Road	178.15-1-1	NEHRP: D&E; Wildfire: Intermix	Year: 2018; Update site plan including proposed additional haul road (Full Operation)
Town of Conklin	Mike Anderson / Scannell Properties	Commercial		299 Broome Corporate Parkway Broome Corporate Park		Wildfire: Interface	Year: 2013; Expansion to existing facility and additional parking
Town of Conklin	Mirabito Energy Products	Commercial		1576 - 1594 Conklin Road	thru 211.17-1-19	Flood: 0.2% Chance; Wildfire: Interface	Year: 2015; Install 30,000 gallon propane storage tank



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Town of Conklin	MS Contracting LLC	Commercial		200 Montrose Drive		None	Year: 2017; Mining Permit Application
Town of Conklin	Name	Commercial		178 - 140 Broome Corporate Parkway		NEHRP: D&E; Wildfire: Intermix	Year: 2016; Broome IDA Facility 660,000 SF distribution center
Town of Conklin	Nicholas Giammarino / JN Giammarino Construction	Commercial		218 Saunders Road		None	Year: 2016; Bluestone Exploration Authorization
Town of Conklin	Roberto DeVincentis	Commercial		300 Hardie Road		NEHRP: D&E; Wildfire: Intermix	Year: 2015; Clean fill from operations to level portion of property
Town of Dickinson	BOCES	Education		435 Glenwood Road		Wildfire: Intermix	Year: 2018; Construct a 10,000 SF administrative office building (Approved, grading stage)
Town of Dickinson	Broome County	Commercial		840 Upper Front Street		NEHRP: D&E; Wildfire: Interface	Year: 2015; Construct building to serve as a farmer's market
Town of Dickinson	Farmer's Market	Commercial	1	840 Upper Front Street		Flood: 1% Annual Chance Flood; NEHRP: D&E; Wildfire: Interface	Completed
Town of Dickinson	James Millet	Commercial	62	394 Prospect Street	143.51-2-2	NEHRP: D&E; Wildfire: Interface	Year: 2013; construction of 62 unit Microtel, demolition of three existing buildings
Town of Dickinson	Taste of New York	Commercial	1	840 Upper Front Street		Flood: 1% Annual Chance Flood; NEHRP: D&E; Wildfire: Interface	Completed
Town of Dickinson	The Agency	Commercial		883 Upper Front Street		Wildfire: Intermix	Year: 2016; Build office building
Town of Dickinson	The Agency	Commercial	1	5 S College Dr.		Flood: 1% Annual Chance Flood; NEHRP: D&E; Wildfire: Interface	Completed
Town of Dickinson	Town of Dickinson	Road Improvement		Phelps Street		Wildfire: Intermix	Year: 2015; Extend Phelps Street to North Moeller Street over 129.69-1-1
Town of Endicott	Skyview Heights	Residential	52 units	East Franklin, Groats, and Overton		None	Almost Complete
Town of Fenton	Beer Tree Brew Company (Brendan D. Harder)	Commercial	1	197 NYS Route 369	113.06-1-1.1	Flood: 1% Annual Chance Flood; NEHRP: D&E; Wildfire: Interface	Year: 2016; Grow related crops, brew, sell (Completed)
Town of Fenton	Binghamton MSA Limited Partnership Verizon Wireless	Commercial		227 West Service Road		Flood: 1% Annual Chance Flood; NEHRP: D&E; Wildfire: Interface	Year: 2015; Wireless Communications Facility Site Plan Review, Rezoning and Telecommunications District
Town of Fenton	Binghamton Precast and Supply Jay Abbey	Industrial	1	99 West Service Road	128.02-1-5	Flood: 1% Annual Chance Flood; NEHRP: D&E; Wildfire: Interface	Year: 2017; Improve site of new building to accommodate storage and make property more usable through regrading (Completed)



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Town of Fenton	Carrier Services Group	Industrial		1151 Hoyt Avenue	112.18-1-49.1	Wildfire: Intermix	Year: 2016; Rezone to Limited Industrial and relax 8-ton weight limit on Hoyt Avenue to renovate and refit buildings for distribution facility to acquisition storage and resale of telecommunications circuit board and related electronics equipment (Zoning issues)
Town of Fenton	Chenango Valley Central School District	Education		221 Chenango Bridge Road		Wildfire: Intermix	Year: 2015; NOT SUBJECT TO 239 REVIEW SWPPP for construction of parking lot, softball field and multi-sport field
Town of Fenton	Michael Swan	Commercial		154 Ballyhack Road		Wildfire: Intermix	Year: 2015; Construct driveway for commercial use of part of property (used tire transfer point)
Town of Fenton	Phelps Street Corporation Jay Abbey	Industrial		111 West Service Road		None	Year: 2016; precast concrete products manufacturing
Town of Kirkwood	Acquisto	Residential	1	91 Hiner Road	145.02-1-71	None	One Family Dwelling, 3,550 sq. ft.
Town of Kirkwood	Anderson Equipment Company	Commercial		36 Stratmill Road		Wildfire: Intermix	Year: 2014; Permit creation of 5 acre lot when PUD District requires minimum 8 acre lot
Town of Kirkwood	B & F Petroleum, Inc.	Commercial		2 Industrial Park Drive		Flood: 0.2% Chance	Year: 2013; Install 12000 gallon DEF diesel exhaust fluid tank that will be located near the fuel island. All underground and above ground piping for complete system
Town of Kirkwood	Baker	Residential	1	1347 NY Rt. 11	179.03-4-44.1	None	Install 28'x32' Modular Home
Town of Kirkwood	Brown	Residential	1	694 Colesville Rd	147.01-2-23	None	New Home and Pole Barn
Town of Kirkwood	Bump	Residential	1	30 Ruth Street	163.03-1-33.2	None	28'x32' Dwelling
Town of Kirkwood	Corlis Avenue Properties, LLC	Commercial/Industrial		5 Pine Camp Drive		Flood: 1% Annual Chance Flood; NEHRP: D&E	Year: 2015; storage and light assembly on ground floor of 70000 SF, second floor office space of 4000 SF, total 74000 SF; parking for automobiles or 60-70 trucks
Town of Kirkwood	Corliss Avenue Properties, LLC / Indian Valley Dev	Commercial/Industrial		5 Pine Camp Drive		Flood: 1% Annual Chance Flood; NEHRP: D&E	Year: 2015; Exercised exemption from requirement of Aquifer Protection District Special Permit pursuant to Section 807 C of Aquifer District Law
Town of Kirkwood	Enviro Protection Industries Company, Inc	Industrial		1743 NYS Route 11		Wildfire: Intermix	Year: 2014; PRE COMMENTS SENT 120814 produce natural animal repellents
Town of Kirkwood	Gorman	Residential	1	160 Gorman Road	211.00-1-32.2A	None	Single Family Residence





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Town of Kirkwood	Kirkwood Warehouse Investors, LLC	Commercial		1 Grossett Drive	162.04-1-11.2	Wildfire: Interface	Year: 2015; Lease portions of existing facility / building to multiple tenants with varying uses (warehouse, distribution, packaging and ancillary offices)
Town of Kirkwood	Lake	Residential	1	282 Ostrum Road	163.03-2-28	None	Storage Building
Town of Kirkwood	Lange	Residential	1	22 Ruth Street	163.03-1-33.12	None	2 Story Home w/ Walkout Basement
Town of Kirkwood	Larson Design Group for Tillium CNG	Industrial		90 Barlow Road		None	Year: 2013; Installation of new compressed natural gas fueling facility
Town of Kirkwood	Larson Design Group for Trillium CNG	Industrial		90 Barlow Road		None	Year: 2013; Interpretation: Installation of a new compressed natural gas public fueling facility
Town of Kirkwood	Lupo's Bottling, LLC	Commercial		1690 NYS Route 11		Wildfire: Interface	Year: 2014; Lupo's marinades will be processed and bottled at the above mentioned site and transported to the Lupo's meat plant for use in production and distribution
Town of Kirkwood	Modern Marketing Concepts, Inc.	Commercial		29 Industrial Park Drive		None	Year: 2013; Expand parking lot to add approximately 60 more parking spaces
Town of Kirkwood	Nealon Transportation	Residential	1	5 Pine Camp	162.01-1-18	None	New Business/ Building
Town of Kirkwood	Padbury	Residential	1	34 Woodhill Ct.	146.17-2-38	None	Modular Home w/ Garage and Breezeway
Town of Kirkwood	Robert F. Hamm, Jr.	Commercial		2158 NYS Route 11		Flood: 0.2% Chance; Wildfire: Interface	Year: 2014; Materials storage building (storage of processed top soil, sand and stone)
Town of Kirkwood	Rogers	Residential	1	1323 NY Rt. 11	179.03-4-30	None	Construct New Home
Town of Kirkwood	Russell	Residential	1	57 Victoria Dr.	146.03-2-23	None	New Home
Town of Kirkwood	Sam A Lupo and Sons Inc. Spiedie 3 LLC	Industrial		1690 NYS RTE 11		Wildfire: Interface	Year: 2016; Add single story 4928 SF metal building for material storage and shipping finished products
Town of Kirkwood	Sharp	Residential	1	285 Fox Hollow	130.02-1-45.2	None	1749 sq. ft. One Family Dwelling
Town of Kirkwood	Shumaker	Residential	1	100 Johnson Road	179.01-2-6.1	None	2000 sq. ft. One Family Dwelling
Town of Kirkwood	Travel Centers of America	Commercial	1	741 Upper Court Street		Flood: 1% Annual Chance Flood	Year: 2013; Expansion of existing two truck service bays. Addition of one new bay. Building one story. Area of work is 4,532 SF
Town of Kirkwood	Vaseleck	Residential	1	36 Service Road	162.02-2-39	None	One Family Dwelling





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Town of Kirkwood	Webb	Residential	1	31 Haskins Rd	162.12-1-5	None	New Home. One Family
Town of Kirkwood	Willow Run Foods, Inc.	Commercial		1006 NYS Route 11	162.04-1-6.2	NEHRP: D&E; Wildfire: Interface	Year: 2015; Addition to auto and trailer parking, fuel islands and vehicle maintenance facility
Town of Kirkwood	Willow Run Foods, Inc.	Industrial		1006 NYS Route 11		NEHRP: D&E; Wildfire: Interface	Year: 2013; Install new temporary compressed natural gas (CNG) fueling facility to support CNG powered vehicles until permanent CNG facility constructed offsite near Willow Run and update maintenance garage for CNG fleet
Town of Maine	Carolyn Mancini	Commercial		2289 Airport Road		Wildfire: Interface	Year: 2016; pre-existing warehouse for storage
Town of Maine	Dustin Tang-Chung	Recreation		45 Commercial Drive		Wildfire: Interface	Year: 2018; Recreation Submitted 3/4/2-18 and 7/12/18 Construct layout for recreational PRD for parking lot, common area, and trail for holiday attractions'
Town of Maine	James and Lisa Hoteling Hillside Garden Center	Commercial		2340 NYS RTE 26		NEHRP: D&E; Wildfire: Intermix	Year: 2017; landscape business, store, material storage
Town of Maine	Jim McKilligan	Commercial		2816 - 2796 NYS Route 26	074.01-2-22.1	Wildfire: Intermix	Year: 2013; Change Zoning from R1 to Planned Recreation District for pre-existing golf course and driving range
Town of Sanford	William Whitlock VP Bluestone Wind LLC	Commercial		573 NYS Route 41		None	Year: 2016; Install temporary meteorological tower to collect wind data for 18 to 24 months and assist with potential development of wind turbine operation
Town of Sanford	William Whitlock VP Bluestone Wind, LLC	Commercial		746 Pazzelli Road		None	Year: 2016; Install temporary meteorological tower to collect wind data for 18 to 24 months and assist with potential development of wind turbine operation
Town of Union	Binghamton East Maine DNYP LLC c/o Bohler Engineer	Commercial	1	2225 Airport Road		Wildfire: Intermix	Year: 2017; One story retail store, approx. 9000 SF, 30 parking spaces
Town of Union	Bob Kashou	Commercial		1500 County Airport Road		Wildfire: Interface	Year: 2014; Outdoor Entertainment such as car shows, music festivals and ethnic festivals
Town of Union	Broome County	Mixed		1 North Page Avenue		Flood: 1% Annual Chance Flood; NEHRP: D&E; Wildfire: Interface	Year: 2018; Rezone to Commercial Office transitional zoning between industrial, commercial, and residential uses
Town of Union	Cardinal Cove	Residential	50/26	397 Gelndale Drive	156.33-1-44	None	Two family units with community bldg./completed



Municipality	Property Name	Type (Residential or Commercial)	Number of Structures	Address	Block and Lot	Known Hazard Zone	Description/Status
Town of Union	Carl Guy, FAHS Construction Group	Commercial		3658 River Road		Flood: 0.2% Chance; NEHRP: D&E	Year: 2016; Add fill to level property in floodplain, using material from same floodplain area under construction
Town of Union	CSL Plasma	Commercial		519 Hooper		None	Year: 2017; 10,258 SF professional office in former retail center in multi-occupant commercial plaza
Town of Union	Dan Wood	Commercial		1606 Union Center-Maine Highway		Flood: 0.2% Chance; NEHRP: D&E; Wildfire: Intermix	Year: 2017; Auto Sales Special Permit, Flood Plain Permit, Site Plan Review
Town of Union	Donald Krebbeks	Commercial		712 Main Street	143.53-4-38	Flood: 1% Annual Chance Flood; NEHRP: D&E; Wildfire: Interface	Year: 2016; Expand auto sales from 704 Main Street to include display and storage at 712 & 720 Main Street
Town of Union	Empire Plastics	Commercial		513 Fairmont Avenue	158.05-3-25	Flood: 1% Annual Chance Flood; NEHRP: D&E; Wildfire: Interface	Year: 2016; contractors yard
Town of Union	Empire Plastics, Inc.	Commercial		513 Fairmont Avenue	158.05-3-25	Flood: 1% Annual Chance Flood; NEHRP: D&E; Wildfire: Interface	Year: 2016; UV granted for contractor storage yard; floodplain special permit and site plan review required
Town of Union	Housing Visions	Residential		23 Jackson Street	157.07-1-8	NEHRP: D&E; Wildfire: Interface	Year: 2018; Renovate school building to multi-family housing, AV for size, width, coverage, and setbacks
Town of Union	Housing Visions	Residential		26 Kentucky Avenue		NEHRP: D&E; Wildfire: Interface	Year: 2018; Rezone parking lot, gym to Urban MF same as school building Endicott side for renovation to housing
Town of Union	James P. Wheelock	Commercial		402 Airport Road		Wildfire: Interface	Year: 2017; towing business with enclosed vehicle storage yard, requires Outdoor Storage SUP
Town of Union	Kashou Enterprises	Commercial		1500 Airport Road		Wildfire: Interface	Year: 2013; Expansion of nonconforming use with construction of two-story pavilion, 2 storage buildings and bleacher seating
Town of Union	Mike Boland	Commercial		1000 West Main Street		Flood: 0.2% Chance; NEHRP: D&E; Wildfire: Intermix	Year: 2016; outdoor sales landscaping supplies no permanent structures
Town of Union	Mike Boland	Commercial		1000 West Main Street		Flood: 0.2% Chance; NEHRP: D&E; Wildfire: Intermix	Year: 2015; Outdoor sales of landscaping supplies, including mulch, plants, seasonal, no permanent structures
Town of Union	National Pipe and Plastic	Commercial		11 Frey Avenue		Flood: 1% Annual Chance Flood; NEHRP: D&E; Wildfire: Interface	Year: 2013; Amended site plan and area variance application for 2 additional silos of 60 FT in height and minor lighting, landscape and parking changes
Town of Union	National Pipe and Plastic	Commercial	1	1 North Page Avenue	156.51-1-36	Flood: 1% Annual Chance Flood; NEHRP: D&E; Wildfire: Interface	Potential Office building



Municipality	Property Name	Type (Residential or Commercial)	Number of Structures	Address	Block and Lot	Known Hazard Zone	Description/Status
Town of Union	Nixon Peabody Tarpon Tower Verizon Wireless	Commercial		11 Frey Avenue		Flood: 1% Annual Chance Flood; NEHRP: D&E; Wildfire: Interface	Year: 2017; Construction of 140 FT Monopole cellular tower
Town of Union	Northeastern Water Services	Commercial		429 Airport Road		Wildfire: Intermix	Year: 2018; Add 7,690 SF addition for office and storage to existing 12,160 SF office and warehouse
Town of Union	NYSEG	Commercial		722 Riverside Drive	143.69-1-3	Flood: 1% Annual Chance Flood; NEHRP: D&E; Wildfire: Interface	Year: 2013; 1,500 SF electrical control house at NYSEG substation elevated above BFE, center relocated from AES Westover Building, Floodplain Development and Aquifer Special Permits required
Town of Union	Oakdale Road Holdings LLC	Commercial		900 Riverside Drive		Flood: 0.2% Chance; NEHRP: D&E; Wildfire: Interface	Year: 2016; landscape business vehicle and material storage yard floodplain development and outdoor storage
Town of Union	Regency of New York / Jonathan Pettit	Commercial	2	1640 Union Center Main Highway	125.13-1-30	Flood: 1% Annual Chance Flood; NEHRP: D&E; Wildfire: Intermix	Year: 2016; Construct 6240 SF storage building and 360 SF office building with new sewage disposal system
Town of Union	Sam Arcangeli	Stream Stabilization		1571 Union Center Maine Highway		Wildfire: Intermix	Year: 2013; Flood plain development special permit to add minimal fill and regrade property to correct stormwater flow via existing culverts and swales
Town of Union	Shafer Brothers, LLC, Nanticoke Gardens	Commercial	1	1543 Union Center Maine Highway		Flood: 1% Annual Chance Flood; NEHRP: D&E; Wildfire: Intermix	Year: 2013; in 100-Year Floodplain, replace 4 greenhouses with 1 structure, reconfigure existing open sales structure
Town of Union	Shafer Brothers, Nanticoke Gardens	Commercial		1543 Union Center Maine Highway		Flood: 1% Annual Chance Flood; NEHRP: D&E; Wildfire: Intermix	Year: 2013; Fill 20000 SF of 100 year floodplain approximately 3 FT for additional greenhouses
Town of Union	Stephen Grant / Grant's Autohouse	Commercial		1660 Union Center- Maine Highway		Flood: 1% Annual Chance Flood; NEHRP: D&E; Wildfire: Intermix	Year: 2015; On commercial lot proposed used vehicle sales in addition to existing tavern and outdoor entertainment on lot; floodplain development requires SUP as does auto sales
Town of Union	Town of Union	Stream Stabilization		4301 Watson Boulevard	142.02-1-20	Flood: 1% Annual Chance Flood; NEHRP: D&E	Year: 2016; Special Permit Floodplain Development Fairmont Park Floodwall Closure across Watson Boulevard repair and stabilize eroded creek banks
Town of Union	Town of Union	Commercial	1	44 Camden Street		Flood: 0.2% Chance; NEHRP: D&E; Wildfire: Interface	Year: 2017; Demo flood damaged administration and operations building, new building raised and flood proofed
Town of Union	Town of Union	Stream Stabilization		Pine Street to Christopher Street Endicott	141.57-1 various	NEHRP: D&E	Year: 2016; Special Permit Floodplain Development Brixius Creek Repair and stabilize eroded creek banks
Town of Union	Town of Union	Stream Stabilization		Watson Boulevard to Country Club Road Smith Drive	142.17-1-11	Wildfire: Intermix	Year: 2016; Special Permit Floodplain Development Patterson Creek Segment



Municipality	Property Name	Type (Residential or Commercial)	Number of Structures	Address	Block and Lot	Known Hazard Zone	Description/Status
							1 and Segment 2 Repair and stabilize eroded creek banks
Town of Union	Town of Union Lou Cafrio	Commercial		2900 Wayne Street		NEHRP: D&E	Year: 2017; Refuse Garage for vehicles
Town of Union	Union Town Board	Residential	1	1713 Farm to Market	108.04-1-7	Wildfire: Intermix	Year: 2017; PUD Development Plan void, reverting back to Suburban Single Family
Town of Union	Up State Tower Co., LLC Buffalo-Lake Erie Wireless	Commercial	1	1209 Taft Avenue		Wildfire: Interface	Year: 2017; Construct 160 FT lattice cellular tower, area setbacks due to proximity to property lines
Town of Vestal	860 Vestal Empire LLC	Residential		860 Vestal Road		Flood: 1% Annual Chance Flood; NEHRP: D&E; Wildfire: Interface	Year: 2017; Renovate existing nursing center to create 128 dwelling units for senior housing complex
Town of Vestal	Binghamton Lodging Group LLC	Commercial	1	3504 - 3512 Vestal Parkway East	158.12-3-11	Wildfire: Intermix	Year: 2016; Project includes construction of 3-story 12,665 SF Hotel and site improvements, including driveways, sidewalks, lighting, landscaping, utilities
Town of Vestal	CR Land, LLC	Commercial		1915 Vestal Parkway West		Wildfire: Intermix	Year: 2017; multi-use sports complex, new 53,280 SF metal building with future outdoor athletic field
Town of Vestal	First Ward Action Council Jerry Willard	Residential	24	2040 NYS RTE 26		NEHRP: D&E; Wildfire: Intermix	Year: 2017; Construct 24 unit housing building
Town of Vestal	Greek Orthodox Church	Religious		4121 O'Harra Drive		NEHRP: D&E; Wildfire: Intermix	Year: 2014; Greek Festivals - Build overflow parking lot
Town of Vestal	Industrial Electronics Inc. / Thomas Conway	Commercial	1	232 E. Boskett Road	184.00-1-24	None	Year: 2013; Communications Tower
Town of Vestal	Miller Associates	Commercial		4455 Vestal Parkway East		NEHRP: D&E	Year: 2015; 4000 SF addition no changes to access planned
Town of Vestal	Newman Dev Group and American Campus Communities	Commercial		4700 Vestal Parkway East (University Plaza)	159.15-2-34.111	NEHRP: D&E; Wildfire: Interface	Year: 2015; Request variance on parking spaces sizes (9.5 wide to 8.5 wide)
Town of Vestal	Newman Development Grp & ACC OP Binghamton 11 LLC	Education		4700 Vestal Parkway East	159.15-2-34.111	NEHRP: D&E; Wildfire: Interface	Year: 2015; FINAL COMMENTS SENT MAY 12 2015 Revised site plan for modified buildings - student housing 562 beds
Town of Vestal	Temple Israel	Commercial	1	4737 Deerfield Place		NEHRP: D&E; Wildfire: Interface	Year: 2014; demolish existing building and replace with new 16,000 SF
Town of Vestal	TMB, LLC	Commercial	1	3605 Vestal Parkway East		Wildfire: Interface	Year: 2015; Demolish existing restaurant (Plaza Diner) and build new 79-room hotel
Town of Vestal	UHS	Commercial	1	4433 Vestal Parkway East	159.10-1-16	NEHRP: D&E	Year: 2014; demolish car dealership and build new medical office building
Town of Vestal	Up State Tower LLC and Barclay Damon	Commercial	1	604 Vestal Parkway West		Flood: 0.2% Chance; NEHRP: D&E	Year: 2016; Construct and operate 150 FT high telecommunications tower;



Municipality	Property Name	Type (Residential or Commercial)	Number of Structures	Address	Block and Lot	Known Hazard Zone	Description/Status
							variances for distance to property boundary
Town of Vestal	Upstate Tower Co. LLC / Buffalo-Lake Erie Wireless	Commercial	1	2305 Vestal Road		Flood: 1% Annual Chance Flood; NEHRP: D&E; Wildfire: Interface	Year: 2017; Build 160 ft wireless telecommunications tower
Town of Vestal	Vestal DNYP LLC c/o Bohler Engineering MA LLC	Commercial		1500 NYS RTE 26 West Sheedy Road		NEHRP: D&E; Wildfire: Interface	Year: 2018; Parking variance for new retail store
Town of Vestal	Vestal Park LLC	Education		4696 - 4700 Vestal Parkway East (University Plaza)	159.15-2-34.111	NEHRP: D&E; Wildfire: Interface	Year: 2013; New student housing complex for 775 plus/minus students
Town of Vestal	Vestal Park, LLC	Education		4696 Vestal Parkway East (4700 VPE or Univ. Plaza)		NEHRP: D&E; Wildfire: Interface	Year: 2013; Preliminary Site Plan and Rezone to PDD for student housing complex
Town of Vestal	Walsh & Sons Construction	Residential	2	4109 Vestal Road		NEHRP: D&E; Wildfire: Intermix	Year: 2016; Two new apartment buildings 2-story, four 3 bedroom and 2-story four 3 bedroom and four 2 bedroom apartments
Town of Vestal	Win Vestal, LLC	Commercial	3	2545 Vestal Parkway East	158.10-2-5	NEHRP: D&E	Year: 2015; PRELIMINARY COMMENTS Demo Ken Wilson car dealership, build 2 restaurants and retail building (attached preliminary site plan only)
Town of Windsor	Bell Atlantic Mobile Allentown, Inc. Verizon Wirel	Commercial		60 Smith Road Windsor		Wildfire: Intermix	Year: 2017; Construction of 195 FT Monopole Tower
Town of Windsor	Industrial Electronics, Inc./Thomas Conway	Commercial		232 E. Bosket Road	184.00-1-24	None	Year: 2013; Communication Tower
Town of Windsor	Midwest LLC	Commercial		29 North Street		Wildfire: Interface	Year: 2014; Construct retail store Dollar General (Completed)
Town of Windsor	William Whitlock, VP Bluestone Wind, LLC	Commercial		360 Cresson Hill Road		None	Year: 2016; Construct and install temporary meteorological tower to collect wind data for approx. 18 - 24 months
Village of Deposit	Broadway Group LLC	Commercial		16 Pine Street		NEHRP: D&E	Year: 2018; Dollar General like Demolish existing commercial retail space and the construct new 7,500 SF retail space and parking
Village of Deposit	Sherman Bible Church	Religious		Center Street and Second Street		Flood: 1% Annual Chance Flood; Wildfire: Interface	Year: 2015; build parking lot within the footprint of the demolished old school
Village of Deposit	Village of Deposit Town of Sanford	Recreation		Borden Street		Flood: 1% Annual Chance Flood; NEHRP: D&E; Wildfire: Interface	Year: 2018; Village of Deposit Community Park
Village of Johnson City	59 Lester Empire LLC	Commercial/Residential		59 Lester Avenue	143.57-2-44	NEHRP: D&E; Wildfire: Interface	Year: 2018; Rezone from Industrial to General Commercial for residential and general commercial development site



Municipality	Property Name	Type (Residential or Commercial)	Number of Structures	Address	Block and Lot	Known Hazard Zone	Description/Status
							plan, area variance of 285 parking spaces. Developer to work with Village to upgrade utilities including water main and sewer separation
Village of Johnson City	Binghamton University School of Nursing	Education	1	48 Corliss Avenue		None	Anticipated completion August 2019. Refurbish 4 story industrial building into an education building.
Village of Johnson City	Binghamton University School of Pharmacy	Education	1	96 Corliss Avenue		None	Completed July 2018
Village of Johnson City	Hannah Enterprises, LLC	Commercial		71 Baldwin Street	143.64-3-47	NEHRP: D&E; Wildfire: Interface	Year: 2013; Site plan review and area variances for construction of medical office building
Village of Johnson City	HOCHO Recycle, Inc.	Commercial/Industrial		100 Oakdale Road		Flood: 1% Annual Chance Flood; NEHRP: D&E	Year: 2016; tire shredding business, aquifer permit, manufacturing waste products and materials <b>PRELIMINARY COMMENTS</b>
Village of Johnson City	Main and Broad Associates, LLC	Residential	5	258 Main Street		NEHRP: D&E; Wildfire: Interface	Year: 2017; Convert 5 residential units to 10 studio residential units in existing mixed-use building on 2nd and 3rd floors
Village of Johnson City	Oakdale Road Holdings, LLC	Commercial		100 Oakdale Road		Flood: 1% Annual Chance Flood; NEHRP: D&E	Year: 2016; Landscape business and storage yard and Aquifer Permit
Village of Johnson City	Regan Development Corporation	Residential	104	135-139 Baldwin Street		NEHRP: D&E; Wildfire: Interface	Year: 2015; adaptive reuse of 2 warehouse buildings: 104 residential units and 7,745 SF commercial/office use
Village of Johnson City	Regan Development Corporation	Commercial/Residential	2	135-139 Baldwin Street Erie Lackawanna RR Property		NEHRP: D&E; Wildfire: Interface	Year: 2016; revised parking for adaptive reuse of 2 warehouse buildings to residential and office use (Completed May 2018)
Village of Port Dickinson	Bell Atlantic Mobile Systems of Allentown, Verizon	Commercial		86 Chenango Street Rooftop	128.60-2-8	NEHRP: D&E; Wildfire: Interface	Year: 2017; Construct and operate a micro cell wireless telecommunications facility
Village of Port Dickinson	Port Dickinson DNYP, LLC Bohler Engineering	Commercial		796 Chenango Street	128.52-1-24	Flood: 1% Annual Chance Flood; NEHRP: D&E; Wildfire: Interface	Year: 2016; retail store 9100 SF new construction
Village of Port Dickinson	Rocco J. Testani, Inc.	Commercial	2	29 Phelps Street	129.45-1-32	Wildfire: Intermix	Year: 2013; demolish portion of existing building and construct new addition and demolish two warehouse buildings
Village of Whitney Point	Charles Manasse	Commercial		2870 Route 11		NEHRP: D&E; Wildfire: Intermix	Year: 2014; Preliminary Comments send May 9 2014. allow farmers market and/or flea market/yard sales and similar on Friday, Saturday, Sunday and some summer holidays; portable toilet facilities with hand sanitizers and off-street parking will be available



Municipality	Property Name	Type (Residential or Commercial)	Number of Structures	Address	Block and Lot	Known Hazard Zone	Description/Status
Village of Whitney Point	Housing Rehabilitations	Residential	11			None	Housing Rehabilitation Grant
Village of Whitney Point	New Fire Station	Municipal	2	2430 W Main Street		Flood	Planning phase
Village of Whitney Point	Wilcox Building	Combined	10	2673 Main Street		None	Construction starting soon
Village of Windsor	Dollar General	Commercial	1	599 Kent Street		None	Retail Store
Village of Windsor	Primax Properties LLC, c/o Bohler Engineering MA,	Commercial		21 - 23 Main Street	182.15-2-11.1	Flood: 0.2% Chance; Wildfire: Interface	Year: 2015; PRE COMMENTS SENT 10 29 15 Dollar General proposed 9,100 SF retail store and associated parkin, lighting, landscaping, etc. SENT PRELIMINARY COMMENTS 10 29 2015



### E.3 CRITICAL FACILITIES

Table E-6 - Number of Critical Facilities in Each Municipality in Broome County, New York

Municipality	Facility Type																												
	Airport	Animal Care	Bridge	Communications	Dam	Daycare	DPW	School	EMS	EOC	Fire	Government	Hazardous Materials	Hospital	Historic	Library	Mobile Home Park	Police Station	Polling	Post Office	Potable	Potable Water Tank	Potable Well	Rail Yard	Senior	Shelter	Wastewater Pump	Wastewater Treatment Plant	Zoo
Barker (T)	0	0	18	2	0	1	1	1	0	0	1	1	1	0	0	0	2	0	2	1	0	0	1	0	0	0	1	0	0
Binghamton (C)	0	6	71	12	1	30	1	11	3	0	5	13	93	2	29 1	1	0	2	24	5	1	0	2	1	5	15	4	0	1
Binghamton (T)	0	0	10	13	0	1	1	1	0	0	3	1	6	0	1	0	0	0	3	0	0	2	2	0	0	2	0	0	0
Chenango (T)	0	4	28	3	0	7	1	5	1	0	2	8	22	0	0	0	7	0	8	2	0	5	24	0	0	14	0	2	0
Colesville (T)	0	0	50	0	1	3	1	2	1	0	5	1	1	0	2	1	8	0	3	3	0	0	15	0	1	7	0	0	1
Conklin (T)	0	0	14	0	2	3	1	3	0	0	3	1	9	0	1	0	4	0	4	2	0	0	7	0	0	10	5	0	0
Deposit (V)	0	0	2	0	1	1	1	0	1	0	0	2	0	0	0	1	0	0	1	1	0	0	4	0	1	0	0	1	0
Dickinson (T)	0	1	6	1	0	2	1	2	0	1	1	19	6	0	0	0	0	1	3	0	0	2	0	0	0	7	1	0	0
Endicott (V)	1	3	8	1	0	8	1	2	1	0	1	2	2	0	4	1	0	1	5	2	0	0	3	0	0	9	0	1	0
Fenton (T)	0	0	17	0	0	1	1	1	0	0	3	1	9	0	1	1	12	0	4	1	0	0	21	0	0	8	0	0	0
Johnson City (V)	0	2	22	2	1	13	1	3	2	0	2	1	2	1	5	1	0	1	7	2	0	0	2	0	1	12	2	0	0
Kirkwood (T)	0	0	54	5	0	4	1	2	0	0	4	1	25	0	0	0	3	1	4	1	0	0	6	0	0	9	1	0	0
Lisle (T)	0	0	15	2	0	1	1	0	1	0	2	1	1	0	0	0	3	0	2	1	0	0	7	0	0	0	0	0	0
Lisle (V)	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0	0	1	0	0	0
Maine (T)	1	1	16	2	2	1	1	1	1	0	3	2	3	0	1	0	6	0	3	1	0	0	15	0	0	3	6	0	0
Nanticoke (T)	0	0	7	0	2	0	1	0	0	0	1	3	1	0	0	0	5	0	1	1	0	0	8	0	0	3	0	0	0





Municipality	Facility Type																													
	Airport	Animal Care	Bridge	Communications	Dam	Daycare	DPW	School	EMS	EOC	Fire	Government	Hazardous Materials	Hospital	Historic	Library	Mobile Home Park	Police Station	Polling	Post Office	Potable	Potable Water Tank	Potable Well	Rail Yard	Senior	Shelter	Wastewater Pump	Wastewater Treatment Plant	Zoo	
Port Dickinson (V)	0	0	5	0	0	1	1	1	0	0	1	1	1	0	1	0	0	1	2	0	0	0	0	0	0	0	2	1	0	0
Sanford (T)	0	0	27	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0
Triangle (T)	0	0	10	0	0	1	1	3	0	0	1	0	0	0	0	0	2	0	1	0	0	0	5	0	0	6	0	0	0	0
Union (T)	0	3	32	1	1	19	1	7	1	0	9	3	7	0	5	0	1	2	16	1	0	0	4	0	1	21	3	0	0	
Vestal (T)	0	3	50	12	0	7	1	7	2	0	4	3	18	0	16	1	3	1	15	2	0	0	0	0	2	23	13	1	0	
Whitney Point (V)	0	0	10	1	0	3	1	1	0	0	0	2	0	0	1	1	2	1	1	1	0	0	3	0	1	4	0	0	0	
Windsor (T)	0	0	30	2	1	1	0	1	0	0	2	0	1	0	0	0	6	0	2	0	0	0	8	0	0	3	0	0	0	
Windsor (V)	0	0	9	0	0	2	1	2	1	0	1	2	0	0	1	0	0	0	3	1	0	0	2	0	0	6	0	0	0	
<b>Broome County</b>	<b>2</b>	<b>23</b>	<b>512</b>	<b>60</b>	<b>13</b>	<b>110</b>	<b>21</b>	<b>56</b>	<b>15</b>	<b>1</b>	<b>54</b>	<b>69</b>	<b>208</b>	<b>3</b>	<b>330</b>	<b>9</b>	<b>64</b>	<b>11</b>	<b>114</b>	<b>29</b>	<b>1</b>	<b>9</b>	<b>139</b>	<b>1</b>	<b>13</b>	<b>165</b>	<b>37</b>	<b>6</b>	<b>2</b>	

Source: Broome County GIS & Mapping Services 2018



## E.4 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.

### E.4.1 Flood

According to NOAA's NCDC storm events database, Broome County experienced 132 flood events between April 30, 1950 and August 31, 2012. Total property damages, as a result of these flood events, were estimated at over \$1.07 billion. This total may also include damages to other counties. According to the Hazard Research Lab at the University of South Carolina's Spatial Hazard Events and Losses Database for the U.S. (SHELDUS), between 1960 and 2010, 92 flood events occurred within the County. The database indicated that flood events and losses specifically associated with Broome County and its municipalities totaled over \$305.5 million in property damage and over \$1.05 million in crop damage. However, these numbers may vary due to the database identifying the location of the hazard event in various forms or throughout multiple counties or regions.

Between 1954 and 2012, FEMA declared that New York State experienced 38 flood-related disasters (DR) or emergencies (EM) classified as one or a combination of the following disaster types: severe storms, coastal storms, flash flooding, heavy rain, tropical storm, hurricane, high winds, ice jam, wave action, high tide and tornado. Generally, these disasters cover a wide region of the State; therefore, they may have impacted many counties. However, not all counties were included in the disaster declarations. Of those events, the NYS HMP and other sources indicate that Broome County has been declared as a disaster area as a result of nine flood events (FEMA, 2012).

Based on all sources researched, known flooding events that have affected Broome County and its municipalities are identified in Table E-7. With flood documentation for New York State being so extensive, not all sources have been identified or researched. Therefore, Table E-7 may not include all events that have occurred throughout the County and region.



Table E-7. Flooding Events Between 1903 and 2012

Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts	Source(s)
1903	Flood	N/A	N/A	The West Branch of the Delaware River overflowed its banks, sending floodwaters through the center of the Village of Deposit. This was one of the largest floods on record.	FEMA FIS
April 8, 1935	Flooding	N/A	N/A	On this date, a 24-hour flood event caused the Dudley Creek and the Tioughnioga, Otselic, and Chenango Rivers to flood. This caused damage to the City of Binghamton, Towns of Lisle and Chenango and the Village of Whitney Point. Four people drowned during this event and six were reported missing or presumed drowned.	Broome County HMP
July 8, 1935	Flooding	N/A	N/A	Flash flooding of the Chenango River caused \$1.6 M in damages to the City of Binghamton. The flood event of the Chenango River caused the water level in Chenango Township Chenango Fork Station to rise to 20.3 feet, resulting in serious flooding at Port Crane, Chenango Bridge and Broad Acres.	Broome County HMP
March 18, 1936	Flooding	N/A	N/A	Flash flooding of the Susquehanna River closed bridges in the City of Binghamton, which divided the City into four, disconnected sections. Flooding of the Chenango River at the Washington Street Station caused water to rise to a record high (22 feet), resulting in some evacuation; stop logs being erected at Chamberlain Creek, Conrail Railroad, and Exchange Street Bridge; and many road closures. Vestal Station had record highs during this flood event (up to 30.5 feet).	Broome County HMP
July 3, 1970	Severe Storms and Flooding	DR-290	Yes	The County had approximately \$250 K in property damage and \$25 K in crop damage. In the Village of Deposit, the flooding damaged over 50 homes and commercial buildings.	FEMA, FEMA FIS, SHELDUS
June 20-25, 1972	Flooding, Severe Storm and TSTM	N/A	N/A	The County had over \$1.6 M in property and crop damages from this event.	SHELDUS
March 17-19, 1973	Flooding, Severe Storm and TSTM	N/A	N/A	The County had approximately \$200 K in property damages from this event.	SHELDUS
July 11, 1976	Flash Flood	N/A	N/A	This flash flood event resulted from intense rainfall over the Nanticoke Creek watershed and caused \$900 K in damage. Approximately 30 homes in the Town of Nanticoke were severely damaged. Both the East Branch and West Branch of the Nanticoke Creeks crested within one hour of the start of the rainfall. Several roads, including State Route 26 at several locations and Pendall Hill Road were overtopped and impassable. The Leekville Road and Dunham Hill Road bridges over the East Branch were washed out.	FEMA FIS



Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts	Source(s)
				Erosion undermined trailers at the Green Valley Trailer Park in Glen Aubrey.	
December 12, 1983	Flood	N/A	N/A	A flood event on the Susquehanna River included 5.10 inches of rain in 28 hours; over 100 homes and 64 trailers/mobile homes were inundated. The County had over \$227 K in property damage from this event.	SHELDUS, Broome County HMP
March 14, 1986	Flooding	N/A	N/A	The County had approximately \$1 M in property damage.	SHELDUS
July 31, 1986	Flooding	N/A	N/A	The County had approximately \$50 K in property damage.	SHELDUS
August 6, 1986	Flooding	N/A	N/A	The County had approximately \$50 K in property damage.	SHELDUS
April 4, 1987	Flooding	N/A	N/A	The County had over \$2 M in property damage and over \$200 K in crop damage.	SHELDUS
March 29 – April 5, 1993	Flooding	N/A	N/A	The County had approximately \$1 M in property damage. In the Town of Union, on April 2, the Susquehanna River crested at a flood stage of 25.6 feet. Argone Avenue and adjacent streets were flooded. Residents were evacuated.	SHELDUS, Town of Union HMP
April 10-14, 1993	Flooding	N/A	N/A	The County had approximately \$500 K in property damage. In the Town of Union, on April 11, the Susquehanna River crested at a flood stage of 26.3 feet.	SHELDUS, Town of Union HMP
March 10-11, 1994	Flash Flood	N/A	N/A	Flash flooding of Occanum Creek along Main and Grove Streets occurred in Windsor.	Broome County HMP
March 24-26, 1994	Ice Jam Flooding	N/A	N/A	An ice jam along the Susquehanna River at the Town of Conklin resulted in flooding along River Road.	Broome County HMP
January 19-20, 1996	Severe Storms and Flooding	DR-1095 (IA and PA)	Yes	The City of Binghamton experienced \$35 M in damages. In the Town of Chenango, the flood event caused widespread flooding and extensive damage to dozens of town roads. In the Town of Sanford, the event resulted in \$296,405.91 in roadway losses within the Town. Many roads were washed out as a result of the flooding. In the Town of Union, the Susquehanna River crested at a flood stage of 27.25 feet (January 19) and 24.6 feet (January 20). A 30-inch snowpack melted within a 48-hour period with two to three inches of rain	FEMA, SHELDUS, Broome County HMP, Town of Union HMP



Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts	Source(s)
				causing creeks and small streams to overflow. River Road and Argonne Avenue in the Town of Union (hamlet of Endwell) were evacuated. Nanticoke Drive at Bradley Creek Road in Union Center was flooded.  Overall, the County had approximately \$7.9 M in property damage.	
June 30, 1998	Flash Flood	N/A	N/A	A flash flood event near Chenango Bride on Hiner Park Creek caused the creek to flood its banks and several basement homes were flooded. The County had approximately \$10 K in property damage.	SHELDUS, Broome County HMP
July 8, 1998	Flooding	N/A	N/A	The County had approximately \$75 K in property damage.	SHELDUS
May 10, 2000	Flooding	N/A	N/A	Flooding occurred throughout the Town of Chenango and resulted in minor roadside erosion damages.	Broome County HMP
April 4, 2000	Flooding	N/A	N/A	A flood event washed out numerous town roads, including Water Street and Dorman, Hand, Dimmock Hill, and Mix Roads. The recovery time for this event was at least four days and the damage included hill road washouts, clogged ditches, and erosion.	Broome County HMP
July 29, 2000	Flooding	N/A	N/A	Flooding impacted the eastern portion of the Town of Chenango. Washouts occurred on hill roads. Barricades and flashing lights were placed on Mix and East Hill Roads until all the washouts could be repaired. Large rocks and mud were present in the roadways. East Hill, Oak Hill, and Mix Roads had to be closed as a result of flooding.	Broome County HMP
May 28, 2002	Flooding	N/A	N/A	The County had approximately \$100 K in property damage.	SHELDUS
June 14, 2003	Flooding	N/A	N/A	The County had approximately \$100 K in property damage.	SHELDUS
June 16, 2004	Flooding and TSTMs	N/A	N/A	Severe TSTMs and flooding affected the northern part of the Town of Chenango, affecting the hamlet of Castle Creek. Castle Creek flooding and damage occurred to several homes, the Civic Association, and area ball fields.	Broome County HMP
March 4, 2004	Flooding	N/A	N/A	A huge raft of ice broke free on the Chenango River, upstream from Chenango Bridge. That bridge is located a few miles upstream of the merger of the Chenango and Susquehanna Rivers in the City of Binghamton. The ice first jammed against a railroad bridge and then, the Route 12A Bridge that crosses the river. The jam almost completely blocked the flow of the Chenango River, causing water to back up behind the Route 12A Bridge. This flooded an ice skating	SHELDUS, Broome County HMP



Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts	Source(s)
				rink, a golf course, a parking lot, and an office building which houses a pub, a senator's office, and a financial institution. The NWS in Binghamton issued a Flash Flood Warning to alert residents along the river of the rapid rises that this and other potential ice jams could cause when the ice eventually breaks free and flows downstream. The County had approximately \$50K in property damage.	
August 13, 2004	Severe Storm and Flooding	DR-1564	Yes	Remnants of Tropical Storm Bonnie brought heavy rain to the area. This event resulted in roads and bridges being closed in the Town of Windsor, creeks flooding, State Highway 17 being closed between Exit 79 and 80, and a rescue of a woman from a submerged vehicle. In the Town of Sanford, the event resulted in \$52,359.85 in roadway losses within the Town.	FEMA, NOAA-NCDC, Broome County HMP
August 30-31, 2004	Flooding	N/A	N/A	The County had approximately \$1 M in property damage.	SHELDUS
September 18-19, 2004	Flood (remnants of Hurricane Ivan)	DR-1565	Yes	Remnants of Hurricane Ivan and a slow-moving cold front produced heavy rainfall throughout the Susquehanna River Basin. Rainfall totals ranged between 1.5 inches in the northwest region and over nine inches in the West Branch of the Susquehanna Subbasin. The southern tier of New York State, from Elmira to Binghamton, received four to five inches of rain and areas north of that measured three to four inches.  In Broome County, at least 100 homes suffered damaged with 1,000 or more receiving moderate damage. Flooding and evacuations forced over 1,000 people from their homes. Damages were estimated at more than \$2 M. In the Town of Sanford, \$43,355 in property damage and \$30 K in public infrastructure damage was reported. In the Town of Conklin, flooding along Carlin Creek washed out and destroyed a bridge on Karic Road and a culvert on Kethum Road. Eight streets were inundated with water and closed for several days. In the Town of Sanford, flooding resulted in \$180,972.47 in roadway losses within the Town. Overall, the County had approximately \$14.5 M in property damage.	NWS, FEMA, SHELDUS, SRBC, Broome County HMP
November 28, 2004	Flash Flooding	N/A	N/A	Flash flooding occurred throughout the County. Emergency personnel were called in to uncover catch basins and unplug sluice pipes. The County had approximately \$50 K in property damage.	SHELDUS, Broome County HMP
April 1-3, 2005	Severe Storms and Flooding	DR-1589 (IA and PA)	Yes	A combination of heavy rainfall and snow melt produced the worst river flooding in almost 70 years across portions of the Upper Susquehanna, Delaware, and Chenango River Basins of Central NY, including Broome County and Northeast Pennsylvania. The flood	FEMA, NOAA-NCDC, SHELDUS, NWS, Broome County HMP



Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts	Source(s)
				<p>crest summary indicates that the Chenango Forks River Gauge Station along Chenango River crested at a maximum of 14.34 feet; the Windsor River Gauge Station along Susquehanna River crested at a maximum of 19.07 feet; the Conklin River Gauge Station Along the Susquehanna River crested at a maximum of 18.08 feet; and the Vestal River Gauge Station along the Susquehanna River crested at a maximum of 28.87 feet during this flood event.</p> <p>Overall, Broome County experienced two flood-related fatalities, the evacuation of over 100 people and \$3 to \$4 M in estimated damages.</p> <p>In the Town of Chenango, approximately two to three inches of rain fell and caused one of the worst floods in 70 years. The Town experienced approximately \$45,249.94 in property damages. In the Town of Conklin, flooding of the Susquehanna River led to the closure of NYS Route 7 (Conklin Road) and twelve streets. The streets were re-opened after the water subsided and highway crews cleaned mud and debris from the roadways. In the Town of Sanford, \$78,464 in property damage and \$52,642 in public infrastructure damage occurred. \$164,474.59 in roadway losses within the Town. Primary damage occurred along Reservoir, Terry, Smith, Huggins and Perry Roads. In the Village of Port Dickinson, the flooding caused the Village to suffer heavy losses (approximately \$22,000). Most of the damage was to the village park. Some basements flooded and minor street damage also occurred. Village park damage included fence and picnic bench damage, baseball dirt erosion, and material under playground equipment being swept away.</p>	
June 26-29, 2006	Severe Storm and Flooding	DR-1650 (IA and PA)	Yes	<p>This event affected Broome, Chenango, Delaware, Herkimer, Montgomery, Oneida, Orange, Otsego, Schoharie, Sullivan, Tioga, and Ulster Counties. It resulted in federal funding to state and eligible local governments and certain non-profit organizations on a cost-sharing basis for debris removal and emergency protective measures, including direct federal assistance. \$227 M was approved or obligated for assistance to families and individuals, as well as public entities who suffered damage from this event. Various repairs, improvements and equipment replacements have been underway to improve the poor conditions throughout those counties affected by the floods, including Broome County. A \$220,000 project to repair and improve Endicott School damages in Broome County (total damage is near \$2 million) was approved in April 2007. A \$98,000 project to repair and improve the Town of Kirkwood Sewer Station was also approved in April 2007.</p>	FEMA, NOAA-NCDC, SHELDUS, Broome County HMP



Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts	Source(s)
				<p>The NYSDOH assessed the impacts on the victims who were evacuated from nursing homes and hospitals, including issues such as medication and life support for the 165 displaced residents of a nursing home in Vestal and 80 patients at the Lady of Lourdes Hospital in Binghamton, NY. Additionally, several state parks and historic sites in the central region, including Broome County, were closed to the public. Flood damage included roads and beaches, water system closures and/or damage and overflow of sewage treatment plants.</p> <p>In Broome County, record setting river levels occurred along Susquehanna and Chenango Rivers. The Susquehanna River at Vestal exceeded its 18-foot flood stage by more than 15 feet (approx. 31 feet.), breaking the previous records by 2.5 feet. A shortage in the supply of clean water occurred. Thousands of residents were without electricity and/or gas service (approximately 16,000 electric and 1,500 gas customers of NYS Electric and Gas Corp. (NYSEG) were impacted). Broome County infrastructure was significantly impacted. Highways, roads, streets and bridges were water-covered, washed out, or closed. Municipal water and sewage treatment facilities were also impacted and/or shut-down. Boil-water advisories were issued in the Towns of Windsor and Vestal because pumps were shutting down, resulting in a loss of pressure and increasing the chance of contaminated water. Water and waste water treatment plants were also shut down in the Village of Endicott and Johnson City. Hospitals were forced to evacuate patients or reduce services. Lourdes Hospital joined a mandatory evacuation of the City of Binghamton's low-lying areas, sending about 90 patients to Wilson Memorial and Binghamton General Hospitals. Multiple rescues of residents were made by ground, boat and helicopter. Two men were swept downstream in Kirkwood and were rescued by emergency volunteers. Evacuation Shelters were opened, including the Binghamton University Events Center, which housed over 1,000 evacuees. Tri-Cities Airport was completely inundated with flood waters. Twenty families along the Chenango River were evacuated in the Town of Chenango. The Union-Endicott High School's Ty Cobb Stadium was water-covered in the Village of Endicott. Many sections of the high school also experienced flooding. Many campgrounds and mobile home parks were damaged (including, the Pine Crest Campgrounds in the Town of Windsor). Residential homes were removed from their foundations or experienced</p>	





Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts	Source(s)
				explosions as a result of cascading impacts of the flood. A home along the Susquehanna River in the Town of Conklin was dragged off its foundation near Schnurbush Park. Also, a house along the Susquehanna River exploded in the Town of Conklin, which created additional damage to homes surrounding the explosion. The Boys and Girls Club in Endicott was completely surrounded by flood water.	
November 16-17, 2006	Severe Storm and Flooding	DR-1670	Yes	<p>A line of thunderstorms produced 45 to 74 mph winds across a large part of central New York State. Additionally, the squall line spawned an F1 tornado north of the Town of Elmira. Areas from Oswego and Binghamton, north and east through Ithaca, Cortland and Norwich, to Oneida County in the western Mohawk Valley and the northern Catskills saw the brunt of the heavy rainfall from this slow moving line of storms. Between 1.5 inches and four inches of rain fell in just three hours, causing significant flash flooding over many of these areas. Many hillsides and creeks turned into raging torrents, causing mudslides and debris flows that cascaded into more populated valley areas. The flash flooding evolved into a minor to moderate river flood event mainly on the Susquehanna River and its tributaries in New York. This disaster resulted in the federal approval of more than \$19.1 M in New York State.</p> <p>In Broome County, flooding along the Vestal Parkway occurred in the Town of Vestal. The rain caused the Susquehanna River to exceed its 18 foot flood stage and crested at 21.76 feet. In the Town of Union, multiple houses flooded and a road collapsed. In the City of Binghamton, three feet of water accumulated on Vestal Avenue. Minor flooding was observed along the Susquehanna River at Washington Street. In the Village of Endicott, numerous roads flooded. In the Town of Port Crane, a mudslide occurred on Interstate 88 and resulted in a multi-injury car accident. In the Chenango Forks area of the Town of Chenango, the Chenango River crested at 10.89 feet and minor flooding was observed. In the Town of Conklin, the Susquehanna River crested at 11.55 feet. Overall, the County experienced approximately \$250 K in property damage.</p>	FEMA, NOAA-NCDC, SHELDUS, Broome County HMP
March 15-16, 2007	Flood	N/A	N/A	A widespread rainfall melted snowpack, causing many rivers and creeks to exceed their flood stages. In the Susquehanna and Chemung River Basins and the Finger Lakes, rainfall ranged between 0.75 and 1.5 inches. The Susquehanna River in the Town of Conklin reported significant flood damage. It crested at 10 feet. Twenty homes, one business and five roads were flooded. An ice jam was associated with this flooding.	NOAA-NCDC



Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts	Source(s)
				In Broome County, minor flooding occurred along the Susquehanna River in the Town of Vestal and it crested at 19.1 feet. In the Town of Conklin, the Susquehanna River crested at 13.2 feet. Overall, the County had approximately \$255 K in property damage.	
January 25, 2010	Flash Flood	N/A	N/A	Mild temperatures combined with rain caused flash flooding in isolated areas. In Tracy Creek, heavy rains caused flooding along Tracy Creek Road as well as parts of the Vestal Parkway. Several homes were flooded in the Vestal Center area. In the Twin Orchard area of the Town of Vestal, several roads were flooded. The Interstate 81 South to Route 17 West ramp was partially closed due to a landslide off Prospect Mountain. In the Town of Maine, Route 26 was flooded. Overall, the County had approximately \$130 K in property damage.	NOAA-NCDC, SHELDUS
September 30, 2010	Flash Flood (Remnants of Tropical Storm Nicole)	N/A	N/A	Remnants of Tropical Storm Nicole brought between three and six inches of rain across central New York State. In Broome County, several areas in the western part of the County experienced problems due to flash flooding. The Village of Endicott, the Endwell area of the Town of Union, and the Town of Maine reported several roads flooded, washouts and basement flooding. Several vehicles were stranded due to high water at road intersections and in parking lots. The County had approximately \$50 K in property damage.	NOAA-NCDC
April 26 – May 8, 2011	Severe Storm, Flooding, Straight-Line Winds	DR-1993	Yes	<p>A significant severe weather outbreak developed across central New York State as a storm system moved east from the Great Lakes. First, showers and TSTMs developed early in the evening on the 27th, as an upper level disturbance approached the region. Two of the more significant storms included one supercell that produced a tornado in Steuben County caused tree and structural damage across Steuben, Chemung and Schuyler counties. Elsewhere across central New York, storms caused scattered wind damage and heavy rain.</p> <p>Broome County experienced significant flash flooding, especially along the Route 26 corridor. Route 26 was closed between the hamlet of Glen Aubrey and the Village of Whitney Point, with 18 houses cut off by flood waters. Nanticoke Creek in the Town of Maine flooded many homes, with water up to the first floor of some homes. About 150 people were evacuated and two shelters were set up. The County experienced approximately \$4 M in property damages.</p>	FEMA, NOAA-NCDC



Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts	Source(s)
August 27-28, 2011	Hurricane Irene	EM-3328/DR-4020	No	<p>Hurricane Irene brought heavy rains and high winds from northeast Pennsylvania to the Catskill Mountains of New York. Rainfall totaled from two to five inches over most of northeast Pennsylvania and in the Susquehanna Region of central New York. Between four and eight inches of rain fell in the western Catskills with portions of Wyoming and northern Susquehanna Counties in northeast Pennsylvania and southern Broome County in New York receiving six to eight inches of rain. In addition to the heavy rains, high winds from the storm knocked down numerous trees and power-lines across Broome, Delaware, Sullivan and Otsego Counties in New York. During the height of the storm, over 40,000 residences were without power. In some cases, power was not restored for one week.</p> <p>In Broome County, heavy rains in the Town of Conklin (hamlet of Conklin Forks) caused flooding along Pierce Creek Road. In the Town of Conklin, the Susquehanna River at Conklin crested at 16.34 feet. Many roads were flooded in the Town of Kirkwood area and several roads and one bridge were closed due to flash flooding. In the Town of Vestal, major flash flooding occurred along the Choconut Creek and many roads were flooded. In Vestal Center, West Hill and Juneberry Roads were closed due to water over bridges. In Stella, numerous roads were closed due to water over bridges. Overall, the County experienced approximately \$375 K in property damage.</p>	FEMA, NOAA-NCDC
September 7-8, 2011	Remnants of Tropical Storm Lee	EM-3341/DR-4031	Yes	<p>Remnants of Tropical Storm Lee brought between six and 12 inches of rain over most of the upper Susquehanna River Basin. The heavy rain caused massive, record breaking flooding on small streams, creeks, and the Susquehanna River and its larger tributaries.</p> <p>In Broome County, the main branch of the Susquehanna River from the City of Binghamton to the Towns of Vestal, Owego, and Waverly crested from one to four feet higher than the previous record set in June 2006. In the Town of Conklin, the Susquehanna River crested at 23.94 feet. Catastrophic flooding occurred in Binghamton, Town of Vestal, Village of Endicott, the Endwell section of the Town of Union, and Chenango Valley areas. Numerous roads, bridges, and homes were severely damaged. Deep ponding of water occurred below underpasses. In the Town of Endicott, flooding occurred along the Nanticoke Creek in the hamlet of West Corners. Numerous roads, homes, and bridges were severely damaged. In the Town of Chenango, the river crested at 14.93 feet at Chenango Forks.</p>	FEMA, NOAA-NCDC



Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts	Source(s)
				Overall, the County had approximately \$502.8 M in property damage.	

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.

- DR Federal Disaster Declaration
- EM Federal Emergency Declaration
- FEMA Federal Emergency Management Agency
- FSA Farm Service Agency
- IA Individual Assistance
- K Thousand (\$)
- M Million (\$)
- N/A Not applicable
- NCDC National Climate Data Center
- NOAA National Oceanic Atmospheric Administration
- NWS National Weather Service
- PA Public Assistance
- SHELDUS Spatial Hazard Events and Losses Database for the U.S.
- SRBC Susquehanna River Basin Commission



Agriculture-related flood disasters are quite common. One-half to two-thirds of the counties in the U.S. have been designated as disaster areas in each of the past several years. The Secretary of Agriculture is authorized to designate counties as disaster areas to make emergency loans (EM) to producers suffering losses in those counties and in counties that are contiguous to a designated county. **Error! Reference source not found.** summarizes the USDA disaster designations for flood-related events.

**Table E-8. USDA Disaster Designations**

Incidence Period	Event Type	USDA Declaration Number	County Designated?*	Losses / Impacts	Source(s)
5/11/2006	Flood	S2412	Yes	Production losses were attributed to excessive rain, flooding, flash flooding, and hail	USDA
November 16 to 17, 2006	Flood	M1670	Yes	Production and physical losses were attributed to severe storms and flooding	USDA
May 3, 2008	Flood	S2794	Yes	Production losses were attributed to excessive rain, hail, high wind, flooding, flash flooding, and lightning	USDA
June 1 to August 25, 2009	Flood	S2894	Yes	Production losses were attributed to excessive rain, flooding, flash flooding, hail, and high winds	USDA
April 26 to May 8, 2011	Flood	M1993, Amendment 1	Yes	Physical losses were attributed to severe storms, flooding, and tornadoes.	USDA
August 27 to September 15, 2011	Flood	S3203	Yes	Production and physical losses were attributed to flooding, flash flooding, and severe weather during Hurricane Irene	USDA
September 4 to 14, 2011 (S3207)  September 7, 2011 and continuing (M4031)	Flood	S3207 M4031	Yes	Production and physical losses were attributed to flooding, flash flooding, and severe weather during and remnants of Tropical Storm Lee	USDA
October 28 to 31, 2012	Hurricane	S3442	No	Production and physical losses were attributed to Hurricane Sandy	USDA

Source: USDA, 2012

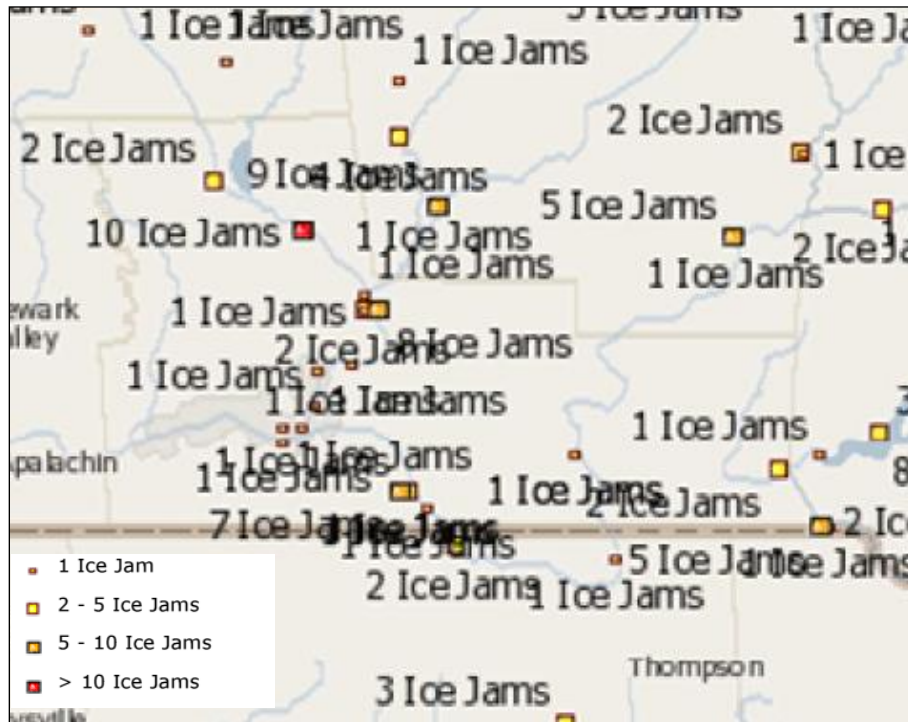
\*Disaster event occurred within the county.

- M Presidential Major Disaster Declaration
- N Administrative Physical Loss Notification
- S Secretarial National Disaster Determination
- USDA United States Department of Agriculture



According to the CRREL database, ice jams have historically formed at various points along the Chenango River, Oquaga Creek, Susquehanna River and the Tioughnioga River (Ice Engineering Research Group, 2011). Locations of historical ice jam events are indicated in Figure E-2 below.

Figure E-2. Historic Ice Jams in Broome County.



Source: CRREL, 2012

Based on review of the CRREL Database, Table E-9 lists the ice jam events that have occurred in Broome County between 1900 and 2012. Information regarding losses associated with these reported ice jams was limited.



Table E-9. Ice Jam Events in Broome County between 1900 and 2012

Date	River / Location	Description	Source(s)
March 24, 1904	Susquehanna River at Binghamton	No reference and/or no damage reported.	CRREL
February 21, 1918	Susquehanna River at Conklin	No reference and/or no damage reported.	CRREL
February 26, 1918	Chenango River at Chenango Forks	No reference and/or no damage reported.	CRREL
March 13, 1920	Chenango River at Chenango Forks	No reference and/or no damage reported.	CRREL
March 13, 1920	Susquehanna River at Conklin	No reference and/or no damage reported.	CRREL
February 24, 1922	Chenango River at Chenango Forks	Maximum annual gage height of 11.82 feet, affected by backwater from ice, reported at USGS gage Chenango River near Chenango Forks.	CRREL
March 24, 1926	Chenango River at Chenango Forks	Maximum annual gage height of 13.54 feet, affected by backwater from ice, reported at USGS gage Chenango River near Chenango Forks. Additional ice-affected gage height of 10.71 feet, reported on March 25, 1926. Discharge about 19,900 cfs.	CRREL
March 4, 1934	Chenango River at Chenango Forks	Maximum annual gage height of 10.50 feet, affected by backwater from ice, reported at USGS gage Tioughnioga River at Itaska.	CRREL
March 4, 1934	Tioughnioga River at Itaska	Maximum annual gage height of 10.50 feet, affected by backwater from ice, reported at USGS gage Tioughnioga River at Itaska, on March 4, 1934.	CRREL
February 20, 1939	Tioughnioga River at Itaska	Maximum annual gage height of 12.16 feet, affected by backwater from ice, reported at USGS gage Tioughnioga River at Itaska, on February 20, 1939. Discharge 15,300 cfs.	CRREL
March 31, 1940	Tioughnioga River at Itaska	Maximum annual gage height of 10.63 feet, affected by backwater from ice, reported at USGS Tioughnioga River at Itaska, on March 31, 1940. Additional ice-affected gage height of 9.63 feet, reported on April 1, 1940. Discharge 15,000 cfs.	CRREL
February 25, 1943	Susquehanna River at Conklin	Gage height of 15.26 feet, affected by backwater from ice, reported at USGS gage Susquehanna River at Conklin, on February 25, 1943. Discharge 27,500 cfs. Bankfull stage 17 ft.	CRREL
March 17, 1944	Tioughnioga River at Itaska	Maximum annual gage height of 9.05 feet, affected by backwater from ice, reported at USGS gage Tioughnioga River at Itaska, on March 17, 1944. Discharge 12,500 cfs.	CRREL
March 18, 1944	Susquehanna River at Conklin	USGS reported a gage height of 15 ft and a discharge of 30,000 cfs on March 18, 1944 on the Susquehanna River at Conklin, NY due to backwater from ice.	CRREL
January 3, 1945	Susquehanna River at Binghamton	Weather Bureau reports ice jam upstream from gage Susquehanna River at Binghamton on January 3 through 17, 1945. Maximum stage 6.8 ft January 3, minimum stage 3.1 ft January 17. Ice jams reported both upstream and downstream from gage on January 18 through January 16. Peak stage during this period 5.0 ft on January 27. Ice jam downstream from gage only on February 17 through 23. Peak stage during this period 4.9 ft on February 23.	CRREL





Date	River / Location	Description	Source(s)
		Ice jam upstream from gage only on February 25 through March 3. Maximum stage during this period, 8.7 ft February 28, minimum stage, 6.8 ft March 3. Gage datum 821.49 ft MSL, flood stage 14 ft.	
January 4, 1945	Chenango River at Binghamton	Weather Bureau reports ice jam upstream from gage Chenango River at Binghamton on January 4 through March 4, 1945. Peak stage 15.4 ft at 2200 hours on March 4, 1945.	CRREL
February 27, 1945	Tioughnioga River at Itaska	Maximum annual gage height of 10.34 feet, affected by backwater from ice, reported at USGS gage Tioughnioga River at Itaska, on February 27, 1945.	CRREL
March 3, 1945	Chenango River at Chenango Forks	Maximum annual gage height of 13.29 feet, affected by backwater from ice, reported at USGS gage Chenango River near Chenango Forks, on March 3, 1945.	CRREL
March 4, 1945	Susquehanna River at Conklin	Gage height of 13.76 feet, affected by backwater from ice, reported at USGS gage Susquehanna River at Conklin, on March 4, 1945. Discharge 24,900 cfs. Bankfull stage 17 ft.	CRREL
March 16, 1948	Tioughnioga River at Itaska	Maximum annual gage height of 9.67 feet, affected by backwater from ice, reported at USGS gage Tioughnioga River at Itaska, on March 16, 1948.	CRREL
January 28, 1954	Chenango River at Chenango Forks	Maximum annual gage height of 9.02 feet, affected by backwater from ice, reported at USGS gage Chenango River near Chenango Forks, on January 28, 1954.	CRREL
February 11, 1955	Oquaga Creek at Deposit	Gage height of 5.70 feet, affected by backwater from ice, reported at USGS gage Oquaga Creek at Deposit, on February 11, 1955.	CRREL
February 28, 1955	Tioughnioga River at Itaska	Maximum annual gage height of 8.98 feet, affected by backwater from ice, reported at USGS gage Tioughnioga River at Itaska, on February 28, 1955.	CRREL
January 22, 1957	Oquaga Creek at Deposit	Maximum annual gage height of 6.25 feet, affected by backwater from ice, reported at USGS gage Oquaga Creek at Deposit, on January 22, 1957.	CRREL
January 24, 1957	Tioughnioga River at Itaska	Maximum annual gage height of 11.38 feet, affected by backwater from ice, reported at USGS gage Tioughnioga River at Itaska, on January 24, 1957.	CRREL
January 22, 1959	Chenango River at Chenango Forks	Maximum annual gage height of 11.32 feet, affected by backwater from ice, reported at USGS gage Chenango River near Chenango Forks, on January 22, 1959. Discharge about 20,000 cfs.	CRREL
January 29, 1959	Tioughnioga River at Itaska	Maximum annual gage height of 10.39 feet, affected by backwater from ice, reported at USGS gage Tioughnioga River at Itaska, on January 29, 1959. Additional ice-affected gage height of 9.66 feet, reported on January 29, 1959.	CRREL
March 19, 1963	Tioughnioga River at Itaska	The maximum annual gage height of 11.39 ft was recorded on the Tioughnioga River at Itaska, NY, which was caused by an ice jam. The associated discharge was 3,750 cfs.	CRREL
January 25, 1979	Susquehanna River at Conklin	The USGS reported backwater from ice on the Susquehanna River at Conklin. The water discharge was 17,000 cubic feet per second, gage height was 15.70 ft.	CRREL





Date	River / Location	Description	Source(s)
February 26, 1979	Susquehanna River at Conklin	The USGS reported an ice jam on the Susquehanna River at Conklin, NY. The water discharge was 14,000 cubic feet per second, gage height was 11.04 ft.	CRREL
March 28, 1992	Susquehanna River at Conklin	An ice jam caused the river to back up just above Conklin, NY. Flooding was reported around the Alta Road area. Flood stage at 11.0 ft. and observed stage at 11.9 ft. - at 11 ft. Riverside Yards started to flood.	CRREL
February 22, 1994	Susquehanna River at Conklin	An ice jam on the Susquehanna River in the vicinity of Kirkwood caused rapid rises on the river in Conklin and Kirkwood. The river rose over 1.5 feet. The ice jam on the Kirkwood-Conklin bridge broke up but a lot of ice was still in the river.	CRREL
March 23, 1994	Susquehanna River at Conklin	An ice jam developed on the Susquehanna River in the Town of Conklin. Minor flooding was reported near River Boulevard.	CRREL
January 19, 1996	Susquehanna River at Conklin	NWS reported an ice jam on the Susquehanna River near Conklin, NY causing river levels to rise. Rising water levels resulted in flooding of fields and yards.	CRREL
January 19, 1996	Tioughnioga River at Itaska	No reference and/or no damage reported.	CRREL
January 19, 1996	Tioughnioga River at Itaska	No reference and/or no damage reported.	CRREL
January 20, 1996	Susquehanna River at Windsor	Maximum gage height of 21.22ft due to an ice jam at USGS gaging station 01502731 Susquehanna River at Windsor, NY. The average daily discharge was 40,000cfs.	CRREL
January 31, 1997	Chenango River at Chenango Forks	Minor backwater has been reported as a result of one minor ice jam located on the Chenango River below the confluence of the Tioughnioga River. Water continues to flow through the jam.	CRREL
March 3, 2004	Chenango River at Chenango Forks	NWS reported that some ice movement and jamming was causing backwater near the Chenango Forks stream gage. The flood stage there is 10 feet and the stage at 200 PM was 9.8 feet, with minor flooding beginning at 10 feet.	CRREL
March 4, 2004	Chenango River at Chenango Bridge	The NWS reported a large ice jam on the Chenango River in Chenango Bridge, NY on March 4, 2004. The ice jam was reported just west of the Route 12A Bridge and was causing flooding to low lying areas on the north side of the river. Two businesses were evacuated. The water raised high enough to flood the Chenango Commons Golf Course and Polar Cap Ice Rink. The ice moved out by late afternoon, March 4th, relieving the region of ice jam flooding.	CRREL
January 27, 2005	Chenango River at Dickinson/Binghamton	The NWS reported that freeze-up ice accumulations on the Chenango River from the Binghamton City line up through Chenango Bridge to Port Crane was restricting flow on the river and causing backwater effect. These effects were visible at the USGS gage Chenango River near Chenango Forks some 3.5 miles upstream from Port Crane. The NWS predicted that minor flooding might occur - that is, water might rise briefly out of bank, causing basement flooding, but not life threatening.	CRREL



Date	River / Location	Description	Source(s)
March 15, 2007	Susquehanna River at Corbettsville	The NWS in Binghamton NY issued a Flood Statement for the Susquehanna River in Broome County, NY and Susquehanna County, PA. Heavy rain and melting snow caused several area rivers to flood, and river ice to move and form a significant jam at Corbettsville NY. The stage was 13.0 feet; flood stage is 11.0 feet. Minor flooding was occurring and moderate flooding was forecast, with an anticipated crest Friday morning at 13.0-13.5 feet. The river level at the jam, located just upstream from the USGS gage #01503000 at Conklin NY, was reported to be about 5 feet higher, which was causing significant flooding from Corbettsville to Great Bend, PA. Several residences in the immediate river flood plain in NY had been evacuated due to the flooding. At 4 PM Friday, the stage at Conklin was 12.9 feet, with the river forecast to fall below flood stage late Saturday afternoon. At 8 PM Saturday, the stage was 10.9 feet, cancelling the flood warning. The ice jam was still in place, however, which could cause fluctuations in the water level, and some localized flooding in the flood plain near the river.	CRREL
February 12, 2009	Chenango River at Chenango	No reference and/or no damage reported.	CRREL
February 12, 2009	Chenango River at Chenango	No reference and/or no damage reported.	CRREL
February 12, 2009	Susquehanna River at Conklin	Flooding occurred along the Susquehanna River, in the vicinity of Route 11, due to an ice jam, requiring the evacuation of at least one home. Warm temperatures and rain over the previous days, prompted runoff into the river, resulting in river ice running and jamming. The hydrograph of USGS gage at Conklin NY, #01503000, indicates that the stage rose to about 11.6 feet, above the flood stage of 11.0 ft.	CRREL
March 7, 2011	Susquehanna River at Windsor	Heavy rain prompted river runs across northern New England, with numerous ice jams across the region. The Susquehanna River jammed causing the stage at Windsor NY to be just above the 17.0 ft flood stage, at 17.2 ft. At a stage of 17.0 ft, minor flooding begins in the Windsor area affecting low lying and agricultural areas. The stage had risen to 18.3 ft with minor flooding occurring and moderate flooding forecast.	CRREL

Source: CRREL, 2012

Note: Although many events were reported for Broome County, information pertaining to every event was not easily ascertainable; therefore this table may not represent all ice jams in the County.



## E.4.2 Winter Storm

Many sources provided historical information regarding previous occurrences and losses associated with severe winter storms and extreme cold events throughout New York State and Broome County. With so many sources reviewed for the purpose of this HMP, loss and impact information for many events could vary depending on the source. Therefore, the accuracy of monetary figures discussed is based only on the available information identified during research for this HMP.

The 2011 Draft New York State HMP rated each county in terms of their vulnerability to snow and ice storms hazards. Please refer to the NYS HMP for additional details on their point system. Table E-10 and Table E-11 summarizes Broome County's rating for both hazards.

**Table E-10. Broome County's Vulnerability Rating for Snow Storms.**

County Rating Score (Max 25)	Annual Average Snowfall (inches)	*Extreme Snowfall Potential (no/yes)	# of Snow Related Disasters Population Density (per square mile)	Population Density (per square mile)	Total # of Structures
13	72.6	No	3	229.4	73,634

Source: Broome County GIS; NYS HMP, 2011

**Table E-11. Broome County's Vulnerability Rating for Snow Storms**

County Rating Score	Related Disasters	Total # of Structures
4	0	73,634

Source: Broome County GIS; NYS HMP, 2011

According to NOAA's NCDC storm events database, Broome County experienced 365 snow, ice, and cold events between April 30, 1950 and August 31, 2012. Total property damages, as a result of these winter storm events, were estimated at over \$22 million and \$100,000 in crop damage. This total also includes damages to other counties. According to the Hazard Research Lab at the University of South Carolina's Spatial Hazard Events and Losses Database for the U.S. (SHELDUS), between 1960 and 2007, 148 winter storm events occurred within the County. The database indicated that severe winter storm events and losses specifically associated with Broome County and its municipalities totaled over \$2.8 million in property damage and over \$726,000 in crop damage. However, these numbers may vary due to the database identifying the location of the hazard event in various forms or throughout multiple counties or regions.

Between 1954 and 2012, FEMA declared that New York State experienced 22 winter storm-related disasters (DR) or emergencies (EM) classified as one or a combination of the following disaster types: winter storms, severe storms, ice storm, blizzard, snow, snowstorm, Nor'Easter and flooding. Generally, these disasters cover a wide region of the State; therefore, they may have impacted many counties. However, not all counties were included in the disaster declarations. Of those events, the NYS HMP and other sources indicate that Broome County has been declared as an emergency disaster area as a result of two winter storm-related events (FEMA, 2012).



Table E-12. Winter Storm Events Between 1950 to 2012.

Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts	Source(s)
February 3-5, 1961	Winter Weather	N/A	N/A	Heavy snow, high wind and severe cold struck Broome County, causing over \$80 K in property damage.	SHELDUS
January 10-11, 1982	Blizzard	N/A	N/A	A blizzard caused over \$35 K in property damages to Broome County.	SHELDUS
April 16, 1983	Winter Weather	N/A	N/A	Heavy rain and snow caused over \$1.4 M in property and crop damages to Broome County.	SHELDUS
December 6-7, 1983	Winter Weather	N/A	N/A	Wind, snow and rain caused over \$178 K in property damage to Broome County.	SHELDUS
December 29, 1983	Winter Weather	N/A	N/A	A severe ice and sleet storm caused over \$178 K in property damage to Broome County.	SHELDUS
January 25, 1986	Snowstorm	N/A	N/A	A snowstorm caused approximately \$2 M in property damages and one death in Broome County.	SHELDUS
October 4, 1987	Winter Weather	N/A	N/A	A snowstorm caused over \$16 M in property damage and \$167 K in crop damages in Broome County.	SHELDUS
February 21, 1993	Snow/Cold	N/A	N/A	<p>February 1993 was one of the snowiest months of February on record across much of eastern New York State. At the Broome County Airport, 31.6 inches of snow fell in the month.</p> <p>February was also a cold month, with the average temperature around five degrees below normal. The average temperature at Broome County Airport was 18°F, which was 4.7 degrees below normal. Many occurrences of roofs collapsing from the weight of the snow were reported during the second half of the month.</p> <p>Broome County had approximately \$500 K in property damages.</p>	NOAA-NCDC, NWS
March 12-13, 1993 (“Blizzard of ‘93”)	Blizzard	N/A	N/A	The blizzard impacted the Town of Conklin.	Broome County HMP
October 30 – November 1, 1993	Snow	N/A	N/A	On October 30 <sup>th</sup> , snow fell in the Susquehanna Region of New York State, bringing between two and seven inches of snow, with 4.7 inches in the City of Binghamton. Between October 31 <sup>st</sup> and November 1 <sup>st</sup> , a lower pressure system moved up the Atlantic Coast, resulting in heavy snow across the Susquehanna Region of New York State. Snowfall totals ranged between	NOAA-NCDC



Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts	Source(s)
				<p>five and 20 inches, with some areas receiving up to 19.5 inches. The heavy, wet snow downed tree limbs and power lines, leaving over 20,000 people without power.</p> <p>The City of Binghamton received 6.8 inches of snow. The County had approximately \$1M in property damage.</p>	
February 8-9, 1994	Heavy Snow	N/A	N/A	A low pressure system moved east from the Tennessee Valley, bringing heavy snow across parts of eastern New York State. Snowfall totals ranged from six to nine inches, with the largest totals being nine inches at the Binghamton Regional Airport. The County had approximately \$500K in property damage.	NOAA-NCDC
January 7-8, 1996	Heavy Snow	N/A	N/A	A winter storm brought heavy snow to the Susquehanna Region and Western Catskills. Snowfall totals ranged between six and 12 inches, which was common in Broome and Delaware Counties. However, in Sullivan County, between one and two feet of snow fell. The affected counties had approximately \$60K in property damages.	NOAA-NCDC
February 24, 1998	Winter Weather	N/A	N/A	In the Town of Chenango, there were reports of falling trees and power outages throughout the Town.	Broome County HMP
March 21, 1999	Winter Weather	N/A	N/A	In the Town of Chenango, there were reports of falling trees and power outages throughout the Town.	Broome County HMP
January 19, 2002	Winter Storm	N/A	N/A	A winter storm resulted in \$5,442.55 in losses in the Town of Chenango.	Broome County HMP
December 25, 2002 – January 4, 2003	Snowstorm	EM-3173	Yes	<p>Between December 25 and 26, a snowstorm moved into central New York State and brought freezing rain and snow. Snowfall totals in the area ranged between six inches and three feet. Due to snowfall amounts, the New York State Thruway was closed for parts of the evening. The snow caused power outages to 3,000 customers in the Catskills. Many counties declared a state of emergency. In Broome County, snowfall totals ranged from 8.9 inches in Kattelville (Binghamton) to 12.7 inches in the City of Binghamton.</p> <p>Between January 3 and 4, a slow moving Nor'easter moved into central New York State, spreading snow. The snow was heavy at times, with totals ranging between eight and 25 inches. At least 20,000 customers were without power, some without power for a week. Emergency shelters were set up in some areas. Broome County experienced the highest snowfall amounts (between 11.2 inches and 20.5 inches).</p> <p>In Broome County, widespread power outages occurred and shelters were opened. The Town of Chenango experienced approximately \$38,409.82 in</p>	FEMA, NOAA-NCDC, NWS, SHELDUS, Broome County HMP



Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts	Source(s)
				damages. In the Town of Sanford, there was approximately \$29,674.86 in roadway losses.  Broome County received \$683,719.92 as of April 29, 2003 for the snow events during this time period.	
February 16-18, 2003 ("President's Day Storm")	Snowstorm	EM-3184	Yes	A coastal storm moved up the east coast of the U.S. Snow fall spread into the southern Catskills and into the southern tier. At times, snow fell at rates of several inches an hour. Snowfall totals in the area ranged between 10 and 30 inches. Property damage from the storm was approximately \$2.7 M.  In the Town of Chenango, numerous automobile accidents were reported. Total damages from the storm were approximately \$19,834 for the Town. The Town of Sanford had approximately \$9,638.71 in roadway losses.  In Broome County, snowfall totals ranged from 11.5 inches in the Town of Colesville to 19 inches in Vestal Center in the Town of Vestal.	FEMA, NOAA- NCDC, SHELDUS, NWS, Broome County HMP
December 14, 2003	Winter Storm	N/A	N/A	A winter storm moved up the Delmarva Peninsula, bringing snow to the Town of Chenango. This event caused numerous automobile accidents and total damages for the Town was approximately \$11,106.	Broome County HMP
January 27, 2004	Winter Storm	N/A	N/A	A winter storm event caused \$11,755 in losses to the Town of Chenango.	Broome County HMP
March 16-17, 2004	Snowstorm	N/A	N/A	Snowfall totals in Broome County ranged from 7 inches in the Town of Conklin and the hamlet of Riverside (Town of Kirkwood) to 11 inches in the Village of Whitney Point. The County had over \$20 K in property damages.	NWS, SHELDUS
January 22-23, 2005	Snowfall	N/A	N/A	A snowstorm brought heavy snow to the area, with totals in Broome County ranging from 8.5 inches in Vestal Center in the Town of Vestal to 14 inches in the Town of Chenango.	NWS
February 28-March 2, 2005	Snowstorm	N/A	N/A	A snowstorm occurred throughout the area. Snowfall totals in Broome County ranged from 10.8 inches in Endwell Hamlet to 15.2 inches in the Town of Vestal.	Broome County HMP, NWS
March 1, 2005	Winter Storm	N/A	N/A	A winter storm event brought snowfall totals of eight to 14 inches to the Town of Chenango, with some parts experiencing close to two feet of snow. Total damages in the Town were estimated at approximately \$11,001.	Broome County HMP
February 13-15, 2007 (Valentine's Day Storm)	Severe Winter Storm	N/A	N/A	The Valentine's Day Storm was the largest snowstorm to effect central New York State and northeast Pennsylvania during the 2006-2007 winter season. This storm was classified as "major" on the Northeast Snowfall Impact Scale. Snowfall totals in Broome County ranged from 12 inches in the Town of Vestal to 21.5 inches in the Town of Sanford/Village of Windsor. The County had approximately \$30 K in property damage.	NWS, NOAA- NCDC



Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts	Source(s)
April 15-16, 2007	Winter Storm	N/A	N/A	A mix of light rain and snow fell over central New York State during the afternoon of the 15 <sup>th</sup> . During the evening, precipitation changed back to snow north and west of the Catskills. The morning of the 16 <sup>th</sup> , the snow became heavy and continued across central New York State. Snow totals across the state ranged from two inches to two feet. In Broome County, snowfall totals ranged between 8 and 14 inches.	NOAA-NCDC, NWS
December 13-14, 2007	Snowfall	N/A	N/A	Snowfall totals in Broome County ranged from 6.2 inches at Whitney Point to 9.5 inches in the City of Binghamton.	NWS
December 30-31, 2007	Snowfall	N/A	N/A	An area of low pressure moved across the northeast U.S., producing snow amounts ranging from two to six inches across the central and western portions of NYS, with higher amounts across the east. Snowfall totals in Broome County ranged from five to eight inches.	NWS
December 11-31, 2008	Severe Winter Storm (snow and ice)	EM-3299 / DR-1827 (PA)	No	Between December 11 <sup>th</sup> and 12 <sup>th</sup> , wintry precipitation fell in central New York State. A band of heavy snow developed across central New York State, from the Finger Lakes to Onondaga and Madison Counties, bringing between five and 10 inches of snow. Further east, in Chenango, Delaware and Otsego Counties, significant icing was experienced and more than a half inch of ice fell. Snowfall totals in Broome County ranged between one and 7 inches.  Another storm occurred December 18 <sup>th</sup> . The storm brought snow across all of central New York State, with accumulations ranging from six to 11 inches. In Broome County, snowfall amounts ranged between five and eight inches.	FEMA, NOAA-NCDC, NWS
December 9, 2009	Snowfall	N/A	N/A	Snowfall totals in Broome County ranged from 4 inches in Deposit to 6.4 inches in the City of Binghamton.	NWS
February 10, 2010	Winter Storm	N/A	N/A	Snowfall totals in Broome County ranged from 4 inches at Whitney Point Dam to 6.4 inches in Endicott	NWS
February 25-26, 2010	Winter Storm	N/A	N/A	During the afternoon of the 25 <sup>th</sup> , snow became heavy and wind speeds ranged between 20 and 25 mph, with gusts of 35 mph. This caused near-blizzard conditions and state of emergencies were declared for several counties in central New York State. Snowfall totals ranged from 10 to 20 inches, with two to three feet in the Catskills.  In Broome County, heavy snow fell across the county, with amounts ranging from 8 inches at West Whitney Point Dam to 17.3 inches in the City of Binghamton.	NOAA-NCDC, NWS





Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts	Source(s)
December 4-9, 2010	Snowfall	N/A	N/A	Snowfall totals in Broome County ranged from 7.9 inches in the Town of Vestal to 21.7 inches in the City of Binghamton.	NWS
February 21, 2011	Snowfall	N/A	N/A	Snowfall totals in Broome County ranged from 3 inches in the Village of Deposit to 5 inches in Chenango Falls and Maine.	NWS
February 25-26, 2011	Heavy Snowfall	N/A	N/A	A low pressure system brought a significant snowfall of six to 12 inches to the area. Winds gusted up to 40 mph along the Lake Erie shore. A 30-mile stretch of the NYS Thruway, between Hamburg and Dunkirk, was closed due to multiple accidents. There were several reports of building collapses throughout the region from the weight of the snow.  Snowfall totals in Broome County ranged from 7.5 inches in the Village of Windsor to 21.5 inches in the Town of Vestal.  Total damages from this event were approximately \$35K; however, this includes multiple counties, including Broome County.	NWS
March 6-7, 2011	Heavy Snowfall	N/A	N/A	Snowfall totals in Broome County ranged from 7.5 inches in the Village of Windsor to 21.5 inches in the Town of Vestal.	NWS
October 29-30, 2011	Snow	N/A	N/A	Snowfall totals in Broome County ranged from 0.7 inches in the City of Binghamton to 2.8 inches in the hamlet of Tracy Creek (Town of Vestal).	NWS

Sources: NOAA-NCDC, FEMA, NWS, SHELDUS

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.

- DR Disaster Declaration
  - EM Emergency Declaration
  - FEMA Federal Emergency Management Agency
  - N/A Not Applicable
  - NCDC National Climatic Data Center
  - NOAA National Oceanic and Atmospheric Administration
  - NWS National Weather Service
  - PA Public Assistance
- SHELDUS Spatial Hazard Events and Losses Database for the United States







### E.4.3 Drought

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Many sources provided historical information regarding previous occurrences and losses associated with drought and extreme heat events throughout New York State and Broome County. With many sources reviewed for the purpose of this HMP, loss and impact information for many events could vary depending on the source. Therefore, the accuracy of monetary figures discussed is based only on the available information identified during research for this HMP.

According to NOAA's NCDC storm events database, Broome County experienced one drought event between April 30, 1950 and September 30, 2012. There were no damages associated with this event. According to the Hazard Research Lab at the University of South Carolina's Spatial Hazard Events and Losses Database for the U.S. (SHELDUS), between 1960 and 2011, three drought events occurred within the County. The database indicated that drought events and losses specifically associated with Broome County and its municipalities totaled over \$38,000 in property damage and over \$4.8 million in crop damages. However, these numbers may vary due to the database identifying the location of the hazard event in various forms or throughout multiple counties or regions.

Between 1954 and 2012, FEMA declared that New York State experienced one drought-related disaster (DR) or emergency (EM) classified as one or a combination of the following disaster types: water shortage. Generally, these disasters cover a wide region of the State; therefore, they may have impacted many counties. However, not all counties were included in the disaster declarations. Of those events, the NYS HMP and other sources indicate that Broome County has not been declared as a disaster area as a result of any drought-related event (FEMA, 2012).

Based on all sources researched, known drought and extreme events, between 1950 and 2012, that have affected Broome County and its municipalities are identified in Table E-13. Not all sources have been identified or researched; therefore, Table E-13 may not include all events that have occurred throughout the County and region.



**Table E-13. Drought and Extreme Heat Events Affecting Broome County Between 1950 and 2012.**

Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts	Source(s)
September – November 1895	Drought	N/A	N/A	Three month duration with the lowest PDSI of -3.54 in October.	NRCC
November – December 1899	Drought	N/A	N/A	Two month duration with the lowest PDSI of -3.35 in November.	NRCC
August 1900 – February 1901	Drought	N/A	N/A	Seven month duration with the lowest PDSI of -3.79 in October.	NRCC
August 1909 – January 1910	Drought	N/A	N/A	Six month duration with the lowest PDSI of -4.84 in December.	NRCC
July 1910 – September 1911	Drought	N/A	N/A	Fifteen month duration with the lowest PDSI of -4.31 in July 1911.	NRCC
October – December 1914	Drought	N/A	N/A	Three month duration with the lowest PDSI of -3.72 in November.	NRCC
April – June 1915	Drought	N/A	N/A	Three month duration with the lowest PDSI of -3.21 in May.	NRCC
November – December 1916	Drought	N/A	N/A	Two month duration with the lowest PDSI of -3.15 in December.	NRCC
September 1921 – February 1922	Drought	N/A	N/A	Six month duration with the lowest PDSI of -3.99 in October.	NRCC
November – December 1922	Drought	N/A	N/A	Two month duration with the lowest PDSI of -3.65 in December.	NRCC
May 1923 – January 1924	Drought	N/A	N/A	Nine month duration with the lowest PDSI of -4.23 in September.	NRCC
August 1930 – June 1931	Drought	N/A	N/A	Eleven month duration with the lowest PDSI of -5.68 in December.	NRCC
November – December 1931	Drought	N/A	N/A	Two month duration with the lowest PDSI of -3.66 in December.	NRCC



Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts	Source(s)
August 1939 – February 1940	Drought	N/A	N/A	Seven month duration with the lowest PDSI of -4.31 in January.	NRCC
May – June 1941	Drought	N/A	N/A	Two month duration with the lowest PDSI of -3.30 in June.	NRCC
September 1941 – April 1942	Drought	N/A	N/A	Eight month duration with the lowest PDSI of -3.93 in April 1942.	NRCC
August 1964 – February 1966	Drought and Water Shortage	DR-204	No	Nineteen month duration with the lowest PDSI of -5.99 in November 1964.	FEMA, NRCC
July – August 1966	Drought	N/A	N/A	Two month duration with the lowest PDSI of -3.52 in August.	NRCC
October – November 1966	Drought	N/A	N/A	Two month duration with the lowest PDSI of -3.06 in October.	NRCC
January – February 1967	Drought	N/A	N/A	Two month duration with the lowest PDSI of -3.17 in February.	NRCC
June 1988	Drought	N/A	N/A	Approximately \$16K in property damage and approximately \$1.67 M in crop damage.	SHELDUS
July 1988	Drought	N/A	N/A	Approximately \$16K in property damage and approximately \$166 K in crop damage.	SHELDUS
June – September 1995	Drought	N/A	N/A	A lack of rainfall across much of eastern New York State caused officials to enforce water restrictions in some areas. Many crops were excessively damaged, including vegetable, grain and vine crops. Some private wells ran dry. The Susquehanna River level was one-third of normal. Crop yields were down 30 to 60%. The lowest PDSI of -3.63 occurred in August.	NRCC, NYS HMP
October 1997	Drought	N/A	N/A	The USDA designed Chenango, Schoharie, Broome, Madison, Herkimer, Otsego and Delaware Counties as agricultural disaster areas due to continued drought conditions.	Drought Impact Reporter
September 1999	Drought	N/A	N/A	A very dry spring and summer caused major crop failures and some wells to run dry. Many streams and rivers were also brought to their lowest recorded levels. The crops most affected were corn and hay. Broome County was among the counties affected and had approximately \$2.9M in crop damages. Overall, the state had \$50 M in damages.	NYS HMP, NOAA-NCDC



Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts	Source(s)
July 2001	Drought	N/A	N/A	Due to drought conditions, Broome County had corn crop loss of over \$4K.	USDA
November 2001 – January 2002	Drought	N/A	N/A	Three month duration with the lowest PDSI of -3.28 in December. In December, the Delaware River Basin Commission declared a drought emergency for the Delaware River Basin. New York State declared a drought warning for six counties in the Delaware River Watershed (Delaware, Greene, Orange, Schoharie, Sullivan, and Ulster Counties). Broome and Chenango Counties, parts of which drain to the Delaware River, were under a drought watch. Voluntary water conservation measures were being requested across the Basin.	NRCC, Drought Impact Reporter
April 2005	Drought	N/A	N/A	The SBA noted a drought/heat declaration for Broome County, declaration #10309.	Broome County HMP
May - September 2005	Drought	N/A	N/A	A resident of Broome County stated that the lawns were the brownest they have seen since 1993 and have not had any significant rainfall. The County had a corn crop loss of over \$4K.	Drought Impact Reporter, USDA
July 2011	Drought	N/A	N/A	Due to drought conditions, Broome County had corn crop loss of over \$30K.	USDA
2012	Drought	N/A	N/A	As a result of a mild winter with little snowfall, areas across NYS have received only 25% of the normal spring and early summer rainfall. This increased the wildfire danger across the State.  Dry weather conditions lead to a heightened wildfire danger across upstate and western NYS. NYS instituted a statewide residential burn ban through October 12, 2012.	Gov. Cuomo

Sources: NRCC, 2012; NOAA-NCDC, 2012; SHELDUS, 2012; Broome County HMP, 2007; NDMC, 2012; USDA, 2012

- FEMA Federal Emergency Management Agency
- HMP Hazard Mitigation Plan
- K Thousand (\$)
- M Million (\$)
- N/A Not Applicable
- NCDC National Climatic Data Center
- NOAA National Oceanic and Atmospheric Administration
- NRCC Northeast Regional Climate Center
- NYS New York State
- PDSI Palmer Drought Severity Index
- SBA Small Business Administration
- U.S. United States
- USDA U.S. Agricultural Department





Agriculture-related drought disasters are quite common. One-half to two-thirds of the counties in the United States have been designated as disaster areas in each of the past several years. The Secretary of Agriculture is authorized to designate counties as disaster areas to make emergency loans (EM) to producers suffering losses in those counties and in counties that are contiguous to a designated county. **Error! Reference source not found.** presents USDA declared drought and excessive heat events impacting Broome County.

**Table E-14. Drought and Extreme Heat Events Declared by USDA**

Incidence Period	Event Type	USDA Designation Number	County Designated?*	Losses / Impacts	Source(s)
June 5 to 9, 2012	Excessive Heat	S2731	Yes	Production losses were attributed to excessive heat	USDA
June 1 to October 24, 2012	Drought and Excessive Heat	S3427	Yes	Production losses were attributed to drought and excessive heat	USDA
June 26 and continuing, 2012	Drought	S3441	No	Physical and production losses were attributed to drought	USDA

Source: USDA, 2012

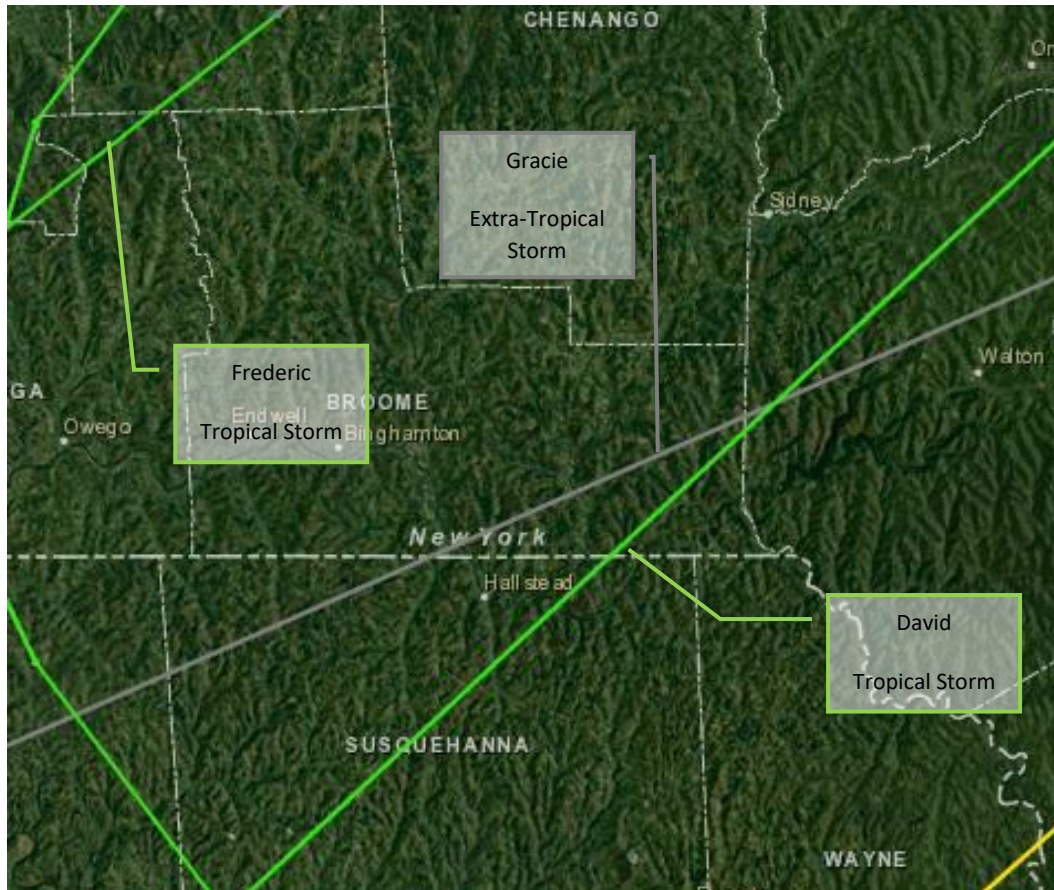
\*Disaster event occurred within the county.

- M Presidential Major Disaster Declaration
- N Administrative Physical Loss Notification
- S Secretarial National Disaster Determination
- USDA United States Department of Agriculture



### E.4.4 Severe Storms

Figure E-3. Historical North Atlantic Tropical Cyclone Tracks (1842-2011)



Source: NOAA, 2012

Many sources provided historical information regarding previous occurrences and losses associated with severe storm events throughout New York State and Broome County. With so many sources reviewed for the purpose of this HMP, loss and impact information for many events could vary depending on the source. Therefore, the accuracy of monetary figures discussed is based only on the available information identified during research for this HMP.

According to NOAA’s NCDC storm events database, Broome County experienced 473 severe storm events between 1950 and July 2012. These events include funnel clouds, hail, high winds, lightning, hurricane and tropical storms, precipitation, strong winds, thunderstorms and tornadoes. Total property damages, as a result of these severe storm events, were estimated at over \$105.4 million. Total crop damages were estimated at \$222,000. This total also includes damages experienced by other counties. According to the Hazard Research Lab at the University of South Carolina’s Spatial Hazard Events and Losses Database for the U.S. (SHELDUS), between 1960 and 2011, 239 severe storm events occurred within the County. The database indicated that severe storm events and losses specifically associated with Broome County and its municipalities totaled over \$11.5 million in property damage and over \$1.5 million in crop damage. However, these numbers may vary due to the database identifying the location of the hazard event in various forms or throughout multiple counties or regions.

Between 1954 and 2012, FEMA declared that New York State experienced 52 severe storm-related disasters (DR) or emergencies (EM) classified as one or a combination of the following disaster types: winter storms,



severe storms, coastal storms, flooding, heavy rain, tropical storm, hurricane, high winds and tornado. Generally, these disasters cover a wide region of the State; therefore, they may have impacted many counties. However, not all counties were included in the disaster declarations. Of those events, the NYS HMP and other sources indicate that Broome County has been declared as a disaster area as a result of 15 severe storm events (FEMA, 2012).





Table E-15. Severe Storm Events Between 1939 and 2012

Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts	Source(s)
1939	Tropical Depression	N/A	N/A	No reference and/or no damage reported.	Broome County HMP
1959	Hurricane Gracie	N/A	N/A	No reference and/or no damage reported.	Broome County HMP
July 22, 1970	Heavy Rains and Flooding	DR-290	Yes	No reference and/or no damage reported.	FEMA
June 23, 1972	Tropical Storm Agnes	DR-338	Yes	No reference and/or no damage reported.	FEMA
October 2, 1975	Severe Storms, Heavy Rain, Landslides, Flooding	DR-487	Yes	No reference and/or no damage reported.	FEMA
July 21, 1976	Severe Storms and Flooding	DR-515	Yes	No reference and/or no damage reported.	FEMA
1979	Hurricane David	N/A	N/A	No reference and/or no damage reported.	Broome County HMP
1991	Hurricane Bob	N/A	N/A	No reference and/or no damage reported.	Broome County HMP
September 3, 1992	Tornado	N/A	N/A	No reference and/or no damage reported.	Broome County HMP
July 7, 1994	TSTM, Wind	N/A	N/A	Severe TSTMs moved across eastern New York State during the afternoon. TSTM winds downed trees and power lines in many areas. Intense lightning started several fires and killed one person in Albany. In addition to the wind and lightning, torrential downpours resulted in some flash flooding as well as poor drainage flooding. The hardest hit areas included the Capital District Region where over 10,000 customers were without power. Other hard hit areas included Saugerties (Ulster County), Norwich (Chenango County), Leonardsville (Madison County) and Kingsbury (Washington County). Broome County had approximately \$30 K in property damage.	NOAA-NCDC





Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts	Source(s)
July 9, 1994	TSTM	N/A	N/A	Broome County had over \$1 M in property damages.	NOAA-NCDC
July 15, 1994		N/A	N/A	Severe TSTMs struck across the southern tier of New York State and across parts of the Susquehanna Region. TSTM winds downed trees and power lines in portions of Broome, Chenango, and Cortland Counties. In Broome County, the most extensive damage occurred in the Towns of Lisle and Kirkwood where trees fell on homes. Broome County had approximately \$105 K in property damage.	NOAA-NCDC
January 19-30, 1996	Severe Storms and Flooding	DR-1095	Yes	No reference and/or no damage reported.	FEMA
May 31, 1998	Severe Storm/TSTMs	DR-1222	Yes	<p>Large hail stones were observed along the cell’s southern and western flanks. A tornado crossed the County line and entered the Town of Vestal. The damage path was approximately 70 yards wide. Trees were uprooted and/or twisted. As the cell moved further east into the Town of Binghamton, the tornado intensified to an F2 and increased to a path of about 100 yards wide. Damage became increasingly severe, with more structures affected. A 1,000-foot television tower was twisted and toppled to the ground. A large dumpster was lifted off the ground. Several small trailers were flattened in the Town of Binghamton, just east of Ingraham Hill. The tornado moved further east through the towns of Conklin, Kirkwood, Windsor and Sanford/Deposit area, maintaining an intensity of F2. More than 12 homes were damaged; several trailers were nearly or completely destroyed. As the cell moved into the Town of Windsor, it weakened to a F0 and as it reached the Town of Sanford, it re-intensified to an F3. A home was destroyed, trees were flattened, and hail was observed up to three inches in diameter.</p> <p>The County had 12 injuries and approximately \$1.5 M in damages from this event.</p> <p>\$80K from DRI funding for Broome County; \$250K in farm damage requested USDA disaster assistance</p> <p>The storms also caused six tornadoes in central NYS. The most devastating tornado cut a discontinuous 60-mile track from southeastern Tioga County across southern Broome County and into Delaware County where it finally lifted back into the cloud base. This tornado alone damaged or destroyed more than 30 homes and injured nearly 20 people.</p>	NOAA-NCDC, Broome County HMP



Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts	Source(s)
June 7, 1999	Severe Storm	N/A	N/A	Damage-producing TSTMs hit central NYS, bringing storm winds and hail. In Broome County, golf ball sized hail fell for 15 minutes, covering the ground in the Town of Conklin. Two people were injured when a large tree uprooted and fell in the Town of Endicott. The County had approximately \$20K in property damage and \$2K in crop damage.	NOAA-NCDC
July 6, 1999	Severe Storms	N/A	N/A	In the Town of Maine, a large portion of a roof was torn off a barn. The winds from the storm downed many trees. In the Town of Chenango, the storms downed trees and caused washouts. The County had approximately \$30K in property damage.	NOAA-NCDC, Broome County HMP
1999	Hurricane Floyd	N/A	N/A	No reference and/or no damage reported.	Broome County HMP
June 16, 2001	TSTMs	N/A	N/A	TSTMs moved through the northern portion of the Town of Chenango, affecting the hamlet of Castle Creek. Castle Creek overflowed its bank and damaged several homes, the Civic Association and the ball fields.	Broome County HMP
2003	Hurricane Isabel	N/A	N/A	No reference and/or no damage reported.	Broome County HMP
July 4, 2003	Severe Storm	N/A	N/A	TSTM winds downed numerous trees and power lines on North Street in the Town of Triangle. In the Chenango Valley State Park, many trees were downed and uprooted. Tree limbs fell on cars and campers in the state park. Several miles of hiking trails were closed due to downed trees. The County had approximately \$15K in property damage.	NOAA-NCDC
July 10-11, 2003	Lightning	N/A	N/A	Lightning struck in Port Crane, Binghamton and Johnson City. A barn was struck along Route 369 in Port Crane and caught fire. Lightning hit a house in the Town of Binghamton and struck power lines in Johnson City, causing almost 6,000 people to be without power for a couple hours. Bates Troy Laundry and Cleaners in Binghamton was struck, resulting in a fire.	Broome County HMP
July 21, 2003	TSTM	N/A	N/A	A TSTM moved through the Town of Chenango, downing trees and causing power outages. Washouts occurred on two of the Town's eastside hill roads.	Broome County HMP
May 24, 2004	Tornado (F1)	N/A	N/A	A tornado touched down near the Town of Sanford, resulting in approximately \$50K in property damage. The tornado uprooted and snapped trees along its path. The tornado destroyed a trailer, damaged siding on a house and destroyed a barn. Hail was also reported during this event and damaged the area around and northeast of Sanford.	Broome County HMP



Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts	Source(s)
June 9, 2004	TSTM	N/A	N/A	A TSTM moved through the Town of Chenango, in the Chenango Bridge area, downing several trees.	Broome County HMP
August 13 – September 16, 2004	Severe Storms	DR-1564	Yes	8/20 - TSTM winds downed numerous trees and wires throughout Broome County, with some falling into roadways. The worst damage was along Kales Hill Road off of State Route 26 in the Town of Triangle. The County had approximately \$30K in property damage.  These series of events resulted in FEMA issuing approximately \$450K to various municipalities in Broome County.	NOAA-NCDC, Broome County HMP
2004	Frances	N/A	N/A	No reference and/or no damage reported.	Broome County HMP
2004	Jeanne	N/A	N/A	No reference and/or no damage reported.	Broome County HMP
September 16-18, 2004	Severe Storm (Tropical Storm Ivan)	DR-1565	Yes	\$920K of Federal Relief Assistance in the County	FEMA, Broome County HMP
April 2-4, 2005	Severe Storms and Flooding	DR-1589	Yes	\$11.2M of Federal Relief Assistance in the County. The funds were given to municipalities for debris removal, emergency protective measures, road and bridge repair, and park repair.	FEMA, Broome County HMP
June 6, 2005	Severe Storm	N/A	N/A	Winds from TSTMs downed numerous trees and power lines throughout Broome County. Six buildings had damage due to the winds and falling trees. The hardest hit areas were in the southwest part of the County and included the towns of Vestal, Endicott, and Binghamton. Part of a roof was blown off the wing of an elementary school in the town of Endicott while school was in session. The County had approximately \$100K in property damage.	NOAA-NCDC, Broome County HMP
June 26 – July 10, 2006	Severe Storm and Flooding	DR-1650	Yes	7/10 - Trees down on some wires in the County  \$227 M in federal reimbursements was approved for 12 counties in NYS.	FEMA, NOAA-NCDC, SHELDUS, Broome County HMP
November 16-17, 2006	Severe Storm and Flooding	DR-1670	Yes	A series of storms produced squall line TSTMS with heavy rainfall across parts of NYS. The line of TSTMs produced 45 to 74 mph winds across central NYS. Many hillsides and creeks were flooded, causing mudslides and debris flows. \$19.1 M in federal reimbursements was approved for nine counties in NYS.	FEMA, NOAA-NCDC, SHELDUS, Broome County HMP
June 25, 2009	TSTM	N/A	N/A	Showers and scattered TSTMs developed. Some of the storms were severe and produced large hail and damaging winds. Trees and wires	NOAA-NCDC



Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts	Source(s)
				were down throughout Broome County. The County had approximately \$26K in property damage.	
April 27-28, 2011	Severe Storm, Flooding, Straight-Line Winds	DR-1993	Yes	A severe weather outbreak developed across central NYS. It brought showers, TSTMs, strong winds and a tornado. The tornado occurred in Steuben County and caused damage in Steuben, Chemung and Schuyler Counties. Other areas in central NYS experienced wind damage and heavy rain.  In Broome County, trees and power lines were down across Route 79 in the Town of Chenango. Trees and wires were down in the Towns of Conklin and Binghamton. Trees fell on a house in the Town of Conklin. The County had approximately \$20K in property damage.	FEMA, NOAA-NCDC
May 26, 2011	Severe Storms	N/A	N/A	A storm system brought rain and TSTMs to the area. There were many reports of large hail and damaging winds across central NYS. In Broome County, the storms downed trees and wires in different areas. The County had approximately \$33 K in property damage.	NOAA-NCDC
August 7, 2011	TSTM, Wind	N/A	N/A	TSTMs developed, producing severe and strong winds. The winds caused downed trees and wires in Broome County. In the Town of East Windsor, a roof was blown off a shed and a camping trailer was blown off its supports at Forest Lake Campground. The County had approximately \$20 K in property damage.	NOAA-NCDC
August 28, 2011	Tropical Storm Irene	EM-3328	No	Tropical Storm Irene tracked north-northeast across eastern NYS and western New England. This storm produced widespread flooding and damaging winds across the region. The greatest impact from Irene was heavy to extreme rainfall which caused major flooding. Rainfall totals ranged from four to eight inches, with some areas receiving between eight and 12 inches of rain.  In Broome County, major flooding occurred. See the Flood profile of this plan for further information regarding Tropical Storm Irene.	NOAA-NCDC
September 7 -10, 2011	Remnants of Tropical Storm Lee	EM-3341 / DR-4031	Yes	No reference and/or no damage reported.	FEMA, NOAA-NCDC

Sources: FEMA, NOAA-NCDC, NWS, SHELDUS

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.

DR Federal Disaster Declaration

EM Federal Emergency Declaration

FEMA Federal Emergency Management Agency

K Thousand (\$)

M Million (\$)

Mph Miles Per Hour

NCDC National Climate Data Center

NOAA National Oceanic Atmospheric Administration

NYS New York State

NWS National Weather Service

SHELDUS Spatial Hazard Events and Losses Database for the U.S.

TSTM Thunderstorms





### E.4.5 Earthquake

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Many sources provided historical information regarding previous occurrences and losses associated with earthquakes throughout New York State. Therefore, with so many sources reviewed for the purpose of this HMP, loss and impact information for many events could vary depending on the sources.

According to the NYSDPC, USGS, NEIC and Lamont-Doherty, approximately 35 earthquake events have affected New York State between 1971 and 2011. Additional sources have noted other earthquake events within New York State as well. Table E-16 depicts these earthquakes events. Several of these events were located within the vicinity of Broome County.



Table E-16. Earthquake History in New York State, 1971-2012

Dates of Event	Event Type	Location	FEMA Declaration Number	County Designated?	Losses / Impacts	Source(s)
May 23, 1971	Earthquake 3.5 – 4.1	Blue Mountain Lake, NY	N/A	N/A	No reference and/or no damage reported.	NYSDPC
June 7, 1974	Earthquake 3.0	Wappinger Falls, NY	N/A	N/A	Earthquake caused windows to break and a bookcase to topple. More than 100 aftershocks were reported through June 13 <sup>th</sup> .	NYSDPC, Stover and Coffman
June 9, 1975	Earthquake 3.5	Plattsburgh (Altona), NY	N/A	N/A	In Beekmantown on Lake Champlain, a chimney and fireplace were cracked. East of Beekmantown, in Fairfax, Vermont, slight damage was reported.	NYSDPC, Stover and Coffman
November 3, 1975	Earthquake 4.0	Raquette Lake, NY	N/A	N/A	No reference and/or no damage reported.	NYSDPC
March 10, 1979	Earthquake 3.2		N/A	N/A	Felt by some in Manhattan	Kim
February 2, 1983	Earthquake 3.0	Scarsdale-Lagrangeville, NY	N/A	N/A	Chimneys cracked	NYSDPC
October 7, 1983	Earthquake 5.1	Goodnow, Adirondack Mountains	N/A	N/A	An old chimney collapsed, about 20 tombstones slid or rotated, and some minor cracks formed in plaster walls in Blue Mountain Lake. Several landslides were reported. Light damage was reported in surrounding towns. It was felt over a wide range, including two provinces in Canada and 12 states.	NYSDPC, Stover and Coffman
October 19, 1985	Earthquake 4.0	Ardsley, NY	N/A	N/A	Windows broken in Newburgh, New York and Glenville, Connecticut. Plaster and drywall were cracked and glassware broke in Newburgh. Light damage was sustained in some towns in Connecticut, New Jersey and New York. It was felt over a large area of Connecticut, Massachusetts, New Jersey, New York and Pennsylvania. A moderate aftershock was felt on October 21 <sup>st</sup> in Connecticut, New York and New Jersey.	NYSDPC, Stover and Coffman, Kim
June 17, 1991	Earthquake 4.1	Richmondville, NY	N/A	N/A	No reference and/or no damage reported.	NYSDPC
March 10, 1992	Earthquake 2.8	East Hampton, NY	N/A	N/A	Very minor damage to the area. The earthquake was centered in the Atlantic Ocean, about 15 miles south of Montauk. It was felt from the tip of eastern Long Island to New London, Connecticut.	NYSDPC, New York Times, Albany Times Union



Dates of Event	Event Type	Location	FEMA Declaration Number	County Designated?	Losses / Impacts	Source(s)
March 22, 1994	Earthquake 3.6		N/A	N/A	No reference and/or no damage reported	NYSDPC
Earthquake April 20, 2000	Earthquake 3.8	Newcomb, NY	N/A	N/A	No reference and/or no damage reported	NYSDPC
November 6, 2000	Earthquake 2.4	Duanesburg, NY	N/A	N/A	No reference and/or no damage reported	NEIC
January 17, 2001	Earthquake 2.4		N/A	N/A	Felt in Upper East Side of Manhattan, Long Island city and Queens.	Kim
October 17, 2001	Earthquake 2.6		N/A	N/A	Felt in Upper West Side of Manhattan, Astoria and Queens	Kim
April 20, 2002	Earthquake 5.1	Au Sable Forks, NY	DR-1415	No	Largest earthquake to hit New York State in 20 years. People felt the earthquake from Washington, D.C. to Bangor, Maine. A state of emergency was declared in Essex and Clinton Counties. In Delaware County, the Towns of: Delhi, Deposit, Hamden, Middletown, and Walton and the Village of Fleischmanns, all reported having felt the earthquake.	NYSDPC, USGS
May 24, 2002	Earthquake 3.1	Au Sable Forks, NY	N/A	N/A	Aftershock of the April 20 <sup>th</sup> event; no damage reported.	NYSDPC, USGS
March 26, 2007	Earthquake 1.8	Feura Bush, NY	N/A	N/A	No reference and/or no damage reported.	USGS, NEIC
April 11, 2007	Earthquake 2.6	Wolcott, NY	N/A	N/A	No reference and/or no damage reported.	USGS
July 19, 2007	Earthquake 3.0	Lake Ontario, NY	N/A	N/A	No reference and/or no damage reported.	USGS
July 24, 2007	Earthquake 2.6 – 3.1	Berne, NY	N/A	N/A	No reference and/or no damage reported.	USGS, NEIC
February 27, 2008	Earthquake 2.7	Howes Cave, NY	N/A	N/A	No reference and/or no damage reported.	USGS, NEIC
May 28, 2008	Earthquake 1.8	Saratoga Springs, NY	N/A	N/A	No reference and/or no damage reported.	USGS





Dates of Event	Event Type	Location	FEMA Declaration Number	County Designated?	Losses / Impacts	Source(s)
February 18, 2009	Earthquake 2.3 – 2.7	East Berne, NY	N/A	N/A	No reference and/or no damage reported.	USGS, NEIC
February 20, 2009	Earthquake 2.7	East Berne, NY	N/A	N/A	No reference and/or no damage reported.	USGS, NEIC
February 23, 2009	Earthquake 2.1	East Berne, NY	N/A	N/A	No reference and/or no damage reported.	USGS, NEIC
March 22, 2009	Earthquake 2.1 - 2.8	Berne, NY	N/A	N/A	No reference and/or no damage reported.	USGS, NEIC
May 18, 2009	Earthquake 2.1 - 3.0	Berne, NY	N/A	N/A	No reference and/or no damage reported.	USGS, NEIC
October 21, 2009	Earthquake 2.9	East Berne, NY	N/A	N/A	No reference and/or no damage reported.	USGS, NEIC
December 13, 2009	Earthquake 2.6 – 3.1	Berne, NY	N/A	N/A	No reference and/or no damage reported.	USGS, NEIC
February 15, 2010	Earthquake 2.2	Berne, NY	N/A	N/A	No reference and/or no damage reported.	NEIC
February 18, 2010	Earthquake 2.7	Berne, NY	N/A	N/A	No reference and/or no damage reported.	NEIC
March 24, 2010	Earthquake 2.7	Berne, NY	N/A	N/A	No reference and/or no damage reported.	NEIC
June 23, 2010	Earthquake 5.5	Ontario and Quebec, Canada border	N/A	N/A	A minor earthquake in Canada was felt throughout the New York City and upstate New York area. The earthquake lasted about 30 seconds. Tremors were felt in the City of Binghamton.	NY1News
August 23, 2011	Earthquake 5.9	Virginia	N/A	N/A	An earthquake centered in Virginia was felt up and down the east coast. In Broome County, many residents said they felt the earthquake.	Markham
August 25, 2011	Earthquake 2.0 – 2.8	Altamont, NY	N/A	N/A	No reference and/or no damage reported.	USGS, NEIC



Dates of Event	Event Type	Location	FEMA Declaration Number	County Designated?	Losses / Impacts	Source(s)
August 26, 2011	Earthquake 2.2	Altamont, NY	N/A	N/A	No reference and/or no damage reported.	NEIC
August 27, 2011	Earthquake 2.9	Altamont, NY	N/A	N/A	No reference and/or no damage reported.	USGS, NEIC
November 21, 2011	Earthquake 2.4	Moira, NY	N/A	N/A	No reference and/or no damage reported.	USGS, NEIC
January 7, 2012	Earthquake 2.1	Bombay, NY	N/A	N/A	No reference and/or no damage reported.	USGS, NEIC
January 23, 2012	Earthquake 2.3	Johnsburg, NY	N/A	N/A	No reference and/or no damage reported.	USGS, NEIC
March 23, 2012	Earthquake 2.5	Mt. Morris, NY	N/A	N/A	No reference and/or no damage reported.	USGS, NEIC
September 8, 2012	Earthquake 2.1	Greenwich, CT	N/A	N/A	No reference and/or no damage reported.	USGS, NEIC

Source(s): NYSDPC, 2008; Draft NYS HMP, 2011; NEIC, 2011; USGS, 2011; Kim, 1999; Stover and Coffman, 1989

DR Disaster Declaration  
 FEMA Federal Emergency Management Agency  
 N/A Not Applicable  
 NEIC National Earthquake Information Center  
 NYSDPC New York State Disaster Preparedness Commission  
 USGS U.S. Geological Survey



Earthquakes in Broome County are not common, with documented information on earthquake events and their location is being relatively scarce. According to Planning Area officials, there is no record of earthquake occurrences within the Planning Area. However, depending on the magnitude, the impacts of earthquake events can be far-reaching; therefore, reported incidences within the surrounding counties or states could have created indirect impacts upon the Planning Area.

### E.4.6 Extreme Temperature

Many sources provided historical information regarding previous occurrences and losses associated with extreme temperatures throughout New York State and Broome County. With so many sources reviewed for the purpose of this HMP, loss and impact information for many events could vary. Therefore, the accuracy of monetary figures discussed is based only on the available information identified during research for this HMP.

The Midwest Regional Climate Center (MRCC) operates an online annual temperature extremes database of the Continental U.S., otherwise known as “MRCC Cooperative Observer Station Annual Temperature Record Data Set”. The data set contains the annual maximum and minimum temperature records for stations in the U.S. Each station has a cooperative observer system i.d. number (coop number), and those examined for this HMP had a running length of more than five years. In New York State, there are 269 stations that were observed; however, only six stations in Broome County. Not every city, town and/or village in New York State contains a station (MRCC, 2012).

There may be some potential problems with the data collected at the stations. The records were created by MRCC at the request of a user. The values of the all-time records for stations with brief histories are limited in accuracy and could vary from nearby stations with longer records. Although the data sets have been through quality control, there is still a need for more resources to quality control extremes. The record sets are for single stations in the cooperative observer network and are limited to the time of operation of each station under one coop number. The records for a place may need to be constructed from several individual station histories. Some of the data may vary from NWS records due to NWS using multiple stations and additional sources like record books (MRCC, Date Unknown).

Based on the data provided by MRCC, Table E-17 presents the extreme cold (minimum) and hot (maximum) temperature records for Broome County from 1893 to 2003.

**Table E-17. MRCC Temperature Extremes – Broome County**

Station ID	Name	Begin	End	Max (°F)	Max Date	Min (°F)	Min Date	Avg Max	Avg Min
300691	Binghamton	1893	1968	103	7/9/1936	-28	1/17/1893	50	30.5
300687	Binghamton	1951	2003	98	7/16/1988	-20	1/15/1957	46.1	29.4
302030	Deposit	1962	2003	98	7/15/1995	-31	1/21/1994	49.3	27.5
302627	Endicott	1985	2003	101	7/17/1988	-26	1/21/1994	50.1	27.9
308831	Vestal	1968	1977	92	6/28/1969	-14	1/23/1976	47	27.7
308833	Vestal	1977	1985	95	7/21/1980	-17	2/11/1979	46.8	27.7

Source: MRCC, 2012

Notes: Begin Year is when the data collection began; End Year is when the data collection stopped.

Between 1954 and 2012, New York State was not included in any major disaster declarations or emergency declarations due to extreme temperatures. Information regarding specific details of temperature extremes in Broome County is scarce; therefore, previous occurrences and losses associated with extreme temperature events are limited. Table E-18 summarizes the extreme temperature events in the County.



Table E-18. Extreme Temperature Events between 1950 and 2012

Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts	Source(s)
June 13-18, 1988	Heat	N/A	N/A		SHELDUS
July 4-11, 1988	Heat	N/A	N/A	Approximately \$2K in property damage.	SHELDUS
August 1, 1988	Heat Wave	N/A	N/A		SHELDUS
October 11, 1993	Record Cold	N/A	N/A	A high pressure stretched from central New England to northeast Pennsylvania, resulting in record lows across parts of the Susquehanna Region. The City of Binghamton dropped to 25°F, setting a new record low.	NOAA-NCDC
October 13-14, 1993	Record Cold	N/A	N/A	A ridge of high pressure moved into central NYS that resulted in record lows across parts of the Susquehanna Region. The City of Binghamton set a new record low of 28°F on the 13 <sup>th</sup> and 24°F on the 14 <sup>th</sup> .	NOAA-NCDC
January 15, 2004	Extreme Cold	N/A	N/A	A deep, low pressure system in southeast Canada combined with a large area of high pressure in Ontario created northwest winds of 15 to 25 mph across the area. The northwest winds brought more Arctic air to the region with temperatures dropping to below zero. The wind and cold dropped wind chill values to 20 to 40 below zero. Many schools were closed due to the cold weather. Pipes froze at homes and businesses. Broome County had approximately \$220K in property damage.	NOAA-NCDC
December 14, 2005	Record Cold	N/A	N/A	Many counties in NYS reported record cold temperatures, including Broome County. Temperatures in the County ranged from -6°F at the Binghamton Airport to -13°F at Whitney Point.	NOAA-NCDC, NWS
January 2-3, 2008	Cold	N/A	N/A	In Broome County, temperatures ranged from 0°F to -3°F.	NWS
February 29, 2008	Cold	N/A	N/A	Clear skies and calm winds allowed temperatures to fall below zero across central NYS and northeast Pennsylvania. In Broome County, temperatures ranged from 0°F to -11°F.	NWS
January 14-15, 2009	Low Temperatures	N/A	N/A	In Broome County, temperatures ranged from 4°F to -3°F.	NWS
January 15-16, 2009	Low Temperatures	N/A	N/A	In Broome County, temperatures ranged from -2°F to -18°F.	NWS
July 21, 2011	Extreme Heat	N/A	N/A	The heat index ranged from 96°F in the Town of Vestal to 111°F in the Village of Port Dickinson. The maximum air temperatures ranged from 95°F in Johnson City to 101°F in the Village of Port Dickinson.	NWS

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 Climate Data Center

NYS SHELDUS

New York State Spatial Hazard Events and Losses Database for the United States

NWS National Weather Service





Agriculture-related disasters are quite common. The Secretary of Agriculture is authorized to designate counties as disaster areas to make emergency loans (EM) to producers suffering losses in those counties and in counties that are contiguous to a designated county. Table E-19 presents USDA declared drought, excessive heat, frosts and freeze events impacting Broome County.

**Table E-19. USDA Declared Disasters**

Incidence Period	Event Type	USDA Designation Number	County Designated? <sup>*,*</sup>	Losses / Impacts	Source(s)
June 5 to June 8, 2008	Excessive Heat	S2731	Yes	Production losses	USDA
April 28 to May 28, 2008	Frost and Freeze	S2738	Yes	Production losses	USDA
May 31 to June 2, 2009	Frost and freeze	S2895	Yes	Production losses	USDA
February 15 to May 5, 2010	Frost, freeze, high winds, hail, excessive snow, excessive rain and cold temperatures	S3070	Yes	Production losses	USDA
March 1, 2012 and continuing	Frosts & Freeze	S3249	Yes	Physical and production losses attributed to frost and freezing temperatures	USDA
June 5 to 9, 2012	Excessive Heat	S2731	Yes	Production losses were attributed to excessive heat	USDA
June 1 to October 24, 2012	Drought and Excessive Heat	S3427	Yes	Production losses were attributed to drought and excessive heat	USDA
June 26, 2012 and continuing	Drought	S3441	No (Brome a contiguous county)	Physical and production losses were attributed to drought	USDA

Source: USDA, 2012

\*Disaster event occurred within the county.

- M Presidential Major Disaster Declaration
- N Administrative Physical Loss Notification
- S Secretarial National Disaster Determination
- USDA United States Department of Agriculture

## E.5 Risk Assessment Tables

The following tables and figures display the Vulnerability Assessment results and supplemental data from the for each Hazard of Concern. The following list features abbreviations that pertain to the tables below:

- (C) – City
- (T) – Town
- (V) – Village
- RCV – Replacement Cost Value
- DPW – Department of Public Works
- EMS – Emergency Medical Services
- EOC – Emergency Operations Center



Drought

Qualitative analysis conducted; no tables.

Earthquake

The below tables display results of the exposure and HAZUS-MH v4.2 analyses conducted for the County.

**Table E-20. Estimated Values of Residential and Commercial Buildings and Contents Damaged by the 250- and 1,000-Year MRP Earthquake Events**

Municipality	Total Replacement Cost Value (RCV) (Building and Contents)	Estimated Residential Damage		Estimated Commercial Damage	
		250-Year	1,000-Year	250-Year	1,000-Year
Barker (T)	\$688,813,868	\$0	\$181,136	\$0	\$21,644
Binghamton (C)	\$77,847,328,827	\$18,104,453	\$130,877,923	\$3,011,608	\$23,115,057
Binghamton (T)	\$1,228,624,612	\$42	\$221,150	\$6	\$13,093
Chenango (T)	\$4,543,298,114	\$73,123	\$1,297,498	\$14,687	\$591,247
Colesville (T)	\$2,981,791,633	\$0	\$1,041,448	\$0	\$37,428
Conklin (T)	\$1,795,243,811	\$0	\$502,633	\$0	\$273,170
Deposit (V)	\$459,195,313	\$0	\$125,134	\$0	\$13,361
Dickinson (T)	\$1,446,559,666	\$705	\$381,951	\$247	\$32,136
Endicott (V)	\$11,814,240,767	\$2,338,246	\$16,528,191	\$198,693	\$1,523,848
Fenton (T)	\$1,763,698,720	\$0	\$526,799	\$0	\$89,270
Johnson City (V)	\$31,593,599,188	\$1,443,862	\$14,929,205	\$595,870	\$7,858,491
Kirkwood (T)	\$3,589,691,107	\$0	\$629,149	\$0	\$248,689
Lisle (T)	\$568,905,916	\$0	\$149,290	\$0	\$11,204
Lisle (V)	\$107,968,636	\$0	\$28,329	\$0	\$2,123
Maine (T)	\$1,702,703,387	\$0	\$306,006	\$0	\$149,396
Nanticoke (T)	\$395,739,757	\$0	\$81,776	\$0	\$6,814
Port Dickinson (V)	\$525,142,613	\$0	\$137,631	\$0	\$11,177
Sanford (T)	\$770,815,458	\$0	\$209,966	\$0	\$22,370
Triangle (T)	\$576,956,692	\$0	\$164,245	\$0	\$26,174
Union (T)	\$30,465,363,557	\$537,184	\$11,530,372	\$140,649	\$1,665,482
Vestal (T)	\$21,589,049,741	\$101,504	\$4,993,508	\$121,139	\$3,779,664
Whitney Point (V)	\$519,433,248	\$0	\$147,891	\$0	\$23,590
Windsor (T)	\$1,424,173,576	\$0	\$343,810	\$0	\$14,040
Windsor (V)	\$719,873,967	\$0	\$174,600	\$0	\$6,365
<b>Broome County</b>	<b>\$199,118,212,175</b>	<b>\$22,599,117</b>	<b>\$185,509,641</b>	<b>\$4,082,899</b>	<b>\$39,535,832</b>

Source: HAZUS-MH v4.2.



Table E-21. Numbers of Critical Facilities Located on Soils of NEHRP Class D or E

Municipality	Air	Animal Shelter	Bridge	Communication	County	Daycare	EMS	Fire	Hazmat	Highway Garage	Historic Place	Home for the Elderly	Library	Medical	Mobile Home Park	Municipal Hall	Pet Store	Police	Polling	Post Office	Potable	Potable Well	Rail	School	Shelter	Shelter (RC)	Veterinarian	Wastewater Pump	Wastewater Treatment Plant			
Barker (T)	0	0	6	0	0	1	0	1	1	0	0	0	0	0	1	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0		
Binghamton (C)	0	2	67	9	12	28	3	5	90	1	286	5	1	2	0	1	1	2	23	5	1	2	1	11	0	15	3	4	0	0		
Binghamton (T)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Chenango (T)	0	0	13	0	0	5	0	0	17	0	0	0	0	0	3	0	1	0	1	0	0	14	0	3	6	4	2	0	2	0		
Colesville (T)	0	0	19	0	0	0	1	1	0	0	1	0	1	0	2	0	0	0	1	1	0	3	0	2	1	3	0	0	0	0		
Conklin (T)	0	0	11	0	0	3	0	1	5	1	1	0	0	0	2	1	0	0	3	1	0	5	0	3	7	2	0	5	0	0		
Deposit (V)	0	0	2	0	0	1	0	0	0	1	0	0	0	0	0	2	0	0	0	0	0	4	0	0	0	0	0	0	0	1	0	
Dickinson (T)	0	0	3	0	2	1	0	1	3	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	3	1	0	0	0	0		
Endicott (V)	1	1	8	0	1	6	1	1	2	1	4	0	1	0	0	1	0	1	5	2	0	3	0	2	2	5	2	0	0	1	0	
Fenton (T)	0	0	13	0	0	0	0	0	5	0	0	0	0	0	5	0	0	0	0	0	0	7	0	1	3	1	0	0	0	0	0	
Johnson City (V)	0	0	22	2	0	12	2	2	2	1	5	1	1	1	0	1	1	1	5	2	0	2	0	1	3	6	1	2	0	0	0	
Kirkwood (T)	0	0	3	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	0	0	1	0	0	0	
Lisle (T)	0	0	6	0	0	0	1	2	1	1	0	0	0	0	1	1	0	0	2	1	0	5	0	0	0	0	0	0	0	0	0	
Lisle (V)	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	
Maine (T)	0	0	7	0	0	0	1	1	0	0	1	0	0	0	2	1	0	0	2	1	0	10	0	1	0	1	0	0	0	0	0	
Nanticoke (T)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	
Port Dickinson (V)	0	0	4	0	0	1	0	1	0	1	1	0	0	0	0	1	0	1	2	0	0	0	0	1	1	1	0	1	0	0	0	
Sanford (T)	0	0	18	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Triangle (T)	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1	3	0	0	0	0	0	
Union (T)	0	0	23	0	2	11	1	3	2	1	4	1	0	0	0	1	0	1	6	1	0	4	0	1	6	1	2	2	0	0	0	
Vestal (T)	0	0	32	1	1	5	1	2	18	0	14	2	1	0	2	1	0	1	7	0	0	0	0	2	7	4	1	11	1	0	0	





Table E-21. Numbers of Critical Facilities Located on Soils of NEHRP Class D or E

Municipality	Air	Animal Shelter	Bridge	Communication	County	Daycare	EMS	Fire	Hazmat	Highway Garage	Historic Place	Home for the Elderly	Library	Medical	Mobile Home Park	Municipal Hall	Pet Store	Police	Polling	Post Office	Potable	Potable Well	Rail	School	Shelter	Shelter (RC)	Veterinarian	Wastewater Pump	Wastewater Treatment Plant
Whitney Point (V)	0	0	10	0	0	2	0	0	0	1	1	1	1	0	2	2	0	1	1	1	0	3	0	1	0	2	0	0	0
Windsor (T)	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0
Windsor (V)	0	0	8	0	0	2	0	0	0	1	0	0	0	0	0	2	0	0	1	0	0	2	0	2	1	2	0	0	0
<b>Broome County</b>	<b>1</b>	<b>3</b>	<b>283</b>	<b>12</b>	<b>18</b>	<b>78</b>	<b>11</b>	<b>21</b>	<b>149</b>	<b>10</b>	<b>318</b>	<b>11</b>	<b>7</b>	<b>3</b>	<b>20</b>	<b>16</b>	<b>3</b>	<b>8</b>	<b>60</b>	<b>17</b>	<b>1</b>	<b>67</b>	<b>1</b>	<b>35</b>	<b>48</b>	<b>51</b>	<b>11</b>	<b>26</b>	<b>5</b>

Source: NYS DHSES 2008, Broome County 2018



**Table E-22. Estimated Debris Generated by the 250- and 1,000-year MRP Earthquake Events**

Municipality	250-Year		1,000-Year	
	Brick/Wood (tons)	Concrete/Steel (tons)	Brick/Wood (tons)	Concrete/Steel (tons)
Barker (T)	0.0	0.0	87.0	20.8
Binghamton (C)	3,309.8	920.8	14,145.6	5,598.0
Binghamton (T)	0.0	0.0	107.2	21.6
Chenango (T)	48.1	10.0	740.9	217.7
Colesville (T)	0.0	0.0	208.5	60.3
Conklin (T)	0.0	0.0	347.3	119.9
Deposit (V)	0.0	0.0	50.9	13.8
Dickinson (T)	0.6	0.2	226.9	72.3
Endicott (V)	640.1	175.7	2,676.9	1,046.3
Fenton (T)	0.0	0.0	285.2	84.6
Johnson City (V)	581.3	151.9	4,396.3	1,621.0
Kirkwood (T)	0.0	0.0	371.2	121.7
Lisle (T)	0.0	0.0	76.5	19.9
Lisle (V)	0.0	0.0	14.5	3.8
Maine (T)	0.0	0.0	222.4	60.1
Nanticoke (T)	0.0	0.0	41.4	10.3
Port Dickinson (V)	0.0	0.0	82.9	26.3
Sanford (T)	0.0	0.0	85.5	23.2
Triangle (T)	0.0	0.0	90.2	27.1
Union (T)	285.2	94.6	3,309.7	1,342.2
Vestal (T)	141.8	39.6	2,676.4	933.7
Whitney Point (V)	0.0	0.0	81.3	24.4
Windsor (T)	0.0	0.0	143.3	35.3
Windsor (V)	0.0	0.0	72.4	17.8
<b>Broome County:</b>	<b>5,006.9</b>	<b>1,392.6</b>	<b>30,540.3</b>	<b>11,521.9</b>

Source: HAZUS-MH v4.2

**Extreme Temperature**

Qualitative analysis conducted; no tables.

**Flood**

The below tables display results of the exposure and HAZUS-MH v4.2 analyses conducted for the County.



Table E-23. Number of Critical Facilities Located in the 1-Percent Annual Chance Flood Zone

Municipality	Facility Types																								
	Air	Animal Shelter	Bridge	Communication	Daycare	EMS	Fire	Hazmat	Highway Garage	Historic Place	Home for the Elderly	Library	Mobile Home Park	Municipal Hall	Pet Store	Police	Polling	Post Office	Potable Well	School	Shelter	Shelter (RC)	Veterinarian	Wastewater Pump	Wastewater Treatment Plant
Barker (T)	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Binghamton (C)	0	1	23	1	3	0	1	23	0	25	0	0	0	0	0	0	3	0	1	2	0	2	1	2	0
Binghamton (T)	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chenango (T)	0	0	5	0	0	0	0	2	0	0	0	0	0	1	0	0	0	3	0	1	0	1	0	1	1
Colesville (T)	0	0	11	0	0	0	0	0	0	1	0	1	0	0	0	0	1	1	0	1	1	0	0	0	0
Conklin (T)	0	0	7	0	1	0	0	5	0	0	0	1	0	0	0	1	0	4	0	0	0	0	0	3	0
Deposit (V)	0	0	1	0	0	1	0	0	1	0	1	1	0	2	0	0	0	1	4	0	0	0	0	0	1
Dickinson (T)	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Endicott (V)	1	0	2	0	1	1	0	1	0	1	0	0	0	0	0	1	0	3	1	0	3	0	0	0	1
Fenton (T)	0	0	7	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0
Johnson City (V)	0	0	6	1	0	1	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	2	0
Kirkwood (T)	0	0	12	0	0	0	1	6	1	0	0	0	0	0	1	1	0	3	0	0	0	0	0	1	0
Lisle (T)	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0
Lisle (V)	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0
Maine (T)	0	0	6	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0
Nanticoke (T)	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Port Dickinson (V)	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Sanford (T)	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Triangle (T)	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Union (T)	0	0	17	0	3	0	0	1	0	3	0	0	0	0	0	1	0	1	0	1	0	0	0	2	0
Vestal (T)	0	0	23	0	0	1	1	1	0	9	0	0	0	0	0	2	0	0	0	0	1	0	1	7	0



Municipality	Facility Types																								
	Air	Animal Shelter	Bridge	Communication	Daycare	EMS	Fire	Hazmat	Highway Garage	Historic Place	Home for the Elderly	Library	Mobile Home Park	Municipal Hall	Pet Store	Police	Polling	Post Office	Potable Well	School	Shelter	Shelter (RC)	Veterinarian	Wastewater Pump	Wastewater Treatment Plant
Whitney Point (V)	0	0	5	0	0	0	0	0	1	1	1	1	0	1	0	0	1	1	3	0	0	0	0	0	0
Windsor (T)	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Windsor (V)	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0
<b>Broome County</b>	<b>1</b>	<b>1</b>	<b>165</b>	<b>2</b>	<b>8</b>	<b>4</b>	<b>3</b>	<b>41</b>	<b>4</b>	<b>40</b>	<b>2</b>	<b>4</b>	<b>3</b>	<b>3</b>	<b>2</b>	<b>1</b>	<b>10</b>	<b>5</b>	<b>27</b>	<b>3</b>	<b>7</b>	<b>7</b>	<b>3</b>	<b>19</b>	<b>3</b>

Source: FEMA 2010, Broome County GIS & Mapping Services

Table E-24. Number of Critical Facilities Located in the 0.2-Percent Annual Chance Flood Zone

Municipality	Facility Types																										
	Air	Animal Shelter	Bridge	Communication	County	Daycare	EMS	Fire	Hazmat	Highway Garage	Historic Place	Home for the Elderly	Library	Medical	Mobile Home Park	Municipal Hall	Pet Store	Police	Polling	Post Office	Potable Well	School	Shelter	Shelter (RC)	Veterinarian	Wastewater Pump	Wastewater Treatment Plant
Barker (T)	0	0	5	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Binghamton (C)	0	1	38	4	3	3	1	2	42	0	34	0	0	1	0	1	0	1	3	1	1	1	2	0	2	2	3
Binghamton (T)	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chenango (T)	0	0	7	0	0	0	0	0	5	0	0	0	0	0	1	0	1	0	1	0	0	3	0	1	0	1	0
Colesville (T)	0	0	11	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	0	1	1	0	0	0
Conklin (T)	0	0	9	0	0	1	0	1	5	1	1	0	0	0	1	1	0	0	2	0	0	5	0	0	0	0	4
Deposit (V)	0	0	2	0	0	0	1	0	0	1	0	1	1	0	0	2	0	0	1	1	0	4	0	0	0	0	0



Municipality	Facility Types																										
	Air	Animal Shelter	Bridge	Communication	County	Daycare	EMS	Fire	Hazmat	Highway Garage	Historic Place	Home for the Elderly	Library	Medical	Mobile Home Park	Municipal Hall	Pet Store	Police	Polling	Post Office	Potable Well	School	Shelter	Shelter (RC)	Veterinarian	Wastewater Pump	Wastewater Treatment Plant
Dickinson (T)	0	1	2	0	3	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	1
Endicott (V)	1	0	2	0	0	1	1	0	1	1	1	0	0	0	0	0	0	0	1	0	0	3	1	2	4	1	0
Fenton (T)	0	0	7	0	0	0	0	0	5	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0
Johnson City (V)	0	0	9	1	0	0	1	0	1	1	0	0	0	0	0	0	1	0	0	0	0	2	0	0	1	0	2
Kirkwood (T)	0	0	12	0	0	0	0	1	7	1	0	0	0	0	0	1	0	1	2	1	0	3	0	0	0	0	1
Lisle (T)	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0
Lisle (V)	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
Maine (T)	0	0	6	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0
Nanticoke (T)	0	0	2	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0
Port Dickinson (V)	0	0	3	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Sanford (T)	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Triangle (T)	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Union (T)	0	0	22	0	0	5	0	0	1	0	3	0	0	0	0	0	0	0	2	0	0	3	0	1	0	0	2
Vestal (T)	0	0	26	0	0	1	1	1	5	0	9	0	0	2	0	0	0	2	0	0	0	0	1	0	1	10	
Whitney Point (V)	0	0	5	0	0	0	0	0	0	1	1	1	1	0	0	1	0	0	1	1	0	3	0	0	0	0	0
Windsor (T)	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
Windsor (V)	0	0	5	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0
<b>Broome County</b>	<b>1</b>	<b>2</b>	<b>198</b>	<b>5</b>	<b>6</b>	<b>14</b>	<b>5</b>	<b>6</b>	<b>72</b>	<b>7</b>	<b>50</b>	<b>2</b>	<b>4</b>	<b>1</b>	<b>8</b>	<b>6</b>	<b>2</b>	<b>2</b>	<b>16</b>	<b>7</b>	<b>1</b>	<b>32</b>	<b>3</b>	<b>10</b>	<b>9</b>	<b>5</b>	<b>24</b>

Source: FEMA 2010, Broome County GIS & Mapping Services



**Table E-25. Estimated Debris Generated from the 1-Percent Annual Chance Flood Event**

Municipality	1% Flood Event			
	Total (tons)	Finish (tons)	Structure (tons)	Foundation (tons)
Barker (T)	448.9	228.5	120.2	100.2
Binghamton (C)	29,944.3	25,891.7	2,059.6	1,993.0
Binghamton (T)	14.8	14.3	0.1	0.3
Chenango (T)	12,005.6	4,423.7	4,843.2	2,738.7
Colesville (T)	934.7	430.5	253.4	250.8
Conklin (T)	4,773.5	2,110.4	1,447.2	1,215.8
Deposit (V)	180.0	179.3	0.4	0.3
Dickinson (T)	853.8	274.8	329.5	249.4
Endicott (V)	20,444.2	14,683.8	3,068.0	2,692.4
Fenton (T)	1,192.2	533.1	389.9	269.2
Johnson City (V)	2,101.9	1,918.0	96.1	87.8
Kirkwood (T)	3,281.0	922.5	1,417.3	941.2
Lisle (T)	272.2	186.5	36.0	49.7
Lisle (V)	212.4	120.8	46.1	45.5
Maine (T)	795.1	384.6	152.2	258.3
Nanticoke (T)	187.9	65.0	45.5	77.4
Port Dickinson (V)	542.8	478.1	38.7	26.0
Sanford (T)	437.9	191.5	137.8	108.7
Triangle (T)	154.3	47.5	46.2	60.6
Union (T)	23,954.8	6,518.5	10,500.6	6,935.8
Vestal (T)	30,504.5	10,417.8	10,582.7	9,504.0
Whitney Point (V)	1,403.5	1,130.3	151.1	122.1
Windsor (T)	1,624.7	548.2	623.2	453.3
Windsor (V)	1,085.4	724.6	202.2	158.6
<b>Broome County</b>	<b>137,350.5</b>	<b>72,424.1</b>	<b>36,587.3</b>	<b>28,339.1</b>

Source: HAZUS-MH v4.2

**Severe Storm**

The below tables display results of the HAZUS-MH v4.2 analysis conducted for the County.

**Table E-26. Description of Damage Categories**

Qualitative Damage Description	Roof Cover Failure	Window Door Failures	Roof Deck	Missile Impacts on Walls	Roof Structure Failure	Wall Structure Failure
No Damage or Very Minor Damage Little or no visible damage from the outside. No broken windows, or failed roof deck. Minimal loss of roof over, with no or very limited water penetration.	≤2%	No	No	No	No	No
Minor Damage Maximum of one broken window, door or garage door. Moderate roof cover loss that can be covered to prevent additional water	>2% and ≤15%	One window, door, or garage door	No	<5 impacts	No	No



Qualitative Damage Description	Roof Cover Failure	Window Door Failures	Roof Deck	Missile Impacts on Walls	Roof Structure Failure	Wall Structure Failure
entering the building. Marks or dents on walls requiring painting or patching for repair.		failure				
Moderate Damage Major roof cover damage, moderate window breakage. Minor roof sheathing failure. Some resulting damage to interior of building from water.	>15% and ≤50%	> one and ≤ the larger of 20% & 3	1 to 3 panels	Typically 5 to 10 impacts	No	No
Severe Damage Major window damage or roof sheathing loss. Major roof cover loss. Extensive damage to interior from water.	>50%	> the larger of 20% & 3 and ≤50%	>3 and ≤25%	Typically 10 to 20 impacts	No	No
Destruction Complete roof failure and/or, failure of wall frame. Loss of more than 50% of roof sheathing.	Typically >50%	>50%	>25%	Typically >20 impacts	Yes	Yes

Source: HAZUS-MH Hurricane Technical Manual

**Table E-27. Estimated Residential and Commercial Building Value (Structure Only) Damaged by the 100-Year and 500-Year MRP Wind Events**

Municipality	Total Replacement Value (Structure Only)	Estimated Residential Damage		Estimated Commercial Damage	
		100-Year	500-Year	100-Year	500-Year
Barker (T)	\$439,118,041	\$0	\$97,973	\$0	\$99
Binghamton (C)	\$49,423,441,320	\$0	\$1,455,273	\$0	\$0
Binghamton (T)	\$801,903,100	\$0	\$199,001	\$0	\$0
Chenango (T)	\$2,777,071,417	\$0	\$396,399	\$0	\$0
Colesville (T)	\$1,931,209,372	\$0	\$194,842	\$0	\$135
Conklin (T)	\$1,078,006,795	\$0	\$176,110	\$0	\$64
Deposit (V)	\$283,738,889	\$0	\$37,531	\$0	\$0
Dickinson (T)	\$854,122,423	\$0	\$81,242	\$0	\$0
Endicott (V)	\$7,583,787,954	\$0	\$111,441	\$0	\$0
Fenton (T)	\$1,091,318,949	\$0	\$218,848	\$0	\$0
Johnson City (V)	\$19,160,306,045	\$0	\$274,257	\$0	\$0
Kirkwood (T)	\$2,177,958,481	\$0	\$189,740	\$0	\$0
Lisle (T)	\$355,429,066	\$0	\$13,396	\$0	\$0
Lisle (V)	\$66,995,607	\$0	\$408	\$0	\$0
Maine (T)	\$1,041,084,855	\$0	\$85,213	\$0	\$0
Nanticoke (T)	\$252,368,984	\$0	\$11,658	\$0	\$0
Port Dickinson (V)	\$337,529,316	\$0	\$43,243	\$0	\$0
Sanford (T)	\$502,854,072	\$0	\$96,606	\$0	\$0
Triangle (T)	\$351,139,869	\$0	\$27,494	\$0	\$0
Union (T)	\$19,350,826,249	\$0	\$620,384	\$0	\$0
Vestal (T)	\$12,811,547,132	\$0	\$665,995	\$0	\$0
Whitney Point (V)	\$325,046,761	\$0	\$13,088	\$0	\$0





Municipality	Total Replacement Value (Structure Only)	Estimated Residential Damage		Estimated Commercial Damage	
		100-Year	500-Year	100-Year	500-Year
Windsor (T)	\$910,644,121	\$0	\$215,363	\$0	\$0
Windsor (V)	\$466,200,435	\$0	\$31,645	\$0	\$0
<b>Broome County:</b>	<b>\$124,373,649,253</b>	<b>\$0</b>	<b>\$5,257,149</b>	<b>\$0</b>	<b>\$297</b>

Source: HAZUS-MH 4.2

**Table E-28. Debris Production for 500-Year Mean Return Period Wind Event**

Municipality	Brick and Wood (tons)	Concrete and Steel (tons)	Tree (tons)	Eligible Tree Volume (cubic yards)
Barker (T)	0	0	1,287	668
Binghamton (C)	67	0	126	1,782
Binghamton (T)	0	0	615	489
Chenango (T)	0	0	904	1,334
Colesville (T)	0	0	2,395	1,334
Conklin (T)	0	0	720	735
Deposit (V)	1	0	4	67
Dickinson (T)	0	0	80	274
Endicott (V)	1	0	7	120
Fenton (T)	0	0	1,010	991
Johnson City (V)	12	0	42	427
Kirkwood (T)	0	0	865	863
Lisle (T)	0	0	314	125
Lisle (V)	0	0	3	8
Maine (T)	0	0	577	306
Nanticoke (T)	0	0	237	110
Port Dickinson (V)	0	0	11	96
Sanford (T)	0	0	1,614	881
Triangle (T)	0	0	600	177
Union (T)	3	0	561	1,495
Vestal (T)	7	0	1,506	2,175
Whitney Point (V)	0	0	4	11
Windsor (T)	0	0	2,476	1,231
Windsor (V)	0	0	26	113
<b>Broome County:</b>	<b>91</b>	<b>0</b>	<b>15,984</b>	<b>15,812</b>

Source: HAZUS-MH 4.2



Severe Winter Storm

Figure E-4. The Sperry-Piltz Ice Accumulation Index

**The Sperry-Piltz Ice Accumulation Index, or “SPIA Index” – Copyright, February, 2009**

ICE DAMAGE INDEX	DAMAGE AND IMPACT DESCRIPTIONS
<b>0</b>	Minimal risk of damage to exposed utility systems; no alerts or advisories needed for crews, few outages.
<b>1</b>	Some isolated or localized utility interruptions are possible, typically lasting only a few hours. Roads and bridges may become slick and hazardous.
<b>2</b>	Scattered utility interruptions expected, typically lasting 12 to 24 hours. Roads and travel conditions may be extremely hazardous due to ice accumulation.
<b>3</b>	Numerous utility interruptions with some damage to main feeder lines and equipment expected. Tree limb damage is excessive. Outages lasting 1 – 5 days.
<b>4</b>	Prolonged & widespread utility interruptions with extensive damage to main distribution feeder lines & some high voltage transmission lines/structures. Outages lasting 5 – 10 days.
<b>5</b>	Catastrophic damage to entire exposed utility systems, including both distribution and transmission networks. Outages could last several weeks in some areas. Shelters needed.

(Categories of damage are based upon combinations of precipitation totals, temperatures and wind speeds/directions.)

Source: SPI-index, 2009

Wildfire

The Wildland-Urban Interface (Interface and Intermix) obtained through the SILVIS Laboratory, Department of Forest Ecology and Management, University of Wisconsin – Madison, was referenced to delineate



Table E-29. Critical Facilities within the WUI (Intermix or Interface) in Broome County

Municipality	Facility Types																														
	Airport	Animal Shelter	Bridge	Communication	County	Dam	Daycare	EMS	EOC	Fire	Hazardous Materials	Highway Garage	Historic Place	Home for the Elderly	Library	Medical	Mobile Home Park	Municipal Hall	Pet Store	Police	Polling	Post Office	Potable Water Facility	Potable Water Tank	Potable Water Pump	School	Shelter	Shelter (RC)	Veterinarian	Well	WWTP
Barker (T)	0	0	7	0	0	0	1	0	0	1	1	0	0	0	0	2	1	0	0	1	1	0	0	0	0	1	0	0	0	1	0
Binghamton (C)	0	2	14	6	4	0	26	3	0	4	59	1	224	4	0	1	0	1	1	2	22	3	1	0	3	10	0	14	3	2	0
Binghamton (T)	0	0	9	12	0	0	1	0	0	3	6	1	1	0	0	0	1	0	0	3	0	0	2	0	1	1	1	0	2	0	
Chenango (T)	0	0	12	0	7	0	7	1	0	2	12	0	0	0	0	7	0	0	0	7	2	0	4	0	5	5	8	2	22	1	
Colesville (T)	0	0	20	0	0	0	2	1	0	4	1	0	0	0	0	7	0	0	0	2	2	0	0	0	0	3	0	0	11	0	
Conklin (T)	0	0	9	0	0	1	3	0	0	3	8	1	1	0	0	4	1	0	0	4	2	0	0	3	3	7	2	0	7	0	
Deposit (V)	0	0	1	0	0	1	1	0	0	0	0	1	0	0	1	0	2	0	0	1	1	0	0	0	0	0	0	0	4	0	
Dickinson (T)	0	1	3	1	3	0	1	0	1	1	3	1	0	0	0	0	1	0	1	2	0	0	2	1	1	3	2	0	0	0	
Endicott (V)	0	0	2	1	0	0	5	1	0	1	1	0	4	0	1	0	0	0	1	1	2	0	0	0	1	2	4	2	1	0	
Fenton (T)	0	0	12	0	0	0	1	0	0	3	9	1	0	0	1	0	12	1	0	0	4	1	0	0	1	2	4	0	21	0	
Johnson City (V)	0	0	12	1	0	1	13	0	0	1	0	1	3	1	0	1	0	1	1	0	7	2	0	0	3	4	7	1	2	0	
Kirkwood (T)	0	0	16	3	0	0	4	0	0	4	14	1	0	0	0	3	1	0	1	4	1	0	0	1	2	4	5	0	6	0	
Lisle (T)	0	0	6	2	0	0	0	1	0	2	1	1	0	0	0	3	1	0	0	2	1	0	0	0	0	0	0	0	7	0	
Lisle (V)	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0	0	0	0	1	0	0	0	0	
Maine (T)	1	0	14	2	1	1	1	1	0	3	3	1	1	0	0	6	1	0	0	3	1	0	0	6	1	2	1	1	13	0	
Nanticoke (T)	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	1	0	0	0	0	1	0	0	8	0	
Port Dickinson (V)	0	0	2	0	0	0	1	0	0	1	0	1	1	0	0	0	1	0	1	2	0	0	0	1	1	1	1	1	0	0	0
Sanford (T)	0	0	6	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Triangle (T)	0	0	1	0	0	0	1	0	0	1	0	0	0	0	0	2	0	0	0	1	0	0	0	0	3	1	3	0	5	0	
Union (T)	0	0	14	1	0	1	10	0	0	8	2	0	4	0	0	1	0	0	0	7	0	0	0	1	4	9	4	1	4	0	
Vestal (T)	0	0	30	9	1	0	7	1	0	3	8	1	11	2	1	0	3	0	1	1	12	1	0	0	10	6	10	11	2	0	1
Whitney Point (V)	0	0	5	0	0	0	3	0	0	0	0	1	1	1	0	2	2	0	1	1	1	0	0	0	1	1	2	0	1	0	
Windsor (T)	0	0	12	1	0	0	1	0	0	2	1	0	0	0	0	5	0	0	0	2	0	0	0	0	0	2	0	0	6	0	
Windsor (V)	0	0	3	0	0	0	2	1	0	1	0	1	1	0	0	0	2	0	0	3	0	0	0	0	2	1	3	0	2	0	



Municipality	Facility Types																														
	Airport	Animal Shelter	Bridge	Communication	County	Dam	Daycare	EMS	EOC	Fire	Hazardous Materials	Highway Garage	Historic Place	Home for the Elderly	Library	Medical	Mobile Home Park	Municipal Hall	Pet Store	Police	Polling	Post Office	Potable Water Facility	Potable Water Tank	Potable Water Pump	School	Shelter	Shelter (RC)	Veterinarian	Well	WWTP
Broome County	1	3	215	40	16	5	91	10	1	48	129	14	252	9	6	2	62	18	3	8	91	23	1	8	26	46	60	72	12	125	2

Sources: Broome County GIS & Mapping Services; Radeloff et al. 2012.