

APPENDIX 3

Hazard Profile Data Supplement

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FLOOD DATA

NFIP Analysis by Municipality

The following series of NFIP maps were extracted from the 2011 Hazard Mitigation Plan to demonstrate the level of NFIP analysis that can be done at the municipality level geography. The 2014 State Hazard Mitigation Plan does similar analysis but was only updated to the county level geography. The inclusion of the data here serves as a resource for local planning and to demonstrate the type of analysis that can be done at the local level.

Figure A.3-1 provides a spatial representation of the distribution of NFIP policies broken down by Municipality across New York State. New York City and Long Island have the largest number of policies. Outside of New York City and Long Island, the Town of Amherst in Erie County has the highest number of policies.

Figure A.3-1: National Flood Insurance Program Number of Policies by Municipality

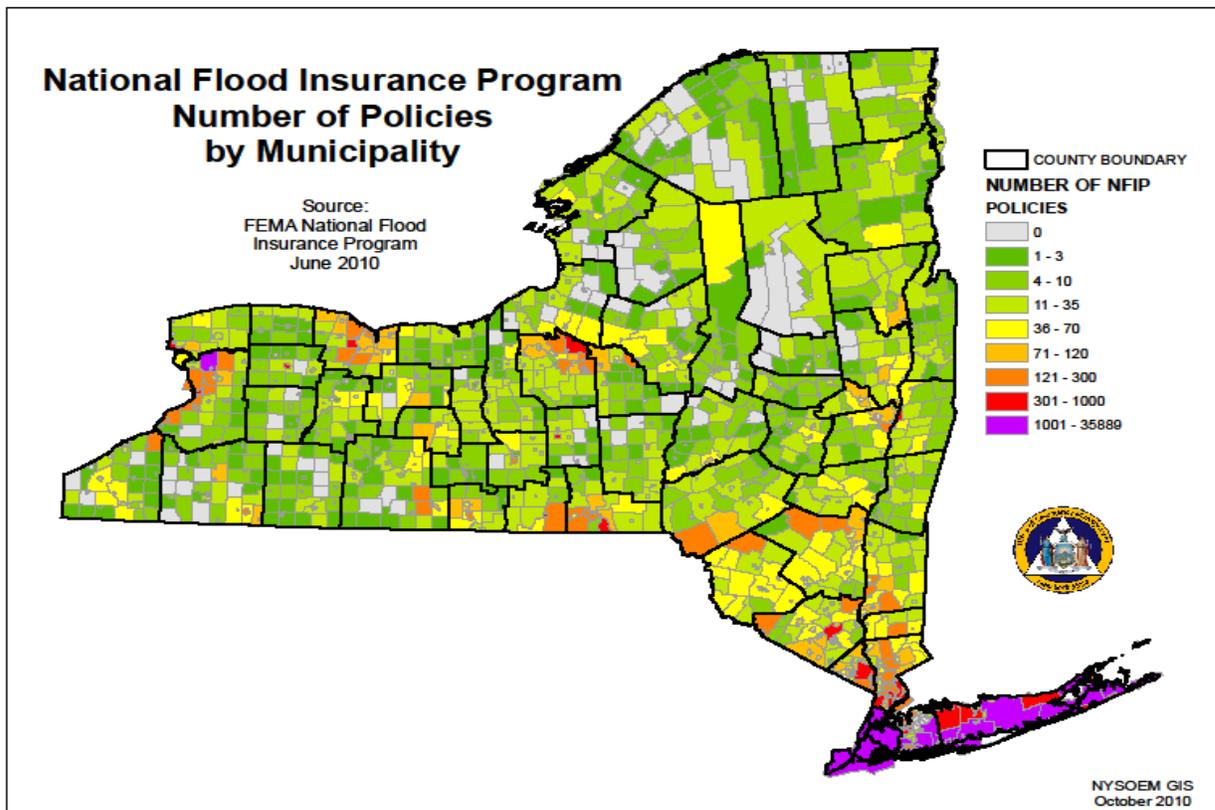


Figure A.3-2 provides a spatial representation of the distribution of total dollar amount of NFIP policy coverage broken down by Municipality across New York State.

Figure A.3-2: National Flood Insurance Program Total Insurance in Force by Municipality

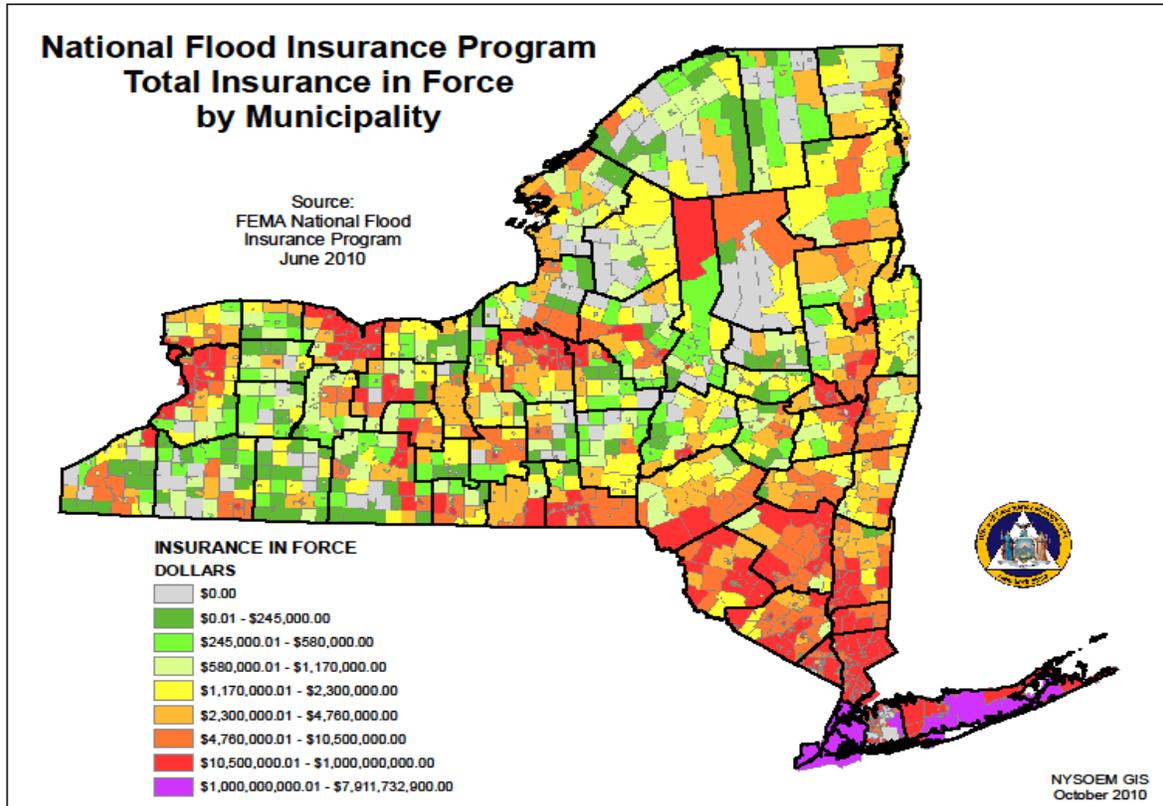


Figure A.3-3 provides a spatial representation of the change that has occurred between 2007 and 2010 in the total dollar amount of NFIP policy coverage in Municipalities across New York State.

Figure A.3-3: National Flood Insurance Program Change in Total Insurance in Force 2007-2010 by Municipality

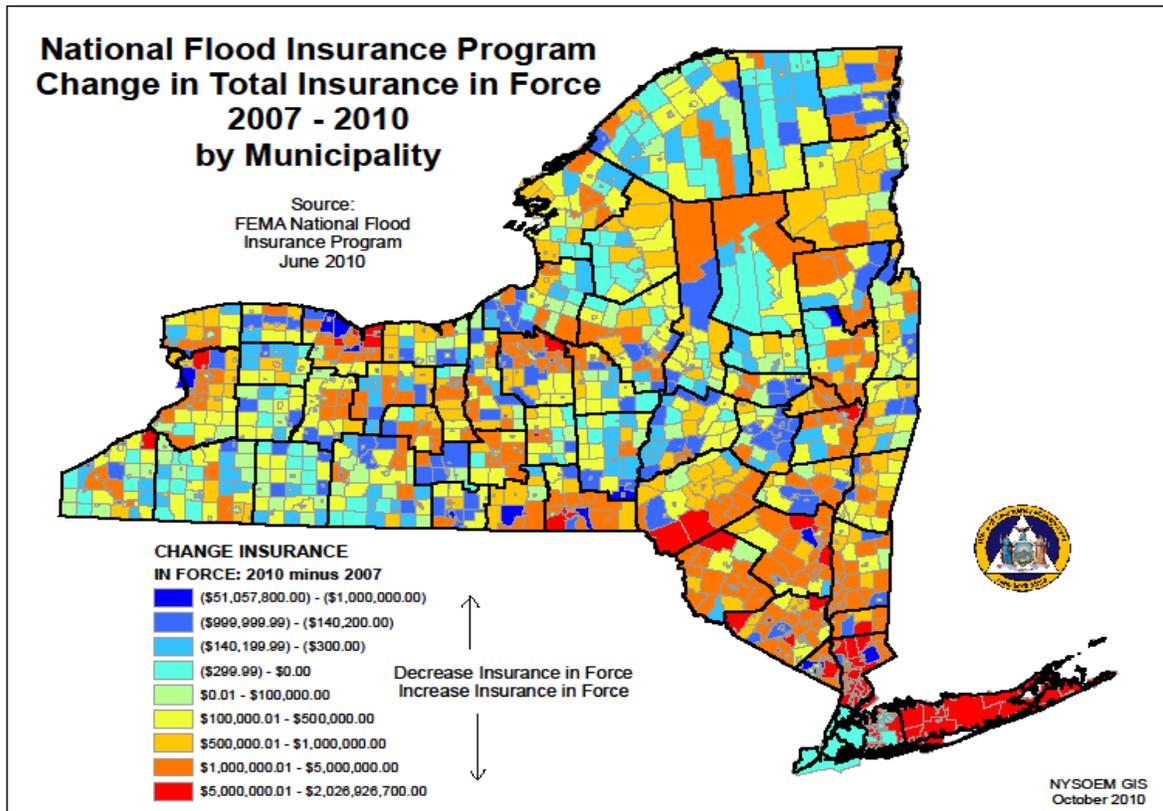


Figure A.3-4 provides a spatial representation of the distribution of total number of NFIP claims filed broken down by Municipality across New York State between 1978 and 2010.

Figure A.3-4: National Flood Insurance Program Total Claims by Municipality 1978-2010

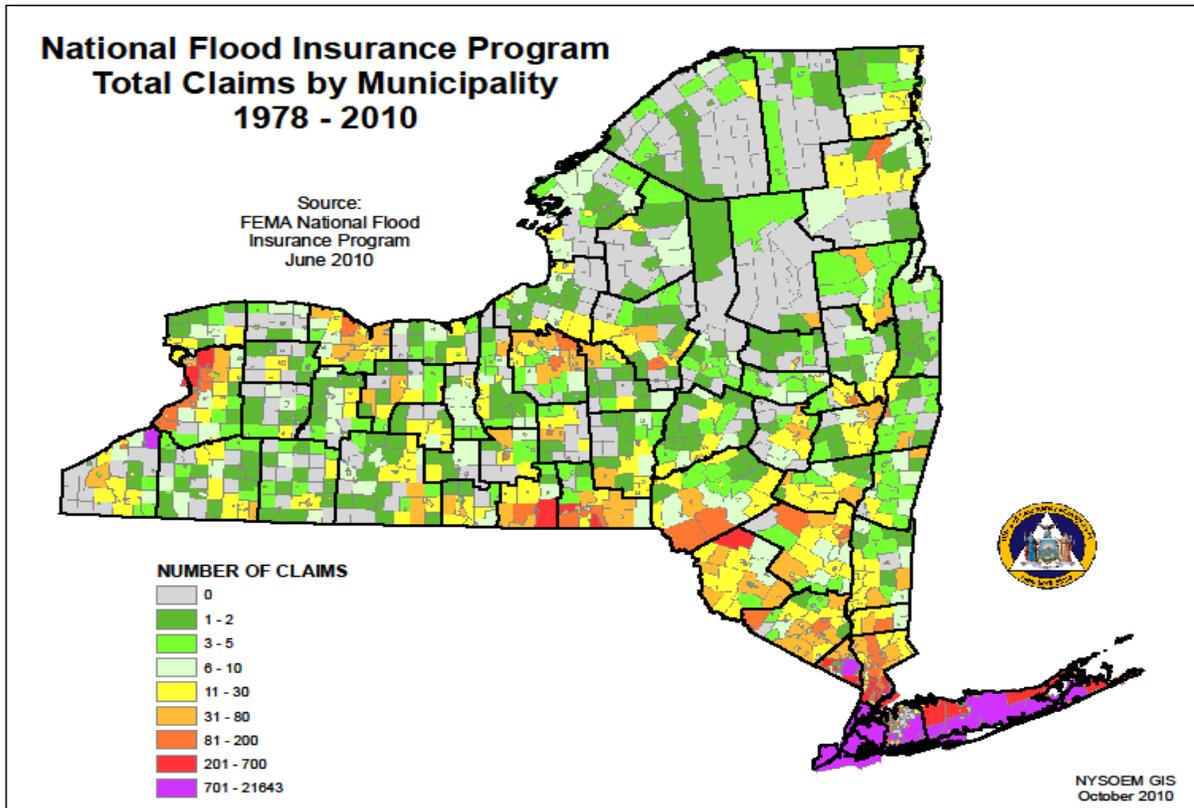


Figure A.3-5 provides a spatial representation of the distribution of the total value of NFIP policy claims paid by Municipality across New York State between 1978 and 2010.

Figure A.3-5: National Flood Insurance Program Claims Total Payment by Municipality 1978-2010

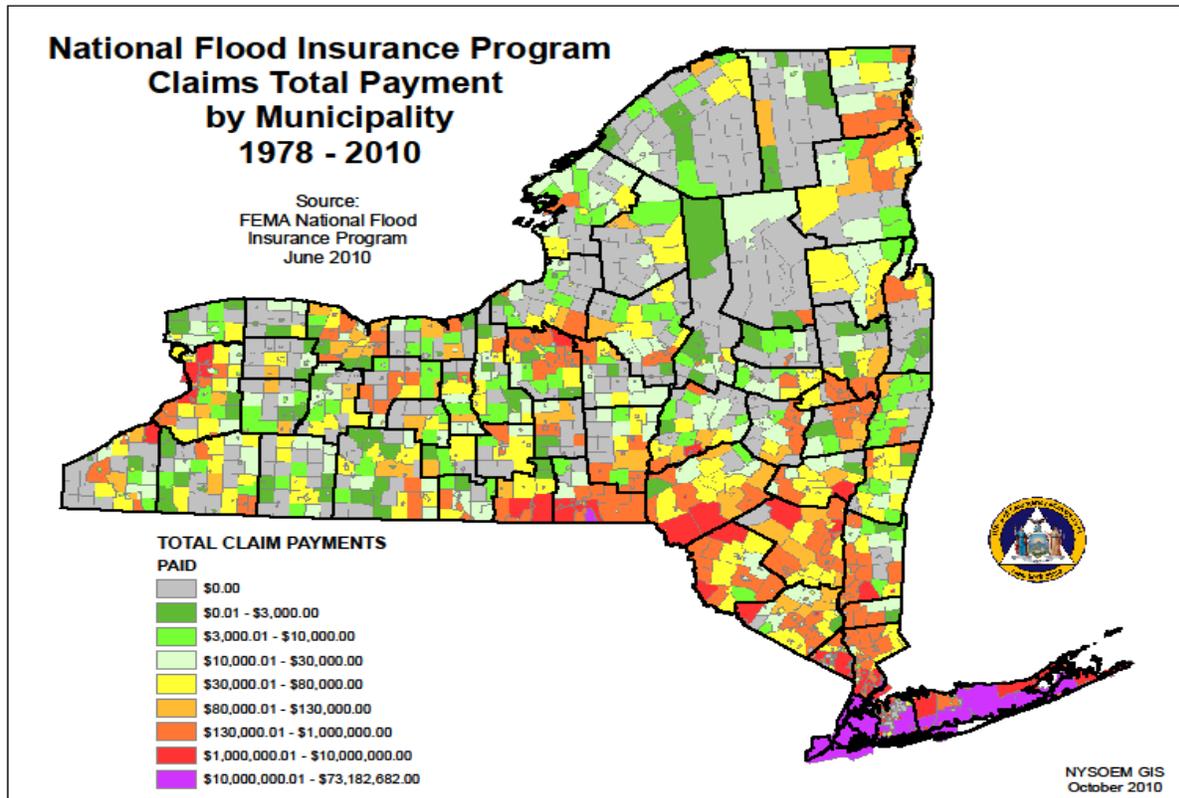


Table A.3-1: Repetitive Loss Properties as of 07/31/2013

County Name	Community Name	Building Payments	Contents Payments	Total Payments	Average Payment	Losses	Properties
ALBANY	Albany, City Of	219176.61	56214.62	275391.23	21183.94	13.00	6
	Altamont, Village Of	7251.33	0.00	7251.33	3625.67	2.00	1
	Bethlehem, Town Of	117073.46	0.00	117073.46	14634.18	8.00	4
	Cohoes, City Of	6084.42	4389.54	10473.96	5236.98	2.00	1
	Colonie, Town Of	635190.20	365747.28	1000937.48	21759.51	46.00	13
	Guilderland, Town Of	31475.44	20722.72	52198.16	26099.08	2.00	1
	Menands, Village Of	37499.46	0.00	37499.46	18749.73	2.00	1
	New Scotland, Town Of	132139.35	11266.28	143405.63	35851.41	4.00	1
	Rensselaerville, Town Of	16681.27	327.10	17008.37	8504.18	2.00	1
	Voorheesville, Village Of	41146.90	4214.75	45361.65	11340.41	4.00	1
ALLEGANY	Almond, Town Of	5957.32	0.00	5957.32	2978.66	2.00	1
	Almond, Village Of	11119.20	0.00	11119.20	3706.40	3.00	1
	Amity, Town Of	184071.68	0.00	184071.68	92035.84	2.00	1
	Andover, Town Of	4,072.28	1,221.19	5,293.47	2,646.74	2	1
	Andover, Village Of	12,377.39	1,771.35	14,148.74	3,537.19	4	2
	Grove, Town Of	4,019.27	339.18	4,358.45	2,179.23	2	1
	Scio, Town Of	5,190.81	1,290.65	6,481.46	3,240.73	2	1
	Seneca Nation Of Indians	739,425.48	220,102.92	959,528.40	3,900.52	246	84
	Wellsville, Town Of	17,549.05	11,450.25	28,999.30	4,142.76	7	2
	Wellsville, Village Of	13,955.53	6,799.03	20,754.56	5,188.64	4	2
BRONX	New York, City Of	174,323,654.04	32,386,730.96	206,710,385.00	19,458.76	10,623	4,189
BROOME	Binghamton, City Of	4,788,457.40	816,539.12	5,604,996.52	56,616.13	99	40
	Binghamton, Town Of	831,192.88	0	831,192.88	415,596.44	2	1
	Chenango, Town Of	320,365.10	29,582.36	349,947.46	20,585.14	17	8
	Colesville, Town Of	713,939.56	47,450.17	761,389.73	25,379.66	30	14
	Conklin, Town Of	15,468,638.99	2,521,910.19	17,990,549.18	47,343.55	380	140
	Deposit, Village Of	849,555.62	67,542.13	917,097.75	26,973.46	34	16
	Dickinson, Town Of	370,582.39	64,757.45	435,339.84	36,278.32	12	6
	Endicott, Village Of	1,898,022.23	720,649.62	2,618,671.85	81,833.50	32	9
	Fenton, Town Of	323,157.18	40,542.72	363,699.90	19,142.10	19	8
	Johnson City, Village Of	1,901,730.64	491,536.04	2,393,266.68	40,563.84	59	27
	Kirkwood, Town Of	3,496,856.66	759,245.24	4,256,101.90	41,321.38	103	37
	Lisle, Town Of	80,522.12	12,800.00	93,322.12	46,661.06	2	1
	Maine, Town Of	42,354.60	16,224.28	58,578.88	29,289.44	2	1
	Nanticoke, Town	19,788.54	42,151.85	61,940.39	30,970.20	2	1



County Name	Community Name	Building Payments	Contents Payments	Total Payments	Average Payment	Losses	Properties
	Of						
	Sanford, Town Of	128,436.66	4,881.79	133,318.45	19,045.49	7	3
	Union, Town Of	8,503,945.57	1,553,689.80	10,057,635.37	40,719.17	247	87
	Vestal, Town Of	5,622,798.76	886,599.51	6,509,398.27	37,845.34	172	69
	Whitney Point, Village Of	15,008.98	20,407.41	35,416.39	17,708.20	2	1
	Windsor, Town Of	406,023.19	104,259.93	510,283.12	31,892.69	16	8
	Windsor, Village Of	5,757.96	5,323.20	11,081.16	2,770.29	4	2
CATTARAUGUS	Allegany, Village Of	33,317.83	0	33,317.83	8,329.46	4	2
	Cold Spring, Town Of	33,125.67	0	33,125.67	16,562.83	2	1
	East Otto, Town Of	160,722.12	52,645.04	213,367.16	23,707.46	9	4
	East Randolph, Village Of	1,130.00	1,284.04	2,414.04	1,207.02	2	1
	Farmersville, Town Of	8,503.02	4,335.75	12,838.77	6,419.39	2	1
	Great Valley, Town Of	16,860.41	1,083.88	17,944.29	8,972.15	2	1
	Olean, Town Of	26,209.28	0	26,209.28	13,104.64	2	1
	Portville, Town Of	159,917.43	46,152.09	206,069.52	14,719.25	14	5
CAYUGA	Aurelius, Town Of	7,348.03	0	7,348.03	3,674.02	2	1
	Brutus, Town Of	11,591.11	232	11,823.11	5,911.56	2	1
	Cato, Town Of	97,090.70	1,370.00	98,460.70	8,205.06	12	5
	Ledyard, Town Of	4,778.37	0	4,778.37	2,389.19	2	1
	Meridian, Village Of	30,371.40	3,829.15	34,200.55	11,400.18	3	1
	Moravia, Village Of	31,434.36	0	31,434.36	15,717.18	2	1
	Union Springs, Village Of	14,104.80	406.2	14,511.00	2,418.50	6	2
CHAUTAUQUA	Chautauqua, Town Of	5,996.36	13,629.98	19,626.34	3,925.27	5	2
	Dunkirk, City Of	82,923.28	14,408.85	97,332.13	7,487.09	13	6
	Dunkirk, Town Of	1,013.27	5,079.84	6,093.11	3,046.56	2	1
	Ellicott, Town Of	8,576.35	6,467.36	15,043.71	2,507.29	6	3
	Fredonia, Village Of	201,602.90	165,426.59	367,029.49	15,292.90	24	11
	Hanover, Town Of	3,095,791.06	1,072,171.76	4,167,962.82	6,877.83	606	183
	Jamestown, City Of	10,376.53	502	10,878.53	5,439.27	2	1
	Lakewood, Village Of	1,796.66	632.59	2,429.25	1,214.63	2	1
	North Harmony, Town Of	7,696.22	3,580.24	11,276.46	2,819.12	4	2
	Poland, Town Of	4,520.13	130.54	4,650.67	2,325.34	2	1
	Portland, Town Of	5,417.98	0	5,417.98	2,708.99	2	1
	Sheridan, Town Of	6,456.68	0	6,456.68	3,228.34	2	1
	Silver Creek, Village Of	153,052.77	429,421.87	582,474.64	20,802.67	28	11
CHEMUNG	Ashland, Town Of	131,095.75	21,173.61	152,269.36	15,226.94	10	5
	Baldwin, Town Of	390,143.85	52,462.46	442,606.31	55,325.79	8	4
	Big Flats, Town Of	43,035.17	12,643.03	55,678.20	11,135.64	5	2



County Name	Community Name	Building Payments	Contents Payments	Total Payments	Average Payment	Losses	Properties
	Catlin, Town Of	30,316.23	0	30,316.23	15,158.12	2	1
	Elmira Heights, Village Of	17,510.30	1,291.15	18,801.45	3,133.58	6	3
	Horseheads, Town Of	11,735.22	0	11,735.22	5,867.61	2	1
	Southport, Town Of	22,785.99	70,186.69	92,972.68	13,281.81	7	3
	Wellsburg, Village Of	65,556.89	0	65,556.89	32,778.45	2	1
CHENANGO	Afton, Town Of	197,058.31	2,500.00	199,558.31	33,259.72	6	3
	Afton, Village Of	275,023.09	14,492.64	289,515.73	28,951.57	10	5
	Bainbridge, Town Of	439,158.94	56,154.74	495,313.68	29,136.10	17	8
	Bainbridge, Village Of	551,952.03	0	551,952.03	34,497.00	16	8
	Coventry, Town Of	11,307.74	0	11,307.74	5,653.87	2	1
	Greene, Town Of	694,254.57	378,159.26	1,072,413.83	59,578.55	18	7
	Greene, Village Of	1,534,148.49	99,677.94	1,633,826.43	38,900.63	42	17
	Guilford, Town Of	29,497.31	13,558.71	43,056.02	21,528.01	2	1
	Norwich, City Of	667,882.73	200,081.38	867,964.11	22,841.16	38	17
	Norwich, Town Of	351,722.83	109,700.28	461,423.11	76,903.85	6	2
	Oxford, Town Of	133,532.65	15,232.25	148,764.90	12,397.07	12	5
	Oxford, Village Of	88,520.52	10,144.66	98,665.18	12,333.15	8	4
	Sherburne, Town Of	25,396.41	3,936.28	29,332.69	7,333.17	4	2
	Sherburne, Village Of	73,691.13	11,149.98	84,841.11	14,140.19	6	2
	Smyrna, Town Of	6,945.14	0	6,945.14	3,472.57	2	1
CLINTON	Ausable, Town Of	24,915.25	8,595.79	33,511.04	16,755.52	2	1
	Black Brook, Town Of	51,258.22	7,086.00	58,344.22	7,293.03	8	3
	Champlain, Town Of	94,916.89	19,126.37	114,043.26	10,367.57	11	4
	Champlain, Village Of	53,900.60	13,907.00	67,807.60	6,780.76	10	5
	Chazy, Town Of	16,429.48	2,070.44	18,499.92	9,249.96	2	1
	Ellenburg, Town Of	107,111.25	10,000.00	117,111.25	58,555.63	2	1
	Mooers, Town Of	15,428.09	3,009.21	18,437.30	9,218.65	2	1
	Peru, Town Of	269,074.60	0	269,074.60	44,845.77	6	3
	Plattsburgh, City Of	57,000.14	18,835.41	75,835.55	37,917.78	2	1
	Plattsburgh, Town Of	257,349.97	0	257,349.97	51,469.99	5	2
	Saranac, Town Of	8,812.35	0	8,812.35	2,937.45	3	1
COLUMBIA	Ancram, Town Of	1,839.85	2,217.00	4,056.85	2,028.43	2	1
	Copake, Town Of	60,152.76	8,226.01	68,378.77	11,396.46	6	3
	Hillsdale, Town Of	17,259.08	0	17,259.08	5,753.03	3	1
	Kinderhook, Town Of	21,884.30	567.97	22,452.27	11,226.14	2	1
	Kinderhook, Village Of	368,286.07	0	368,286.07	92,071.52	4	2
	Livingston, Town Of	52,476.71	4,688.78	57,165.49	6,351.72	9	3
	Mineola, Village	19,383.09	145,948.77	165,331.86	18,370.21	9	4



County Name	Community Name	Building Payments	Contents Payments	Total Payments	Average Payment	Losses	Properties
	Of						
	New Lebanon, Town Of	207,067.83	678,553.55	885,621.38	19,252.64	46	5
	Stockport, Town Of	153,859.74	17,995.86	171,855.60	15,623.24	11	5
	Stuyvesant, Town Of	334,400.71	38,934.53	373,335.24	41,481.69	9	4
	Valatie, Village Of	12,825.03	0	12,825.03	6,412.52	2	1
CORTLAND	Cortland, City Of	121,546.16	3,857.17	125,403.33	5,225.14	24	11
	Cortlandville, Town Of	79,986.88	0	79,986.88	15,997.38	5	2
	Marathon, Village Of	50,624.75	1,426.44	52,051.19	7,435.88	7	3
	Mcgraw, Village Of	70,929.45	6,343.77	77,273.22	8,585.91	9	3
	Truxton, Town Of	86,200.89	0	86,200.89	14,366.81	6	3
DELAWARE	Andes, Town Of	85,420.48	26,319.16	111,739.64	18,623.27	6	3
	Andes, Village Of	17,754.66	0	17,754.66	4,438.67	4	2
	Colchester, Town Of	997,622.28	191,767.48	1,189,389.76	19,823.16	60	21
	Davenport, Town Of	33,533.49	0	33,533.49	16,766.74	2	1
	Delhi, Town Of	29,283.96	2,540.92	31,824.88	7,956.22	4	2
	Delhi, Village Of	49,181.08	3,664.74	52,845.82	8,807.64	6	2
	Deposit, Town Of	143,121.80	0	143,121.80	15,902.42	9	3
	Fleischmanns, Village Of	215,772.92	12,752.20	228,525.12	28,565.64	8	3
	Hamden, Town Of	17,305.46	35,000.00	52,305.46	8,717.58	6	2
	Hancock, Town Of	1,101,085.18	165,340.04	1,266,425.22	20,761.07	61	20
	Hancock, Village Of	52,811.33	1,888.58	54,699.91	10,939.98	5	2
	Margaretville, Village Of	919,229.78	127,616.97	1,046,846.75	31,722.63	33	12
	Middletown, Town Of	189,226.80	21,121.55	210,348.35	13,146.77	16	6
	Sidney, Town Of	641,908.56	32,138.94	674,047.50	25,924.90	26	12
	Sidney, Village Of	8,907,493.16	2,301,641.52	11,209,134.68	58,686.57	191	90
	Walton, Town Of	85,493.12	12,472.80	97,965.92	19,593.18	5	2
	Walton, Village Of	623,789.12	508,783.99	1,132,573.11	53,932.05	21	9
DUTCHESS	Beacon, City Of	144,699.88	0	144,699.88	24,116.65	6	3
	Clinton, Town Of	74,268.01	0	74,268.01	18,567.00	4	2
	Dover, Town Of	257,584.22	52,705.85	310,290.07	14,775.72	21	7
	East Fishkill, Town Of	1,038,532.99	179,188.05	1,217,721.04	21,363.53	57	21
	Fishkill, Town Of	208,200.39	56,167.74	264,368.13	20,336.01	13	4
	Fishkill, Village Of	571,298.41	488,881.97	1,060,180.38	62,363.55	17	8
	Hyde Park, Town Of	87,674.35	12,681.63	100,355.98	20,071.20	5	2
	Lagrange, Town Of	182,729.06	9,010.16	191,739.22	11,983.70	16	7
	Milan, Town Of	8,981.63	429.48	9,411.11	4,705.56	2	1
	Pawling, Town Of	29,379.08	0	29,379.08	9,793.03	3	1
	Pawling, Village Of	979,030.84	531,295.53	1,510,326.37	188,790.80	8	3
	Pleasant Valley, Town Of	736,000.73	125,396.02	861,396.75	30,764.17	28	10



County Name	Community Name	Building Payments	Contents Payments	Total Payments	Average Payment	Losses	Properties
	Poughkeepsie, City Of	135,121.35	6,965.54	142,086.89	10,149.06	14	6
	Poughkeepsie, Town Of	72,362.03	23,001.08	95,363.11	15,893.85	6	2
	Red Hook, Town Of	273,803.34	42,000.00	315,803.34	39,475.42	8	3
	Rhinebeck, Town Of	13,128.28	0	13,128.28	6,564.14	2	1
	Rhinebeck, Village Of	5,562.50	0	5,562.50	2,781.25	2	1
	Wappinger, Town Of	187,269.64	10,000.00	197,269.64	32,878.27	6	3
	Wappingers Falls, Village Of	3,679.83	0	3,679.83	1,839.92	2	1
ERIE	Alden, Town Of	39,750.50	11,614.90	51,365.40	25,682.70	2	1
	Amherst, Town Of	191,011.40	65,883.08	256,894.48	6,760.38	38	18
	Angola, Village Of	22,645.85	5,300.00	27,945.85	13,972.93	2	1
	Aurora, Town Of	79,790.68	5,886.08	85,676.76	12,239.54	7	2
	Blasdell, Village Of	95	48,923.01	49,018.01	12,254.50	4	1
	Boston, Town Of	27,027.93	8,415.15	35,443.08	5,063.30	7	2
	Brant, Town Of	6,052.43	1,510.50	7,562.93	1,890.73	4	1
	Buffalo, City Of	221,713.41	162,845.77	384,559.18	10,119.98	38	13
	Cheektowaga, Town Of	187,920.31	283,808.25	471,728.56	26,207.14	18	7
	Clarence, Town Of	116,043.87	4,673.36	120,717.23	20,119.54	6	3
	Concord, Town Of	37,782.66	15,275.00	53,057.66	13,264.42	4	2
	Depew, Village Of	15,211.04	6,592.38	21,803.42	4,360.68	5	2
	East Aurora, Village Of	2,819.89	385.35	3,205.24	1,602.62	2	1
	Eden, Town Of	9,523.03	0	9,523.03	4,761.52	2	1
	Elma, Town Of	20,243.97	5,849.85	26,093.82	2,899.31	9	4
	Evans, Town Of	163,117.71	43,735.85	206,853.56	10,887.03	19	6
	Farnham, Village Of	36,500.00	7,000.00	43,500.00	21,750.00	2	1
	Grand Island, Town Of	17,047.00	3,401.91	20,448.91	2,921.27	7	3
	Hamburg, Town Of	535,926.98	197,971.85	733,898.83	14,390.17	51	21
	Hamburg, Village Of	71,976.40	13,338.33	85,314.73	21,328.68	4	2
	Lackawanna, City Of	6,907.79	6,784.48	13,692.27	3,423.07	4	2
	Lancaster, Town Of	65,270.06	42,099.62	107,369.68	11,929.96	9	3
	Newstead, Town Of	16,463.85	0	16,463.85	8,231.93	2	1
	Orchard Park, Village Of	26,731.27	872.11	27,603.38	13,801.69	2	1
	Sloan, Village Of	4,548.89	2,124.36	6,673.25	3,336.63	2	1
	Springville, Village Of	21,134.31	0	21,134.31	4,226.86	5	2
	Tonawanda, City Of	10,252.00	2,190.00	12,442.00	6,221.00	2	1
	Tonawanda, Town Of	5,366.30	21,397.16	26,763.46	3,345.43	8	3



County Name	Community Name	Building Payments	Contents Payments	Total Payments	Average Payment	Losses	Properties
	West Seneca, Town Of	82,210.52	17,252.64	99,463.16	8,288.60	12	6
ESSEX	Chesterfield, Town Of	159,531.62	0	159,531.62	31,906.32	5	1
	Elizabethtown, Town Of	85,803.88	24,195.94	109,999.82	13,749.98	8	3
	Jay, Town Of	855,906.07	160,170.76	1,016,076.83	26,738.86	38	17
	Keene, Town Of	376,036.41	57,022.45	433,058.86	54,132.36	8	3
	Newcomb, Town Of	48,894.40	8,600.16	57,494.56	11,498.91	5	2
	North Elba, Town Of	31,452.61	2,130.74	33,583.35	16,791.68	2	1
	Schroon, Town Of	18,242.83	0	18,242.83	4,560.71	4	2
	Westport, Town Of	0	10,135.95	10,135.95	5,067.98	2	1
	Willsboro, Town Of	65,040.13	15,426.59	80,466.72	16,093.34	5	2
FULTON	Gloversville, City Of	31,614.59	216,217.75	247,832.34	41,305.39	6	3
	Johnstown, City Of	50,883.06	837.13	51,720.19	5,172.02	10	4
	Mayfield, Town Of	19,302.19	2,325.28	21,627.47	5,406.87	4	2
GENESEE	Alexander, Village Of	28,297.65	0	28,297.65	14,148.83	2	1
	Alexander, Town Of	91,466.15	8,776.33	100,242.48	11,138.05	9	3
	Attica, Village Of	133,615.03	94,717.96	228,332.99	22,833.30	10	4
	Batavia, City Of	15,652.07	1,457.10	17,109.17	5,703.06	3	1
	Batavia, Town Of	18,607.86	0	18,607.86	9,303.93	2	1
GREENE	Athens, Town Of	86,348.45	1,278.65	87,627.10	43,813.55	2	1
	Athens, Village Of	108,572.78	62,072.26	170,645.04	28,440.84	6	2
	Cairo, Town Of	23,772.31	7,694.87	31,467.18	5,244.53	6	3
	Catskill, Town Of	2,319,446.68	714,319.30	3,033,765.98	91,932.30	33	9
	Catskill, Village Of	857,354.94	407,991.88	1,265,346.82	84,356.45	15	5
	Coxsackie, Village Of	172,988.72	42,698.59	215,687.31	30,812.47	7	3
	Hunter, Town Of	62,334.02	11,072.09	73,406.11	5,646.62	13	5
	Hunter, Village Of	59,103.84	13,334.54	72,438.38	14,487.68	5	2
	Jewett, Town Of	104,651.19	437.5	105,088.69	9,553.52	11	5
	Lexington, Town Of	632,943.76	109,508.93	742,452.69	27,498.25	27	9
	Prattsville, Town Of	696,695.41	89,029.60	785,725.01	34,161.96	23	7
	Tannersville, Village Of	6,913.19	600.45	7,513.64	3,756.82	2	1
HAMILTON	Hope, Town Of	49,787.30	27,629.73	77,417.03	12,902.84	6	3
HERKIMER	Dolgeville, Village Of	38,718.17	3,000.00	41,718.17	5,959.74	7	3
	Ilion, Village Of	209,722.90	0	209,722.90	6,553.84	32	15
	Little Falls, City Of	48,877.12	0	48,877.12	24,438.56	2	1
	Manheim, Town Of	35,768.48	5,860.81	41,629.29	20,814.65	2	1
	Middleville, Village Of	108,916.04	46,437.24	155,353.28	25,892.21	6	3
	Mohawk, Village Of	33,526.97	8,739.70	42,266.67	14,088.89	3	1
	Newport, Village	62,916.59	11,000.00	73,916.59	36,958.29	2	1



County Name	Community Name	Building Payments	Contents Payments	Total Payments	Average Payment	Losses	Properties
	Of						
	Stark, Town Of	18,949.61	0	18,949.61	6,316.54	3	1
JEFFERSON	Antwerp, Town Of	14,649.38	0	14,649.38	4,883.13	3	1
	Brownville, Town Of	264,796.55	0	264,796.55	132,398.28	2	1
	Carthage, Village Of	8,481.06	2,723.57	11,204.63	3,734.88	3	1
	Clayton, Village Of	4,186.87	2,111.50	6,298.37	3,149.19	2	1
	Lorraine, Town Of	9,184.67	0	9,184.67	4,592.34	2	1
	Wilna, Town Of	31,028.19	0	31,028.19	6,205.64	5	2
LEWIS	Castorland, Village Of	0	20,040.49	20,040.49	10,020.25	2	1
	Denmark, Town Of	9,539.34	0	9,539.34	4,769.67	2	1
	Greig, Town Of	22,672.41	2,046.00	24,718.41	12,359.21	2	1
	Leyden, Town Of	4,706.36	0	4,706.36	2,353.18	2	1
LIVINGSTON	Caledonia, Town Of	10,912.33	307.59	11,219.92	5,609.96	2	1
	Dansville, Village Of	12,504.37	125.48	12,629.85	4,209.95	3	1
	Livonia, Town Of	23,772.43	1,138.33	24,910.76	6,227.69	4	1
MADISON	Canastota , Village Of	9,376.30	0	9,376.30	4,688.15	2	1
	Cazenovia, Village Of	10,339.31	13,434.00	23,773.31	4,754.66	5	2
	Chittenango, Village Of	23,044.33	3,800.00	26,844.33	6,711.08	4	2
	Madison, Town Of	18,213.12	0	18,213.12	9,106.56	2	1
	Oneida, City Of	69,047.81	10,613.30	79,661.11	13,276.85	6	3
	Sullivan, Town Of	201,063.01	53,286.13	254,349.14	18,167.80	14	7
COUNTY	Brighton, Town Of	8,154.00	1,742.18	9,896.18	4,948.09	2	1
	Chili, Town Of	11,486.29	0	11,486.29	2,871.57	4	1
	Gates, Town Of	4,161.89	0	4,161.89	2,080.95	2	1
	Greece, Town Of	187,107.93	13,672.17	200,780.10	25,097.51	8	3
	Hamlin, Town Of	24,747.55	1,550.65	26,298.20	6,574.55	4	2
	Henrietta, Town Of	8,541.62	0	8,541.62	4,270.81	2	1
	Irondequoit, Town Of	14,155.81	3,654.35	17,810.16	8,905.08	2	1
	Ogden, Town Of	89,263.03	20,000.00	109,263.03	54,631.52	2	1
	Parma, Town Of	23,171.64	0	23,171.64	11,585.82	2	1
	Penfield, Town Of	314,815.11	0	314,815.11	22,486.79	14	6
	Perinton, Town Of	83,623.13	0	83,623.13	11,946.16	7	3
	Pittsford, Town Of	87,144.21	15,982.98	103,127.19	14,732.46	7	3
	Rochester, City Of	19,605.48	14,690.78	34,296.26	4,899.47	7	1
	Spencerport, Village Of	101,374.67	0	101,374.67	33,791.56	3	1
	Webster, Town Of	8,230.50	0	8,230.50	4,115.25	2	1
	Wheatland, Town Of	384,616.75	70,021.72	454,638.47	32,474.18	14	2
MONTGOMERY	Amsterdam, Town Of	14,498.33	10,500.00	24,998.33	12,499.17	2	1
	Canajoharie, Town Of	10,937.41	4,332.69	15,270.10	7,635.05	2	1
	Charleston, Town	312,300.98	15,230.76	327,531.74	46,790.25	7	2



County Name	Community Name	Building Payments	Contents Payments	Total Payments	Average Payment	Losses	Properties
	Of						
	Florida, Town Of	3,434.97	0	3,434.97	1,717.49	2	1
	Fonda, Village Of	943,145.29	31,826.34	974,971.63	44,316.89	22	10
	Fort Plain, Village Of	78,132.13	167,770.12	245,902.25	20,491.85	12	6
	Fultonville, Village Of	356,596.80	666,968.43	1,023,565.23	93,051.38	11	5
	Minden, Town Of	26,481.12	7,000.09	33,481.21	16,740.61	2	1
	Mohawk, Town Of	17,312.97	0	17,312.97	8,656.49	2	1
NASSAU	Atlantic Beach, Village Of	3,991,424.88	420,483.67	4,411,908.55	43,682.26	101	42
	Bayville, Village Of	7,210,337.63	1,046,281.84	8,256,619.47	18,266.86	452	152
	Brookville, Village Of	10,000.00	17,500.00	27,500.00	13,750.00	2	1
	Cedarhurst, Village Of	1,458,185.24	168,300.94	1,626,486.18	26,233.65	62	26
	Centre Island, Village Of	146,276.35	0	146,276.35	16,252.93	9	4
	East Rockaway, Village Of	13,240,395.98	1,275,218.77	14,515,614.75	31,972.72	454	192
	Flower Hill, Village Of	3,486.15	2,000.00	5,486.15	2,743.08	2	1
	Freeport, Village Of	105,266,362.19	14,120,373.28	119,386,735.47	34,594.82	3,451	1,214
	Glen Cove, City Of	1,277,516.90	358,997.61	1,636,514.51	28,710.78	57	20
	Great Neck Estates, Village Of	137,128.09	97,142.40	234,270.49	19,522.54	12	5
	Great Neck, Village Of	571,889.58	127,138.85	699,028.43	16,256.48	43	12
	Hempstead, Town Of	221,973,594.94	29,084,987.03	251,058,581.97	37,505.02	6,694	2,598
	Hempstead, Village Of	108,479.82	17,781.94	126,261.76	14,029.08	9	2
	Hewlett Bay Park, Village Of	456,776.92	10,967.86	467,744.78	38,978.73	12	4
	Hewlett Harbor, Village Of	3,631,346.72	640,168.25	4,271,514.97	64,719.92	66	26
	Hewlett Neck, Village Of	200,865.46	21,800.00	222,665.46	44,533.09	5	2
	Island Park, Village Of	38,391,427.28	5,388,341.49	43,779,768.77	43,823.59	999	340
	Kings Point, Village Of	408,469.17	75,510.66	483,979.83	21,042.60	23	8
	Lake Success, Village Of	6,803.20	0	6,803.20	2,267.73	3	1
	Lattingtown, Village Of	66,693.91	668.83	67,362.74	16,840.69	4	2
	Lawrence, Village Of	3,137,033.61	809,742.27	3,946,775.88	44,849.73	88	38
	Long Beach, City Of	75,795,999.93	6,493,986.74	82,289,986.67	32,667.72	2,519	978
	Manorhaven, Village Of	50,649.75	741.04	51,390.79	10,278.16	5	2
	Massapequa Park, Village Of	5,815,730.59	799,739.87	6,615,470.46	41,606.73	159	57



County Name	Community Name	Building Payments	Contents Payments	Total Payments	Average Payment	Losses	Properties
	Matinecock, Village Of	3,617.00	200	3,817.00	1,908.50	2	1
	Muttontown, Village Of	10,217.66	8,774.09	18,991.75	9,495.88	2	1
	North Hempstead, Town Of	561,222.28	142,296.59	703,518.87	15,293.89	46	19
	Old Brookville, Village Of	12,760.67	3,738.48	16,499.15	8,249.58	2	1
	Old Westbury, Village Of	10,399.96	9,432.53	19,832.49	4,958.12	4	1
	Oyster Bay Cove, Village Of	10,695.96	7,554.00	18,249.96	3,041.66	6	2
	Oyster Bay, Town Of	94,308,229.34	15,424,408.38	109,732,637.72	49,969.33	2,196	734
	Plandome Manor, Village Of	67,486.01	0	67,486.01	9,640.86	7	3
	Plandome, Village Of	49,052.47	0	49,052.47	24,526.24	2	1
	Port Washington North, Village	10,940.07	13,573.70	24,513.77	4,085.63	6	3
	Rockville Centre, Village Of	136,315.91	13,544.63	149,860.54	24,976.76	6	3
	Roslyn Harbor, Village Of	3,420.95	2,250.00	5,670.95	2,835.48	2	1
	Roslyn, Village Of	72,948.84	0	72,948.84	18,237.21	4	1
	Saddle Rock, Village Of	107,053.09	20,974.39	128,027.48	32,006.87	4	2
	Sands Point, Village Of	441,393.30	60,643.77	502,037.07	27,890.95	18	8
	Sea Cliff, Village Of	118,313.44	22,266.36	140,579.80	10,813.83	13	5
	Thomaston, Village Of	16,843.40	3,464.39	20,307.79	4,061.56	5	2
	Valley Stream, Village Of	1,013,884.88	34,058.97	1,047,943.85	14,161.40	74	30
	Woodsburgh, Village Of	38,558.60	0	38,558.60	19,279.30	2	1
NIAGARA	Niagara, Town Of	33,226.14	1,822.82	35,048.96	8,762.24	4	2
	Pendleton, Town Of	97,598.82	0	97,598.82	48,799.41	2	1
	Royalton, Town Of	26,474.55	0	26,474.55	3,309.32	8	1
ONEIDA	Clinton, Village Of	9,568.13	0	9,568.13	4,784.06	2	1
	Kirkland, Town Of	190,469.54	83,007.59	273,477.13	6,836.93	40	13
	New Hartford, Town Of	8,718.46	0	8,718.46	4,359.23	2	1
	New York Mills, Village Of	993,745.63	34,049.74	1,027,795.37	57,099.74	18	9
	Oneida Castle, Village Of	19,514.71	116.28	19,630.99	9,815.50	2	1
	Rome, City Of	202.26	2,909.68	3,111.94	1,555.97	2	1
	Sylvan Beach, Village Of	122,313.55	4,641.82	126,955.37	11,541.40	11	4
	Utica, City Of	34,388.45	12,628.00	47,016.45	5,877.06	8	4
	Vienna, Town Of	22,419.57	0	22,419.57	5,604.89	4	2
	Westmoreland,	23,726.63	7,240.84	30,967.47	7,741.87	4	2



County Name	Community Name	Building Payments	Contents Payments	Total Payments	Average Payment	Losses	Properties
	Town Of						
	Whitesboro, Village Of	827,877.27	30,189.71	858,066.98	12,085.45	71	29
	Yorkville, Village Of	729,835.72	321,597.14	1,051,432.86	80,879.45	13	5
ONONDAGA	Cicero, Town Of	500,549.62	44,292.60	544,842.22	10,477.73	52	23
	Dewitt, Town Of	693,070.74	434,445.62	1,127,516.36	34,167.16	33	8
	Elbridge, Town Of	17,734.68	5,000.00	22,734.68	5,683.67	4	2
	Lafayette, Town Of	3,948.58	0	3,948.58	1,974.29	2	1
	Lysander, Town Of	53,101.40	1,870.36	54,971.76	9,161.96	6	3
	Manlius, Town Of	33,703.71	4,757.47	38,461.18	7,692.24	5	2
	Skaneateles, Village Of	19,604.53	1,504.00	21,108.53	10,554.27	2	1
	Syracuse, City Of	17,110.02	2,695.06	19,805.08	4,951.27	4	1
ONTARIO	Canandaigua, Town Of	17,260.93	0	17,260.93	8,630.47	2	1
	Gorham, Town Of	19,678.47	10,474.27	30,152.74	10,050.91	3	1
	Hopewell, Town Of	58,231.41	5,586.84	63,818.25	15,954.56	4	2
	Naples, Village Of	153,789.37	63,567.31	217,356.68	31,050.95	7	1
	Richmond, Town Of	167,107.16	0	167,107.16	20,888.40	8	4
	South Bristol, Town Of	9,431.33	0	9,431.33	4,715.67	2	1
ORANGE	Blooming Grove, Town Of	585,242.83	229,273.36	814,516.19	19,393.24	42	14
	Chester, Town Of	475,000.54	103,512.90	578,513.44	20,661.19	28	7
	Cornwall, Town Of	60,900.65	3,802.86	64,703.51	21,567.84	3	1
	Deer Park, Town Of	1,621,501.97	381,591.61	2,003,093.58	31,795.14	63	22
	Florida, Village Of	102,538.92	188,569.86	291,108.78	58,221.76	5	2
	Goshen, Town Of	249,826.39	30,344.34	280,170.73	23,347.56	12	4
	Goshen, Village Of	143,729.29	12,875.02	156,604.31	17,400.48	9	4
	Greenwood Lake, Village Of	110,733.21	34,027.21	144,760.42	9,047.53	16	6
	Hamptonburgh, Town Of	363,075.02	99,054.40	462,129.42	23,106.47	20	5
	Middletown, City Of	98,996.74	89,261.16	188,257.90	14,481.38	13	5
	Monroe, Town Of	265,110.77	17,134.73	282,245.50	16,602.68	17	6
	Monroe, Village Of	427,936.11	174,091.57	602,027.68	18,813.36	32	11
	Montgomery, Town Of	11,934.90	0	11,934.90	5,967.45	2	1
	Montgomery, Village Of	170,711.47	232,844.25	403,555.72	67,259.29	6	2
	New Windsor, Town Of	149,269.56	116,707.99	265,977.55	29,553.06	9	4
	Newburgh, City Of	151,592.01	76,108.19	227,700.20	32,528.60	7	3
	Newburgh, Town Of	77,287.54	0	77,287.54	9,660.94	8	3
	Port Jervis, City Of	380,166.54	22,893.16	403,059.70	14,394.99	28	12
	Tuxedo, Town Of	895,262.69	317,869.49	1,213,132.18	67,396.23	18	7
	Unionville, Village	37,700.52	6,137.70	43,838.22	14,612.74	3	1



County Name	Community Name	Building Payments	Contents Payments	Total Payments	Average Payment	Losses	Properties
	Of						
	Wallkill, Town Of	125,577.56	15,385.69	140,963.25	12,814.84	11	3
	Warwick, Town Of	17,333.31	445.69	17,779.00	4,444.75	4	2
	Warwick, Village Of	173,787.97	15,562.65	189,350.62	11,834.41	16	5
	Washingtonville, Village Of	2,405,503.24	345,207.68	2,750,710.92	19,647.94	140	42
	Woodbury, Village Of	8,951.46	0	8,951.46	4,475.73	2	1
ORLEANS	Carlton, Town Of	7,193.47	0	7,193.47	3,596.74	2	1
OSWEGO	Gilbertsville, Village Of	34,697.56	0	34,697.56	17,348.78	2	1
	Altmar, Village Of	47,713.70	0	47,713.70	9,542.74	5	1
	Constantia, Town Of	47,924.69	3,400.82	51,325.51	10,265.10	5	2
	Hastings, Town Of	12,321.74	0	12,321.74	6,160.87	2	1
	Oswego, City Of	211,552.82	106,594.64	318,147.46	79,536.87	4	1
	Oswego, Town Of	12,752.10	2,065.50	14,817.60	7,408.80	2	1
	West Monroe, Town Of	77,807.53	3,460.71	81,268.24	7,388.02	11	5
OTSEGO	Butternuts, Town Of	15,171.65	0	15,171.65	7,585.83	2	1
	Decatur, Town Of	32,953.60	12,106.54	45,060.14	22,530.07	2	1
	Laurens, Village Of	15,054.26	0	15,054.26	7,527.13	2	1
	Maryland, Town Of	30,471.54	0	30,471.54	5,078.59	6	3
	Milford, Town Of	27,368.44	0	27,368.44	13,684.22	2	1
	Oneonta, City Of	30,053.93	5,036.37	35,090.30	5,848.38	6	3
	Oneonta, Town Of	334,177.03	29,249.19	363,426.22	30,285.52	12	5
	Otego, Town Of	33,643.61	0	33,643.61	8,410.90	4	2
	Otego, Village Of	475,853.29	71,901.37	547,754.66	54,775.47	10	5
	Richfield, Town Of	153,206.21	800	154,006.21	25,667.70	6	3
	Unadilla, Town Of	377,383.06	63,281.39	440,664.45	73,444.08	6	3
	Unadilla, Village Of	1,034,230.90	32,132.91	1,066,363.81	20,909.09	51	25
	Worcester, Town Of	17,590.84	0	17,590.84	8,795.42	2	1
PUTNAM	Carmel, Town Of	52,883.31	81,264.61	134,147.92	5,832.52	23	9
	Cold Spring, Village Of	831,273.39	31,324.58	862,597.97	86,259.80	10	5
	Kent, Town Of	5,930.49	345.47	6,275.96	3,137.98	2	1
	Patterson, Town Of	8,622.01	7,304.65	15,926.66	3,981.67	4	2
	Philipstown, Town Of	305,177.20	35,315.54	340,492.74	30,953.89	11	4
	Putnam Valley, Town Of	1,063,589.27	160,722.19	1,224,311.46	47,088.90	26	9
	Southeast, Town Of	6,444.67	0	6,444.67	3,222.34	2	1
RENSELAER	Brunswick, Town Of	23,683.65	695	24,378.65	12,189.33	2	1
	Hoosick Falls, Village Of	170,673.23	8,596.94	179,270.17	14,939.18	12	3
	Nassau, Town Of	1,117,194.59	78,312.34	1,195,506.93	62,921.42	19	8



County Name	Community Name	Building Payments	Contents Payments	Total Payments	Average Payment	Losses	Properties
	Nassau, Village Of	229,701.31	11,530.02	241,231.33	120,615.67	2	1
	Poestenkill, Town Of	55,501.81	30,532.35	86,034.16	43,017.08	2	1
	Rensselaer, City Of	148,398.33	15,947.58	164,345.91	10,271.62	16	6
	Sand Lake, Town Of	9,420.31	0	9,420.31	4,710.15	2	1
	Schaghticoke, Town Of	111,979.84	48,058.15	160,037.99	11,431.29	14	4
	Troy, City Of	657,971.96	40,950.27	698,922.23	58,243.52	12	5
ROCKLAND	Chestnut Ridge, Village Of	83,403.69	48,641.85	132,045.54	5,078.67	26	9
	Clarkstown, Town Of	3,379,552.21	1,367,112.76	4,746,664.97	14,211.57	334	115
	Grand View-On-Hudson, Village	406,736.63	31,217.61	437,954.24	39,814.02	11	5
	Haverstraw, Town Of	54,445.11	14,747.92	69,193.03	5,322.54	13	6
	Hillburn, Village Of	26,303.44	1,130,967.11	1,157,270.55	165,324.36	7	2
	Montebello, Village Of	212,542.30	38,420.29	250,962.59	19,304.81	13	6
	New Hempstead, Village Of	30,359.21	49,567.23	79,926.44	4,995.40	16	6
	New Square, Village Of	0	6,100.00	6,100.00	2,033.33	3	1
	Nyack, Village Of	1,930,728.83	41,928.01	1,972,656.84	73,061.36	27	8
	Orangetown, Town Of	904,850.80	419,086.29	1,323,937.09	13,239.37	100	35
	Piermont, Village Of	1,794,046.50	255,267.58	2,049,314.08	41,822.74	49	15
	Ramapo, Town Of	158,659.87	141,384.13	300,044.00	3,798.03	79	33
	Sloatsburg, Village Of	231,828.13	120,896.08	352,724.21	14,108.97	25	8
	South Nyack, Village Of	300,842.12	166,956.31	467,798.43	35,984.49	13	4
	Spring Valley, Village Of	305,539.60	158,374.74	463,914.34	7,137.14	65	19
	Stony Point, Town Of	398,117.90	4,010.82	402,128.72	50,266.09	8	4
	Suffern, Village Of	1,013,145.19	1,235,148.10	2,248,293.29	24,981.04	90	28
	Upper Nyack, Village Of	173,683.40	21,483.88	195,167.28	48,791.82	4	2
	Wesley Hills, Village Of	74,697.60	96,096.59	170,794.19	4,379.34	39	14
	West Haverstraw, Village Of	1,357.07	6,646.30	8,003.37	4,001.69	2	1
SARATOGA	Ballston Spa, Village Of	19,496.36	0	19,496.36	9,748.18	2	1
	Charlton, Town Of	16,924.18	9,167.59	26,091.77	13,045.89	2	1
	Clifton Park, Town Of	90,515.24	19,964.47	110,479.71	10,043.61	11	4
	Halfmoon, Town Of	45,981.98	3,635.00	49,616.98	7,088.14	7	3
	Mechanicville, City Of	44,404.23	672.41	45,076.64	6,439.52	7	2



County Name	Community Name	Building Payments	Contents Payments	Total Payments	Average Payment	Losses	Properties
	Saratoga, Town Of	18,523.91	239.98	18,763.89	4,690.97	4	2
	Stillwater, Town Of	69,821.28	5,538.36	75,359.64	5,023.98	15	3
	Waterford, Town Of	1,365,806.03	750,333.42	2,116,139.45	36,485.16	58	17
	Waterford, Village Of	799,781.15	100,142.45	899,923.60	18,365.79	49	16
SCHENECTADY	Duanesburg, Town Of	412,943.44	20,000.00	432,943.44	108,235.86	4	2
	Glenville, Town Of	198,333.29	32,066.53	230,399.82	25,599.98	9	3
	Niskayuna, Town Of	279,847.03	0	279,847.03	12,720.32	22	9
	Rotterdam, Town Of	623,605.80	57,355.48	680,961.28	52,381.64	13	6
	Schenectady, City Of	886,573.15	162,149.99	1,048,723.14	21,848.40	48	14
	Scotia, Village Of	145,058.54	16,991.34	162,049.88	13,504.16	12	6
SCHOHARIE	Blenheim, Town Of	78,425.87	0	78,425.87	39,212.94	2	1
	Cobleskill, Village Of	42,247.42	0	42,247.42	21,123.71	2	1
	Esperance, Town Of	775,718.91	127,477.94	903,196.85	34,738.34	26	10
	Esperance, Village Of	398,623.34	108,387.92	507,011.26	39,000.87	13	6
	Fulton, Town Of	16,475.00	0	16,475.00	8,237.50	2	1
	Gilboa, Town Of	27,143.92	6,822.81	33,966.73	8,491.68	4	2
	Middleburgh, Town Of	553,412.28	115,948.77	669,361.05	27,890.04	24	9
	Middleburgh, Village Of	846,592.09	155,534.89	1,002,126.98	13,542.26	74	25
	Richmondville, Village Of	175,283.47	5,100.00	180,383.47	60,127.82	3	1
	Schoharie, Town Of	292,173.99	71,035.99	363,209.98	72,642.00	5	2
	Schoharie, Village Of	881,767.78	126,639.21	1,008,406.99	50,420.35	20	9
	Wright, Town Of	4,291.58	155.86	4,447.44	2,223.72	2	1
SENECA	Covert, Town Of	14,100.00	0	14,100.00	7,050.00	2	1
	Fayette, Town Of	21,481.02	5,000.00	26,481.02	13,240.51	2	1
	Ovid, Town Of	78,770.73	10,125.46	88,896.19	22,224.05	4	2
	Seneca Falls, Town Of	47,230.42	6,366.55	53,596.97	8,932.83	6	3
ST. LAWRENCE	Gouverneur, Village Of	16,400.94	0	16,400.94	2,733.49	6	2
	Louisville, Town Of	13,569.63	4,723.11	18,292.74	9,146.37	2	1
STEBEN	Addison, Town Of	10,495.49	6,500.00	16,995.49	8,497.75	2	1
	Addison, Village Of	97,239.69	16,120.53	113,360.22	18,893.37	6	3
	Avoca, Town Of	6,053.78	0	6,053.78	3,026.89	2	1
	Campbell, Town Of	99,322.17	56,767.25	156,089.42	31,217.88	5	2
	Erwin, Town Of	2,326.70	5,607.30	7,934.00	3,967.00	2	1
	Howard, Town Of	43,900.34	11,791.95	55,692.29	18,564.10	3	1
	Painted Post,	34,895.79	6,160.07	41,055.86	20,527.93	2	1



County Name	Community Name	Building Payments	Contents Payments	Total Payments	Average Payment	Losses	Properties
	Village Of						
	Tuscarora, Town Of	32,346.06	1,256.44	33,602.50	8,400.63	4	2
SUFFOLK	Amityville, Village Of	31,872,303.21	4,575,411.31	36,447,714.52	49,996.86	729	241
	Asharoken, Village Of	1,361,164.12	233,298.14	1,594,462.26	28,990.22	55	20
	Babylon, Village Of	25,609,171.10	4,226,853.66	29,836,024.76	41,438.92	720	225
	Babylon, Town Of	51,706,274.29	7,448,121.44	59,154,395.73	35,592.30	1,662	526
	Belle Terre, Village Of	42,465.55	23,400.00	65,865.55	16,466.39	4	1
	Bellport, Village Of	246,982.13	8,916.55	255,898.68	15,052.86	17	6
	Brightwaters, Village Of	166,260.36	10,515.22	176,775.58	12,626.83	14	7
	Brookhaven, Town Of	34,364,742.48	3,521,700.31	37,886,442.79	30,927.71	1,225	431
	East Hampton, Town Of	1,593,988.77	120,047.21	1,714,035.98	12,985.12	132	53
	East Hampton, Village Of	444,902.05	0	444,902.05	40,445.64	11	4
	Greenport, Village Of	482,287.89	3,049.10	485,336.99	24,266.85	20	6
	Huntington Bay, Village Of	929,775.49	52,229.36	982,004.85	35,071.60	28	11
	Huntington, Town Of	1,941,974.38	270,389.55	2,212,363.93	19,237.95	115	38
	Islip, Town Of	52,328,546.39	7,469,315.15	59,797,861.54	41,758.28	1,432	512
	Lake Grove, Village Of	4,031.86	9,877.30	13,909.16	3,477.29	4	2
	Lindenhurst, Village Of	34,769,249.15	5,769,427.01	40,538,676.16	31,064.12	1,305	380
	Lloyd Harbor, Village Of	78,027.82	5,000.00	83,027.82	27,675.94	3	1
	Nissequogue, Village Of	116,259.88	5,685.98	121,945.86	12,194.59	10	4
	North Haven, Village Of	42,085.74	7,664.21	49,749.95	8,291.66	6	3
	Northport, Village Of	383,897.58	67,713.23	451,610.81	34,739.29	13	4
	Ocean Beach, Village Of	18,544,397.07	2,623,943.50	21,168,340.57	47,569.30	445	151
	Old Field, Village Of	65,035.96	5,434.50	70,470.46	11,745.08	6	2
	Patchogue, Village Of	4,255,172.42	457,732.98	4,712,905.40	42,079.51	112	44
	Poquott, Village Of	52,228.02	9,093.93	61,321.95	30,660.98	2	1
	Port Jefferson, Village Of	186,309.06	134,684.81	320,993.87	16,894.41	19	7
	Quogue, Village Of	3,705,748.92	620,463.67	4,326,212.59	36,662.82	118	46
	Riverhead, Town Of	3,296,261.31	524,623.66	3,820,884.97	19,104.42	200	72
	Sag Harbor, Village Of	607,429.35	145,508.25	752,937.60	20,349.66	37	12



County Name	Community Name	Building Payments	Contents Payments	Total Payments	Average Payment	Losses	Properties
	Saltaire,Village Of	1,489,092.94	70,449.71	1,559,542.65	42,149.80	37	13
	Shelter Island, Town Of	700,433.52	101,393.17	801,826.69	27,649.20	29	10
	Smithtown, Town Of	143,263.71	74,232.10	217,495.81	5,304.78	41	17
	Southampton, Town Of	26,305,239.62	3,959,256.22	30,264,495.84	33,478.42	904	341
	Southampton, Village Of	1,308,917.71	89,978.66	1,398,896.37	31,086.59	45	18
	Southold,Town Of	4,030,870.06	323,065.07	4,353,935.13	17,556.19	248	89
	West Hampton Dunes, Village Of	12,345,047.21	1,657,746.81	14,002,794.02	44,033.94	318	97
	Westhampton Beach, Village Of	8,457,468.33	1,348,204.60	9,805,672.93	36,050.27	272	89
SULLIVAN	Bethel, Town Of	6,671.33	0	6,671.33	3,335.67	2	1
	Callicoon, Town Of	210,750.08	157,299.90	368,049.98	15,335.42	24	6
	Cochecton, Town Of	274,487.56	20,000.00	294,487.56	32,720.84	9	4
	Delaware, Town Of	94,722.25	19,524.67	114,246.92	8,788.22	13	6
	Fallsburg, Town Of	23,983.06	5,190.69	29,173.75	7,293.44	4	2
	Forestburgh, Town Of	2,601.00	5,380.00	7,981.00	1,995.25	4	1
	Fremont, Town Of	236,782.57	7,733.52	244,516.09	34,930.87	7	3
	Highland, Town Of	479,147.71	0	479,147.71	79,857.95	6	2
	Jeffersonville, Village Of	326,502.53	10,085.62	336,588.15	10,518.38	32	9
	Liberty, Town Of	18,135.44	6,651.95	24,787.39	6,196.85	4	2
	Lumberland, Town Of	27,869.13	0	27,869.13	13,934.57	2	1
	Mamakating, Town Of	109,705.14	12,446.88	122,152.02	6,786.22	18	6
	Monticello, Village Of	11,986.41	14,897.80	26,884.21	2,688.42	10	3
	Neversink, Town Of	295,102.45	18,235.82	313,338.27	28,485.30	11	5
	Rockland, Town Of	4,910,461.95	990,068.73	5,900,530.68	24,585.54	240	80
	Thompson, Town Of	34,132.20	7,146.98	41,279.18	3,752.65	11	5
	Tusten, Town Of	555,983.80	178,892.77	734,876.57	36,743.83	20	8
	Wurtsboro, Village Of	6,600.13	0	6,600.13	2,200.04	3	1
TIOGA	Barton, Town Of	669,932.97	40,411.97	710,344.94	27,320.96	26	8
	Candor, Town Of	94,792.18	0	94,792.18	31,597.39	3	1
	Newark Valley, Town Of	69,245.73	0	69,245.73	23,081.91	3	1
	Newark Valley, Village Of	49,849.63	12,705.05	62,554.68	20,851.56	3	1
	Nichols, Town Of	1,566,513.07	133,369.79	1,699,882.86	33,331.04	51	24
	Owego, Town Of	11,471,808.10	2,258,967.89	13,730,775.99	61,850.34	222	91
	Owego, Village Of	13,024,944.60	1,629,647.48	14,654,592.08	37,479.78	391	155
	Spencer, Town Of	9,814.03	0	9,814.03	4,907.02	2	1



County Name	Community Name	Building Payments	Contents Payments	Total Payments	Average Payment	Losses	Properties
	Tioga, Town Of	1,883,998.44	202,936.00	2,086,934.44	34,782.24	60	23
TOMPKINS	Caroline, Town Of	8,240.12	10,008.24	18,248.36	4,562.09	4	1
	Ithaca, City Of	21,255.15	5,779.37	27,034.52	4,505.75	6	2
	Ithaca, Town Of	40,917.52	0	40,917.52	8,183.50	5	1
	Lansing, Town Of	198,450.12	6,340.50	204,790.62	11,377.26	18	8
ULSTER	Denning, Town Of	41,033.55	18,290.63	59,324.18	29,662.09	2	1
	Ellenville, Village Of	463,637.47	12,718.74	476,356.21	39,696.35	12	6
	Esopus, Town Of	43,899.30	2,692.71	46,592.01	11,648.00	4	2
	Gardiner, Town Of	219,363.11	47,400.32	266,763.43	33,345.43	8	3
	Hurley, Town Of	360,251.27	29,498.10	389,749.37	43,305.49	9	4
	Kingston, City Of	713,717.77	176,044.34	889,762.11	18,931.11	47	18
	Lloyd, Town Of	1,125,750.48	143,023.38	1,268,773.86	70,487.44	18	3
	Marbletown, Town Of	9,207.70	0	9,207.70	4,603.85	2	1
	Marlborough, Town Of	148,107.88	43,297.43	191,405.31	27,343.62	7	3
	New Paltz, Town Of	604,793.55	94,222.09	699,015.64	30,391.98	23	10
	New Paltz, Village Of	1,000,140.79	12,562.18	1,012,702.97	168,783.83	6	2
	Olive, Town Of	28,419.05	0	28,419.05	4,059.86	7	3
	Plattekill, Town Of	62,363.99	41,720.89	104,084.88	26,021.22	4	1
	Rochester, Town Of	266,244.07	19,455.24	285,699.31	19,046.62	15	6
	Rosendale, Town Of	352,371.33	38,067.97	390,439.30	39,043.93	10	4
	Saugerties, Town Of	753,729.05	111,641.37	865,370.42	45,545.81	19	9
	Saugerties, Village Of	1,174,921.23	110,359.03	1,285,280.26	38,947.89	33	14
	Shandaken, Town Of	2,374,933.10	323,752.20	2,698,685.30	27,537.61	98	38
	Ulster, Town Of	3,113,469.36	480,598.37	3,594,067.73	29,950.56	120	38
	Wawarsing, Town Of	1,405,946.88	78,628.57	1,484,575.45	39,067.78	38	18
	Woodstock, Town Of	33,487.55	669.98	34,157.53	5,692.92	6	3
WARREN	Johnsburg, Town Of	55,217.38	0	55,217.38	27,608.69	2	1
	Lake George, Town Of	4,960.66	0	4,960.66	2,480.33	2	1
	Queensbury, Town Of	16,308.22	0	16,308.22	4,077.05	4	2
WASHINGTON	Cambridge, Village Of	8,588.49	0	8,588.49	4,294.25	2	1
	Salem, Town Of	2,476.87	0	2,476.87	1,238.43	2	1
	Whitehall, Town Of	9,236.20	3,162.82	12,399.02	3,099.76	4	2
WAYNE	Galen, Town Of	55,537.03	2,240.54	57,777.57	19,259.19	3	1
	Huron, Town Of	45,873.15	0	45,873.15	11,468.29	4	2
WESTCHESTER	Ardsville, Village Of	316,963.54	1,334,619.90	1,651,583.44	14,237.79	116	32
	Bedford, Town Of	185,254.28	24,967.83	210,222.11	14,014.81	15	7
	Briarcliff Manor, Village Of	1,024,175.76	162,596.61	1,186,772.37	24,724.42	48	12



County Name	Community Name	Building Payments	Contents Payments	Total Payments	Average Payment	Losses	Properties
	Bronxville, Village Of	3,083,489.04	1,580,230.74	4,663,719.78	59,791.28	78	22
	Cortlandt, Town Of	841,801.19	303,697.32	1,145,498.51	30,144.70	38	10
	Croton-On-Hudson, Village Of	18,485.45	0	18,485.45	9,242.73	2	1
	Dobbs Ferry, Village Of	11,969.66	902.47	12,872.13	6,436.07	2	1
	Eastchester, Town Of	239,682.18	65,215.61	304,897.79	8,469.38	36	10
	Elmsford, Village Of	1,770,154.93	662,308.12	2,432,463.05	21,151.85	115	27
	Greenburgh, Town Of	2,022,308.29	3,933,055.04	5,955,363.33	36,761.50	162	45
	Harrison, Town Of	2,354,695.78	468,947.69	2,823,643.47	10,305.27	274	80
	Hastings-On-Hudson, Village Of	26,051.51	77,495.59	103,547.10	9,413.37	11	4
	Irvington, Village Of	1,359,758.97	672,486.98	2,032,245.95	127,015.37	16	7
	Larchmont, Village Of	2,167,885.90	254,636.91	2,422,522.81	21,438.25	113	37
	Lewisboro, Town Of	44,806.31	9,093.05	53,899.36	6,737.42	8	3
	Mamaroneck, Town Of	1,167,073.59	387,804.89	1,554,878.48	9,310.65	167	51
	Mamaroneck, Village Of	14,531,093.84	7,120,089.97	21,651,183.81	27,829.29	778	229
	Mount Kisco, Village Of	136,170.79	86,234.87	222,405.66	24,711.74	9	4
	Mount Pleasant, Town Of	1,025,039.37	139,542.89	1,164,582.26	23,766.98	49	12
	Mount Vernon, City Of	183,983.81	64,451.49	248,435.30	15,527.21	16	7
	New Castle, Town Of	221,983.20	165,185.37	387,168.57	12,905.62	30	13
	New Rochelle, City Of	3,854,336.72	885,812.71	4,740,149.43	19,668.67	241	81
	North Castle, Town Of	25,769.17	13,099.22	38,868.39	3,533.49	11	4
	North Salem, Town Of	8,214.00	5,350.00	13,564.00	4,521.33	3	1
	Ossining, Town Of	21,951.99	8,478.35	30,430.34	15,215.17	2	1
	Ossining, Village Of	221,881.71	204,873.68	426,755.39	30,482.53	14	4
	Peekskill, City Of	278,040.79	111,363.32	389,404.11	27,814.58	14	5
	Pelham Manor, Village Of	45,854.79	40,014.48	85,869.27	7,155.77	12	4
	Pelham, Village Of	13,728.98	15,627.50	29,356.48	5,871.30	5	2
	Pleasantville, Village Of	44,825.46	7,422.70	52,248.16	8,708.03	6	2
	Port Chester, Village Of	540,122.82	203,881.04	744,003.86	14,588.31	51	15
	Pound Ridge, Town Of	53,469.18	0	53,469.18	13,367.30	4	2
	Rye Brook, Village Of	772,467.77	132,134.32	904,602.09	14,829.54	61	25
	Rye, City Of	26,352,129.80	3,003,200.75	29,355,330.55	35,453.30	828	226



County Name	Community Name	Building Payments	Contents Payments	Total Payments	Average Payment	Losses	Properties
	Scarsdale, Village Of	1,144,406.84	202,450.56	1,346,857.40	11,223.81	120	38
	Sleepy Hollow, Village Of	9,304.82	2,654.96	11,959.78	2,391.96	5	2
	Somers, Town Of	51,607.78	11,096.66	62,704.44	6,967.16	9	4
	Tarrytown, Village Of	454,075.34	10,668.61	464,743.95	51,638.22	9	2
	Tuckahoe, Village Of	28,405.12	2,840.00	31,245.12	5,207.52	6	3
	White Plains, City Of	202,717.66	245,621.03	448,338.69	13,186.43	34	13
	Yonkers, City Of	5,420,055.54	2,420,260.88	7,840,316.42	34,538.84	227	81
	Yorktown, Town Of	103,772.16	40,493.53	144,265.69	4,508.30	32	7
WYOMING	Arcade, Village Of	225,665.99	82,102.86	307,768.85	30,776.89	10	5
	Warsaw, Village Of	0	5,336.80	5,336.80	2,668.40	2	1

Table A.3-2: Severe Repetitive Loss as of 07/13/2013

County Name	Community Name	Payments	Payments	Payments	Payment	Losses	Properties
ALBANY	Colonie, Town Of	339840.91	301983.01	641823.92	37754.35	17	3
ALLEGANY	Seneca Nation Of Indians	34293.63	7011.56	41305.19	8261.04	5	1
BRONX	New York, City Of	5035415.56	705336.10	5740751.66	25743.28	223	42
BROOME	Binghamton, City Of	263406.91	225918.17	489325.08	69903.58	7	1
	Conklin, Town Of	2656741.58	803281.99	3460023.57	58644.47	59	15
	Kirkwood, Town Of	200928.25	41032.62	241960.87	48392.17	5	1
	Union, Town Of	913,467.33	69,170.03	982,637.36	49,131.87	20	5
	Vestal, Town Of	250,243.09	41,788.53	292,031.62	41,718.80	7	2
CHAUTAUQUA	Hanover, Town Of	315,492.58	152,478.40	467,970.98	12,315.03	38	6
CHENANGO	Norwich, Town Of	351,722.83	80,905.05	432,627.88	108,156.97	4	1
DELAWARE	Colchester, Town Of	134,893.10	43,010.43	177,903.53	17,790.35	10	2
	Deposit, Town Of	81,667.07	0.00	81,667.07	20,416.77	4	1
	Hancock, Town Of	215,843.48	1,396.31	217,239.79	24,137.75	9	2
DUTCHESS	Dover, Town Of	63,519.53	35,039.88	98,559.41	19,711.88	5	1
	East Fishkill, Town Of	309,245.20	72,378.67	381,623.87	54,517.70	7	2
	Fishkill, Town Of	88,976.68	22,312.21	111,288.89	27,822.22	4	1
	Pleasant Valley, Town Of	302,369.80	108,466.71	410,836.51	31,602.81	13	3
	Poughkeepsie, Town Of	57,871.12	23,001.08	80,872.20	20,218.05	4	1
ERIE	Aurora, Town Of	72,869.70	5,886.08	78,755.78	15,751.16	5	1
	Buffalo, City Of	67,738.13	22,669.59	90,407.72	18,081.54	5	1
	Evans, Town Of	31,212.77	21,503.94	52,716.71	13,179.18	4	1
	Hamburg, Town Of	109,202.22	46,200.66	155,402.88	25,900.48	6	1
ESSEX	Chesterfield, Town Of	159,531.62	0	159,531.62	31,906.32	5	1
GREENE	Lexington, Town Of	97,647.62	20,472.48	118,120.10	23,624.02	5	1



County Name	Community Name	Payments	Payments	Payments	Payment	Losses	Properties
MONROE	Wheatland, Town Of	309,116.87	59,395.45	368,512.32	33,501.12	11	1
NASSAU	Bayville, Village Of	697,621.09	172,910.71	870,531.80	18,521.95	47	9
	Cedarhurst, Village Of	63,579.33	29,328.21	92,907.54	15,484.59	6	1
	East Rockaway, Village Of	732,712.67	160,642.20	893,354.87	34,359.80	26	5
	Freeport, Village Of	16,902,637.38	3,182,798.87	20,085,436.25	28,983.31	693	124
	Glen Cove, City Of	459,272.11	232,395.19	691,667.30	53,205.18	13	3
	Great Neck, Village Of	45,968.08	13,900.61	59,868.69	14,967.17	4	1
	Hempstead, Town Of	22,033,368.10	3,747,851.80	25,781,219.90	34,605.66	745	137
	Hewlett Harbor, Village Of	441,715.91	160,378.70	602,094.61	60,209.46	10	2
	Island Park, Village Of	6,991,039.56	1,410,942.53	8,401,982.09	38,018.02	221	36
	Lawrence, Village Of	175,926.20	3,496.75	179,422.95	44,855.74	4	1
	Long Beach, City Of	6,552,847.57	1,671,113.33	8,223,960.90	37,898.44	217	42
	Massapequa Park, Village Of	908,834.79	283,960.31	1,192,795.10	34,079.86	35	4
	Oyster Bay, Town Of	21,797,910.94	4,764,309.62	26,562,220.56	48,471.21	548	92
	Sands Point, Village Of	66,126.01	2,508.27	68,634.28	17,158.57	4	1
	Valley Stream, Village Of	29,647.37	550	30,197.37	5,032.90	6	1
ONEIDA	Sylvan Beach, Village Of	40,470.75	0	40,470.75	10,117.69	4	1
ONTARIO	Naples, Village Of	153,789.37	63,567.31	217,356.68	31,050.95	7	1
ORANGE	Blooming Grove, Town Of	308,762.58	146,531.71	455,294.29	30,352.95	15	3
	Chester, Town Of	390,636.92	103,512.90	494,149.82	23,530.94	21	4
	Deer Park, Town Of	298,184.40	29,680.87	327,865.27	25,220.41	13	3
	Hamptonburgh, Town Of	180,064.51	67,680.48	247,744.99	17,696.07	14	2
	Monroe, Town Of	208,819.93	6,064.55	214,884.48	26,860.56	8	2
	Monroe, Village Of	174,771.51	47,937.25	222,708.76	44,541.75	5	1
	Port Jervis, City Of	36,639.74	0	36,639.74	12,213.25	3	1
	Tuxedo, Town Of	231,742.99	0	231,742.99	46,348.60	5	2
	Wallkill, Town Of	58,616.04	14,287.26	72,903.30	12,150.55	6	1
	Warwick, Village Of	57,090.07	0	57,090.07	14,272.52	4	1
	Washingtonville, Village Of	887,030.69	158,712.05	1,045,742.74	24,319.60	43	5
PUTNAM	Philipstown, Town Of	50,653.85	26,981.71	77,635.56	19,408.89	4	1
	Putnam Valley, Town Of	33,977.99	0	33,977.99	8,494.50	4	1
RENSSELAER	Hoosick Falls, Village Of	52,101.61	8,596.94	60,698.55	15,174.64	4	1
ROCKLAND	Clarkstown, Town Of	697,979.06	191,837.35	889,816.41	27,806.76	32	6



County Name	Community Name	Payments	Payments	Payments	Payment	Losses	Properties
	Orangetown, Town Of	46,868.12	19,990.03	66,858.15	13,371.63	5	1
	Piermont, Village Of	84,066.28	89,830.60	173,896.88	24,842.41	7	1
	Sloatsburg, Village Of	106,084.63	5,900.00	111,984.63	22,396.93	5	1
	South Nyack, Village Of	202,914.15	164,377.12	367,291.27	52,470.18	7	1
	Spring Valley, Village Of	171,892.06	106,123.30	278,015.36	9,929.12	28	3
	Suffern, Village Of	263,883.63	39,189.28	303,072.91	20,204.86	15	3
SARATOGA	Waterford, Village Of	270,569.64	37,162.15	307,731.79	25,644.32	12	2
SCHENECTADY	Glenville, Town Of	73,099.15	32,066.53	105,165.68	21,033.14	5	1
	Schenectady, City Of	212,825.33	7,853.71	220,679.04	20,061.73	11	2
SCHOHARIE	Esperance, Town Of	87,907.81	18,287.72	106,195.53	26,548.88	4	1
SUFFOLK	Amityville, Village Of	6,901,758.62	1,235,429.06	8,137,187.68	47,585.89	171	32
	Babylon, Village Of	6,001,482.84	1,393,898.22	7,395,381.06	39,975.03	185	35
	Babylon, Town Of	14,390,180.10	2,782,711.08	17,172,891.18	36,772.79	467	83
	Brookhaven, Town Of	6,620,877.93	621,697.17	7,242,575.10	39,361.82	184	37
	East Hampton, Town Of	156,043.64	6,331.50	162,375.14	16,237.51	10	2
	Huntington, Town Of	292,466.36	26,844.90	319,311.26	22,807.95	14	3
	Islip, Town Of	9,344,329.02	1,822,277.82	11,166,606.84	44,845.81	249	46
	Lindenhurst, Village Of	10,487,722.33	2,351,929.18	12,839,651.51	30,864.55	416	73
	Northport, Village Of	113,439.93	0	113,439.93	18,906.66	6	1
	Ocean Beach, Village Of	3,635,538.39	548,405.06	4,183,943.45	57,314.29	73	17
	Patchogue, Village Of	333,996.53	93,523.56	427,520.09	106,880.02	4	1
	Riverhead, Town Of	489,182.54	48,215.51	537,398.05	38,385.58	14	3
	Sag Harbor, Village Of	251,206.74	91,731.35	342,938.09	38,104.23	9	2
	Southampton, Town Of	2,727,737.96	715,776.93	3,443,514.89	46,533.99	74	14
	Southold, Town Of	575,828.17	59,647.89	635,476.06	24,441.39	26	5
	West Hampton Dunes, Village Of	933,879.46	95,448.47	1,029,327.93	32,166.50	32	6
	Westhampton Beach, Village Of	1,690,823.26	158,745.67	1,849,568.93	48,672.87	38	8
SULLIVAN	Callicoon, Town Of	46,574.02	0	46,574.02	11,643.51	4	1
	Rockland, Town Of	579,591.54	77,801.53	657,393.07	21,206.23	31	6
	Tusten, Town Of	60,144.32	22,343.14	82,487.46	20,621.87	4	1
TIOGA	Owego, Town Of	720,454.63	71,645.31	792,099.94	88,011.10	9	3
	Owego, Village Of	482,840.56	60,043.99	542,884.55	33,930.28	16	4
	Tioga, Town Of	545,642.89	41,489.05	587,131.94	41,938.00	14	4
ULSTER	Kingston, City Of	146,858.61	23,483.31	170,341.92	21,292.74	8	1



County Name	Community Name	Payments	Payments	Payments	Payment	Losses	Properties
	New Paltz, Village Of	747,286.25	0	747,286.25	186,821.56	4	1
	Plattekill, Town Of	62,363.99	41,720.89	104,084.88	26,021.22	4	1
	Shandaken, Town Of	326,367.03	46,332.47	372,699.50	28,669.19	13	3
	Ulster, Town Of	1,129,510.01	250,537.81	1,380,047.82	40,589.64	34	7
	Wawarsing, Town Of	456,648.26	0	456,648.26	114,162.07	4	2
WESTCHESTER	Briarcliff Manor, Village Of	685,683.07	101,577.16	787,260.23	25,395.49	31	7
	Cortlandt, Town Of	187,719.35	40,606.45	228,325.80	15,221.72	15	1
	Eastchester, Town Of	58,879.15	10,715.39	69,594.54	6,326.78	11	1
	Elmsford, Village Of	303,954.49	105,086.75	409,041.24	34,086.77	12	2
	Greenburgh, Town Of	515,988.91	132,551.22	648,540.13	28,197.40	23	4
	Harrison, Town Of	504,450.27	52,354.50	556,804.77	14,652.76	38	6
	Larchmont, Village Of	204,432.39	10,527.09	214,959.48	15,354.25	14	3
	Mamaroneck, Town Of	137,886.42	0	137,886.42	27,577.28	5	1
	Mamaroneck, Village Of	3,600,901.93	526,499.16	4,127,401.09	28,662.51	144	26
	Mount Pleasant, Town Of	76,874.68	28,182.68	105,057.36	17,509.56	6	1
	New Rochelle, City Of	301,693.66	67,658.68	369,352.34	14,205.86	26	4
	Port Chester, Village Of	182,498.49	18,626.73	201,125.22	20,112.52	10	2
	Rye Brook, Village Of	117,978.85	22,615.02	140,593.87	35,148.47	4	1
	Rye, City Of	12,658,088.65	1,410,097.13	14,068,185.78	50,787.67	277	47
	Scarsdale, Village Of	306,617.55	92,570.75	399,188.30	13,306.28	30	4
	Yonkers, City Of	651,707.64	63,333.22	715,040.86	23,065.83	31	6

Property Exposure Analysis in a 100-Year Floodplain

This section from the 2011 Hazard Mitigation Plan (HMP) demonstrates the method of calculating property exposure analysis in the floodplain that can be done at the municipality level geography. The 2014 State Hazard Mitigation Plan does similar analysis but was only updated to the county level geography. The same method of using parcel points and market value was used in the 2014 State Hazard Mitigation Plan with updated data for various hazard sections. The inclusion of the data here serves as a resource for local planning, and to demonstrate the type of analysis that may be done at the local level.

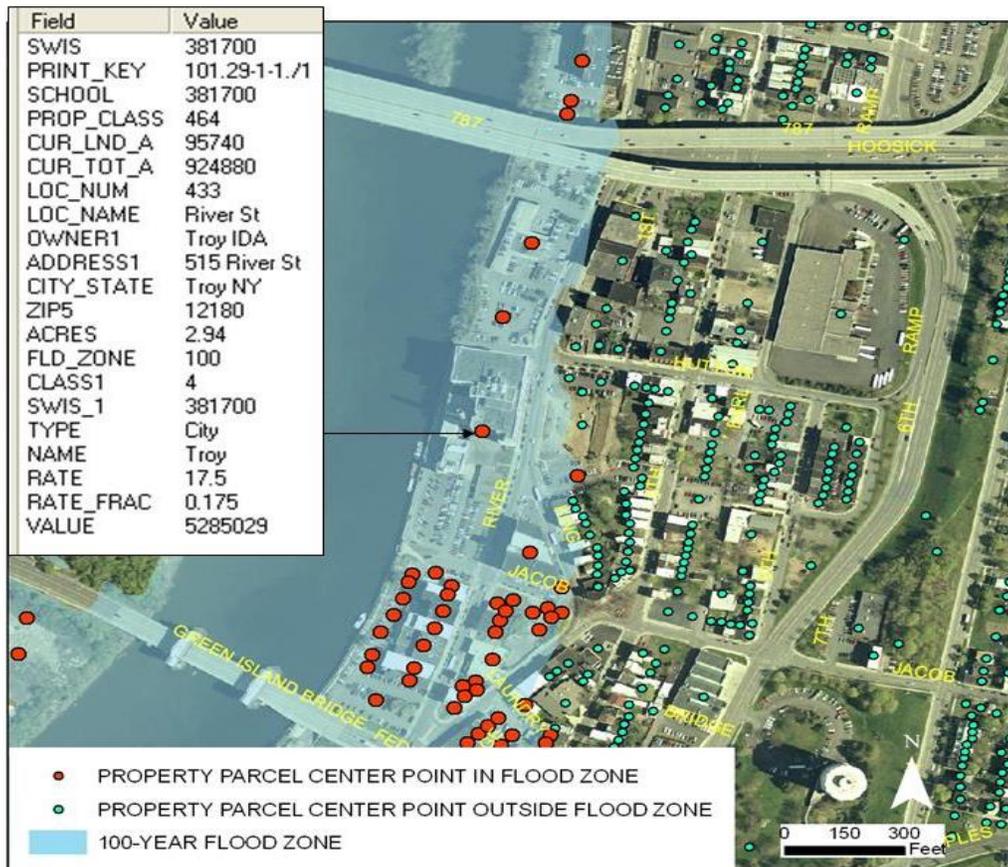
This Section in Chapter 3.4 remains unchanged from the 2008 Hazard Mitigation Plan update. Even though the data has not been updated to reflect newer mapping and additional properties that now may lie within the 100 year flood plain it still provides an excellent general indication of the extent and distribution of a communities flood risk that is useful for mitigation planning



Figure A.3-6: 100-Year Floodplain Property Exposure Analysis

100-Year Floodplain Property Exposure Analysis

A major effort of the 2008 State Hazard Mitigation Plan – Risk Assessment has been the GIS-based analysis of property within a 100-year floodplain. Using the NYS Real Property System (RPS) GIS layer of property parcel center points and FEMA's "Q3" digital flood maps, the total number, type and estimated value of property within a 100-year floodplain was calculated and summarized for 1002 New York State municipalities (based on availability of RPS and Q3 data). While this information provides only property exposure as opposed to flood damage or estimated dollar losses, it nonetheless provides a general indication of the extent and distribution of a community's flood risk that is useful for mitigation planning. The below example shows property parcel center points in an area of Troy, NY that fall in or out of the 100-year floodplain. The sample parcel record shows the property to be owned by the Troy Industrial Development Authority (IDA). The property class is 464 (Commercial – Office Building). The estimated property value is \$5,285,029 based on an assessed value of \$924,880 (CUR_TOT_A) divided by 0.175 (RATE_FRAC) from the State Equalization Rate for the City of Troy of 17.5%.



The following series of property exposure analysis maps were extracted from the 2011 Hazard Mitigation Plan to demonstrate the level of exposure analysis that can be done at the municipality level geography. The 2014 State Hazard Mitigation Plan does similar analysis but was updated to the county level geography. The inclusion of the data here serves as a resource and to demonstrate the type of analysis that can be done at the local level.

Figure A.3-7: The Number of Residential Properties in a 100 Year Flood Zone by Municipality

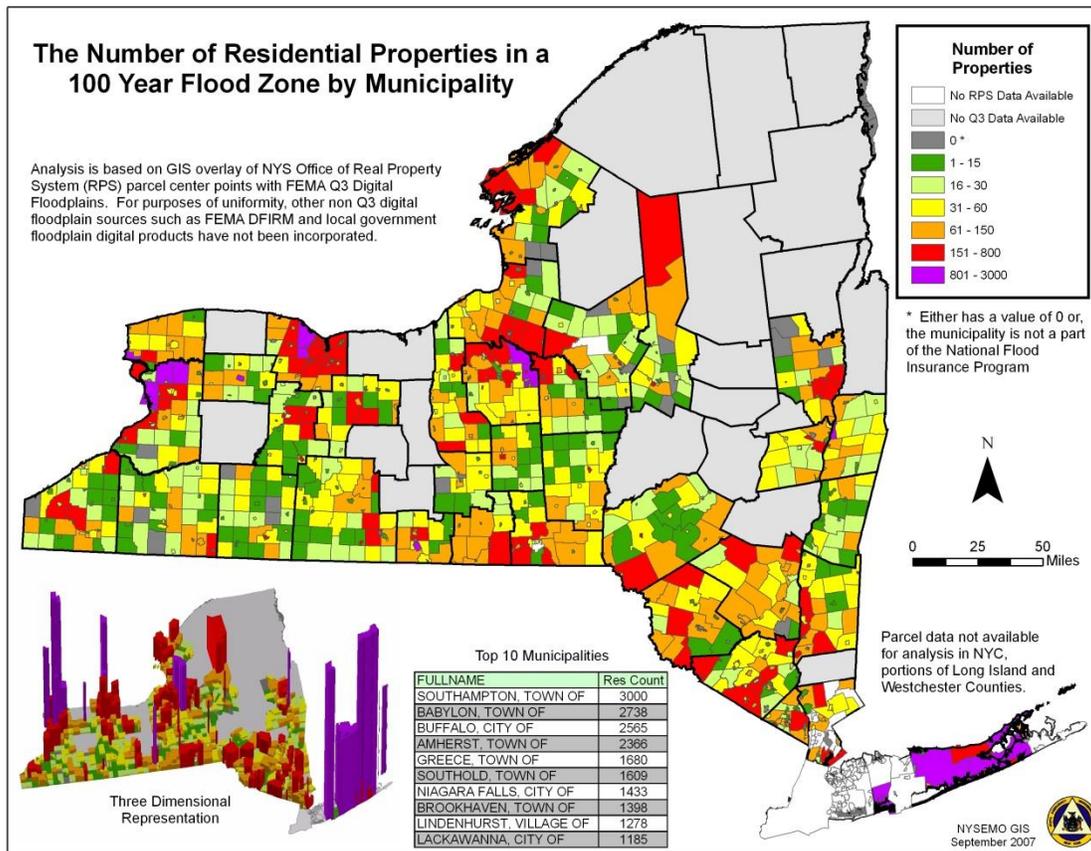


Figure A.3-8: Municipal Per Capita Residential Property Value in a 100 -Yr Flood Zone by Municipality

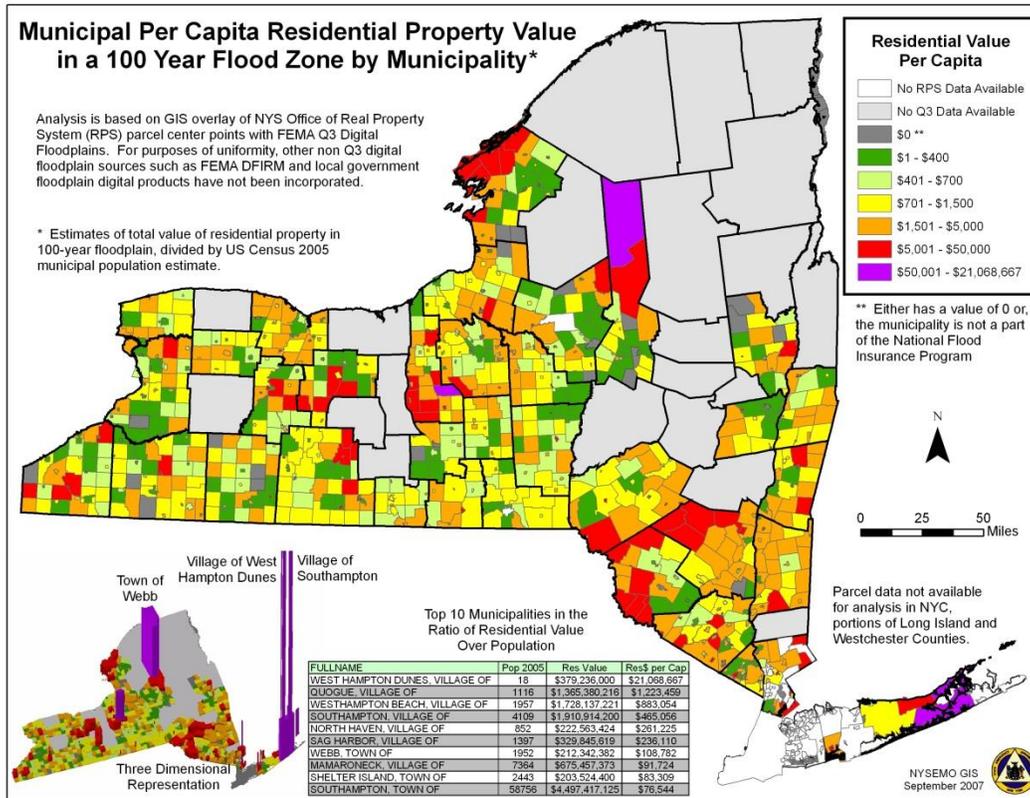


Figure A.3-9: Municipality Per Capita Total Property Value in a 100 Yr Flood Zone by Municipality

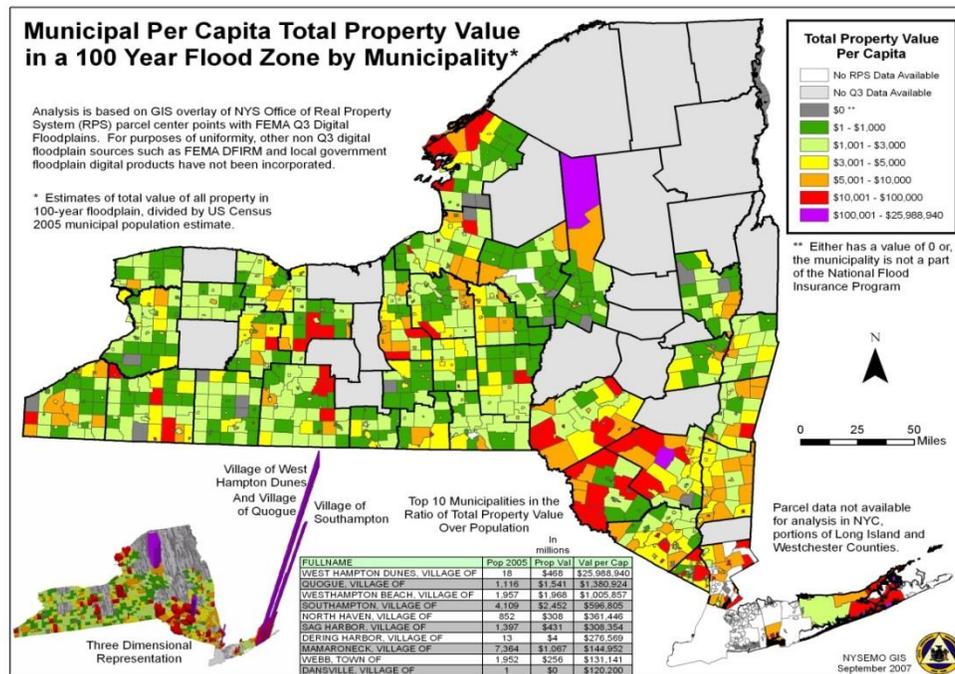


Figure A.3-10: Total Value of Residential Property in a 100-Yr Flood Zone by Municipality

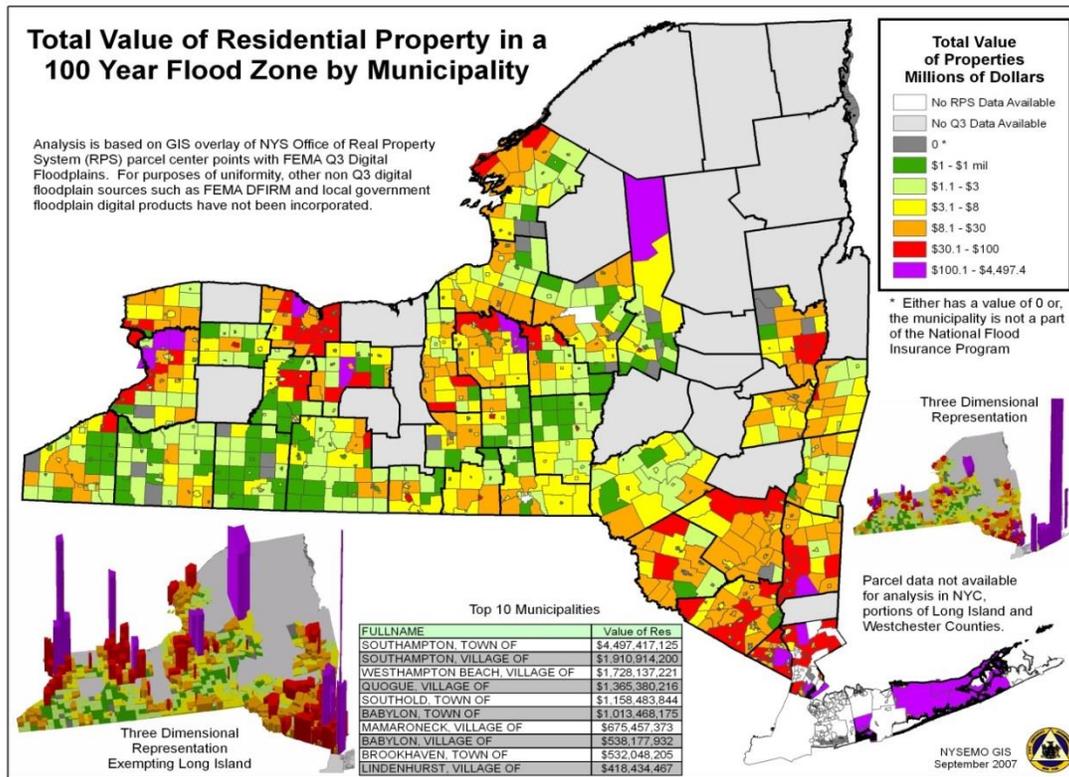
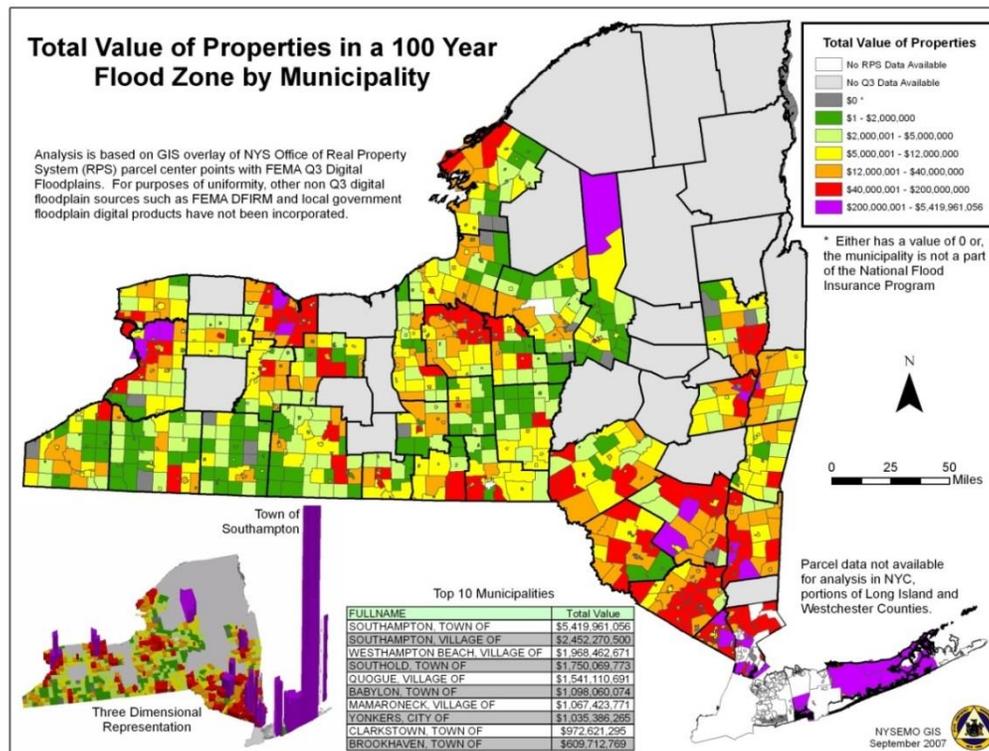


Figure A.3-11: Total Value of Properties in a 100-Yr Flood Zone by Municipality



The following individual county maps of residential property exposure in 100-year floodplain were extracted from the 2011 Hazard Mitigation Plan to demonstrate the level of exposure analysis that can be done at the municipality level geography. The 2014 State Hazard Mitigation Plan does similar analysis but was updated to the county level geography. The inclusion of the data here serves as a resource and to demonstrate the type of analysis that can be done at the local level.

Figure A.3-12: Albany County, NY Residential Property Exposure in 100-YR Floodplains

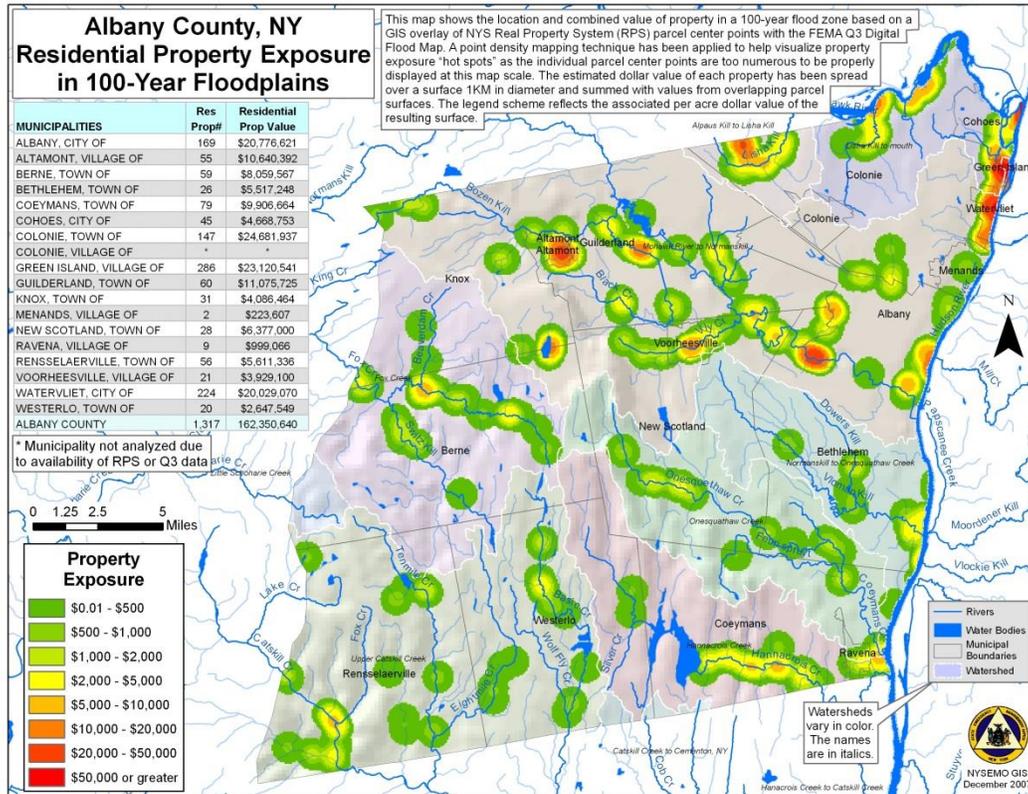


Figure A.3-13: Albany County, NY Residential Property Exposure in 100-Yr Floodplains

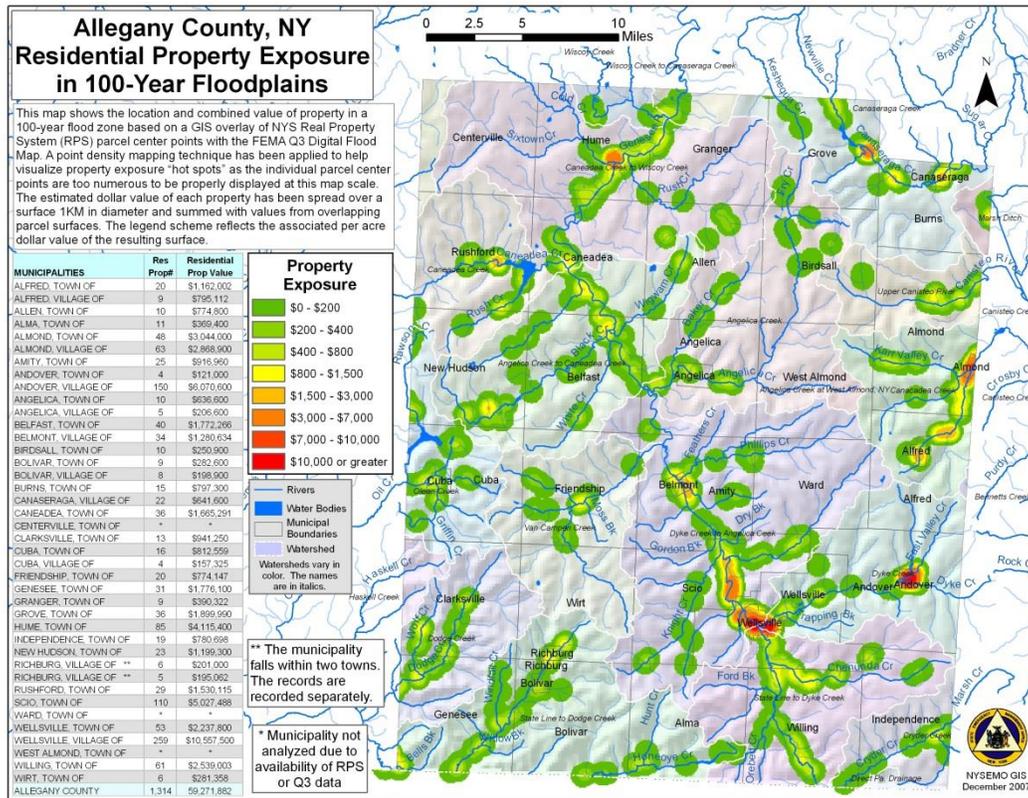


Figure A.3-14: Broome County, NY Residential Property Exposure in 100-Yr Floodplains

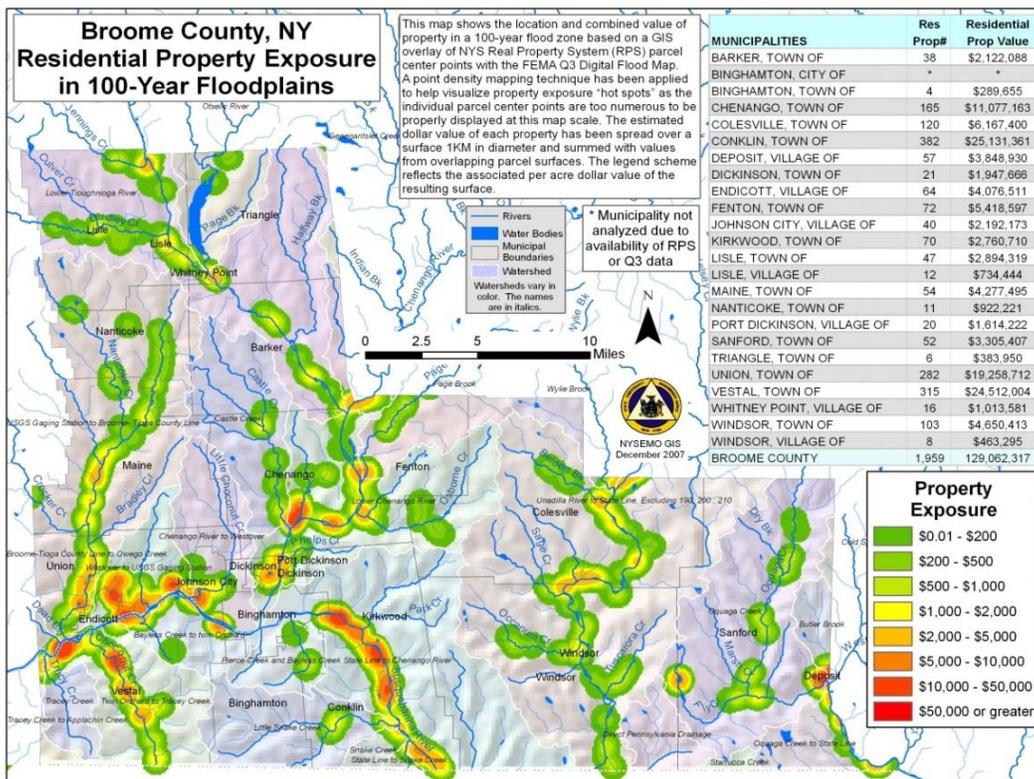


Figure A.3-15: Cattaraugus County, NY Residential Property Exposure in 100-Yr Floodplains

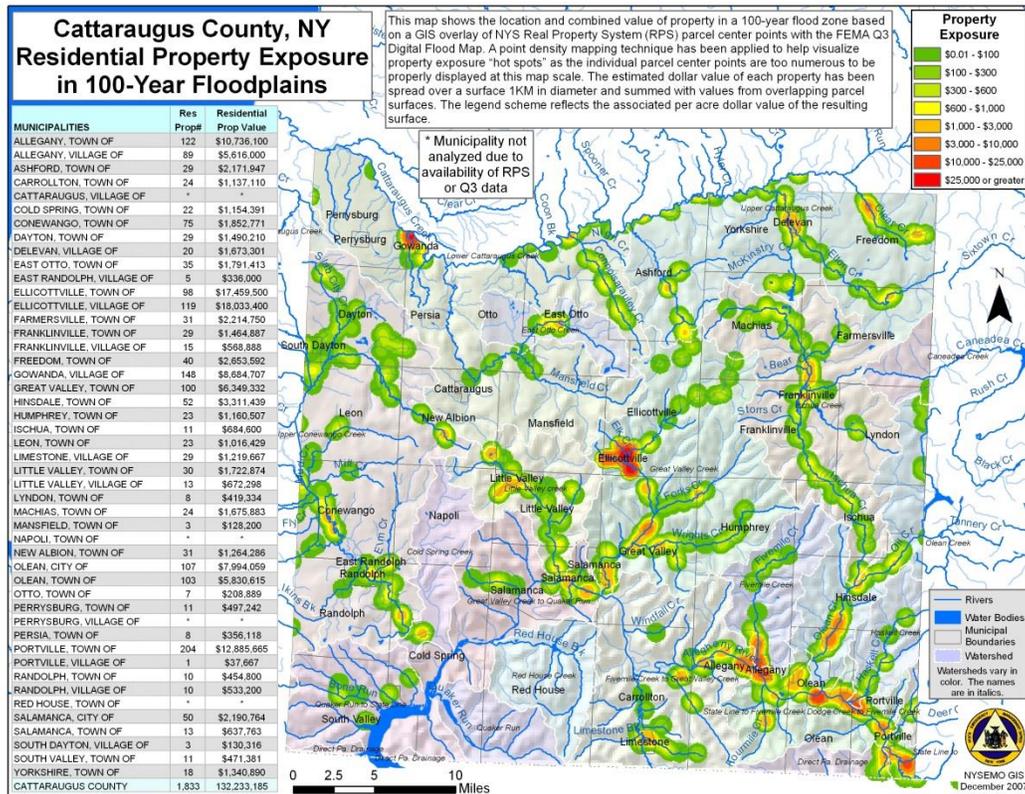


Figure A.3-16: Cayuga County, NY Residential Property Exposure in 100-Yr Floodplains

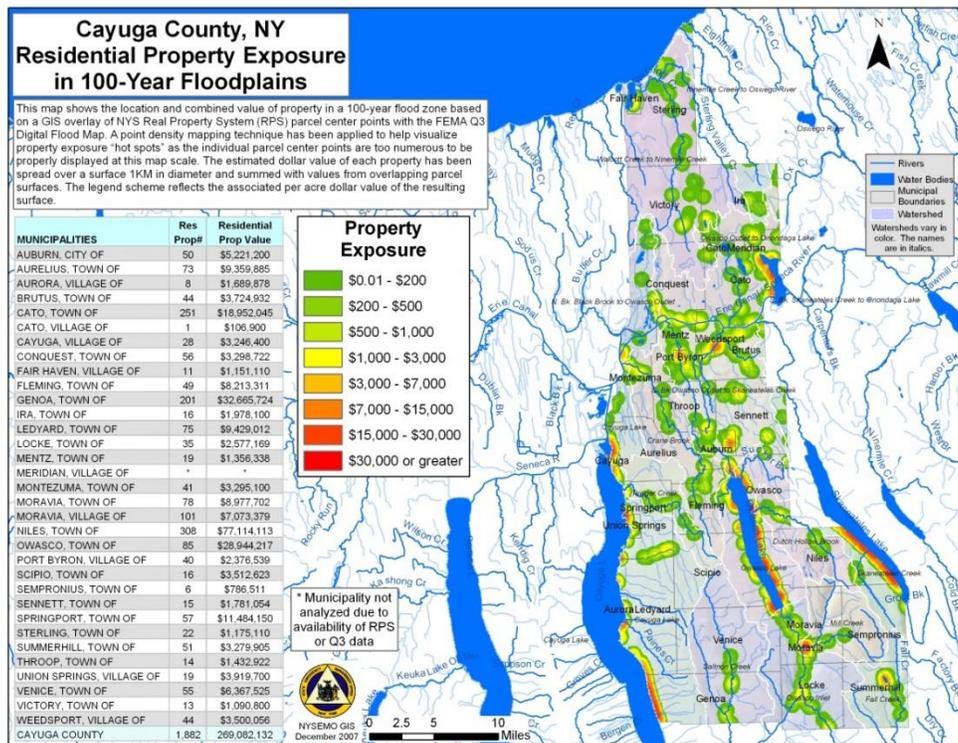


Figure A.3-17: Chautauqua County, NY Residential Property Exposure in 100-Yr Floodplains

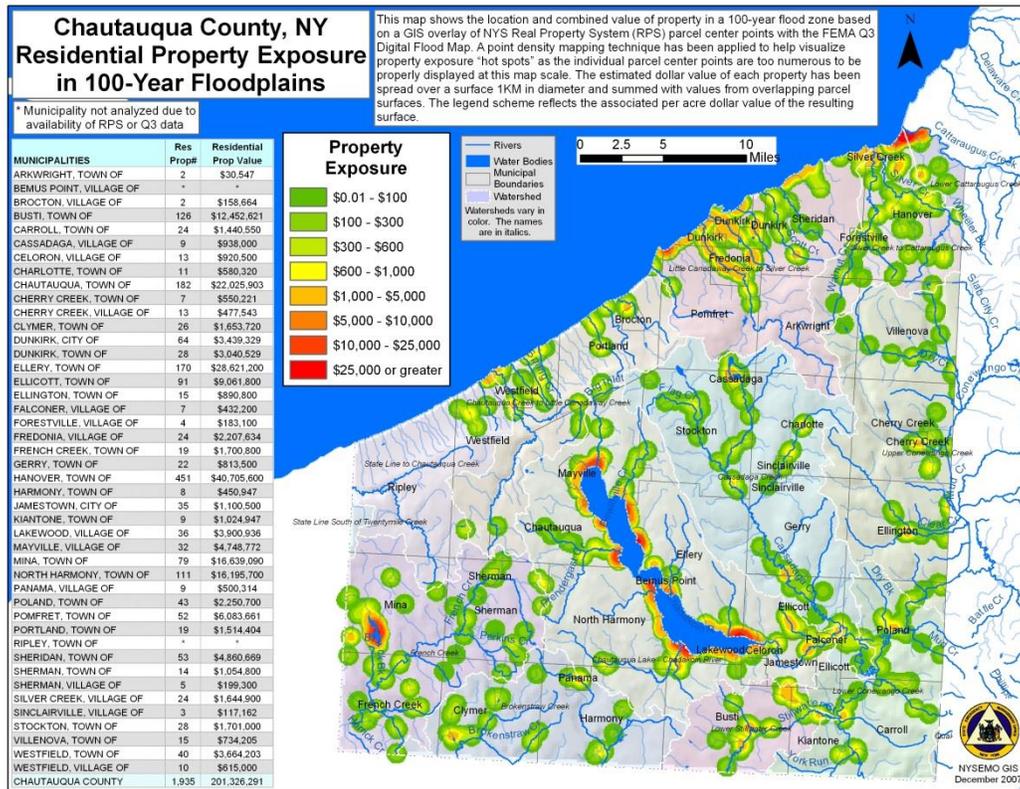


Figure A.3-18: Chemung County, NY Residential Property Exposure in 100-Yr Floodplains

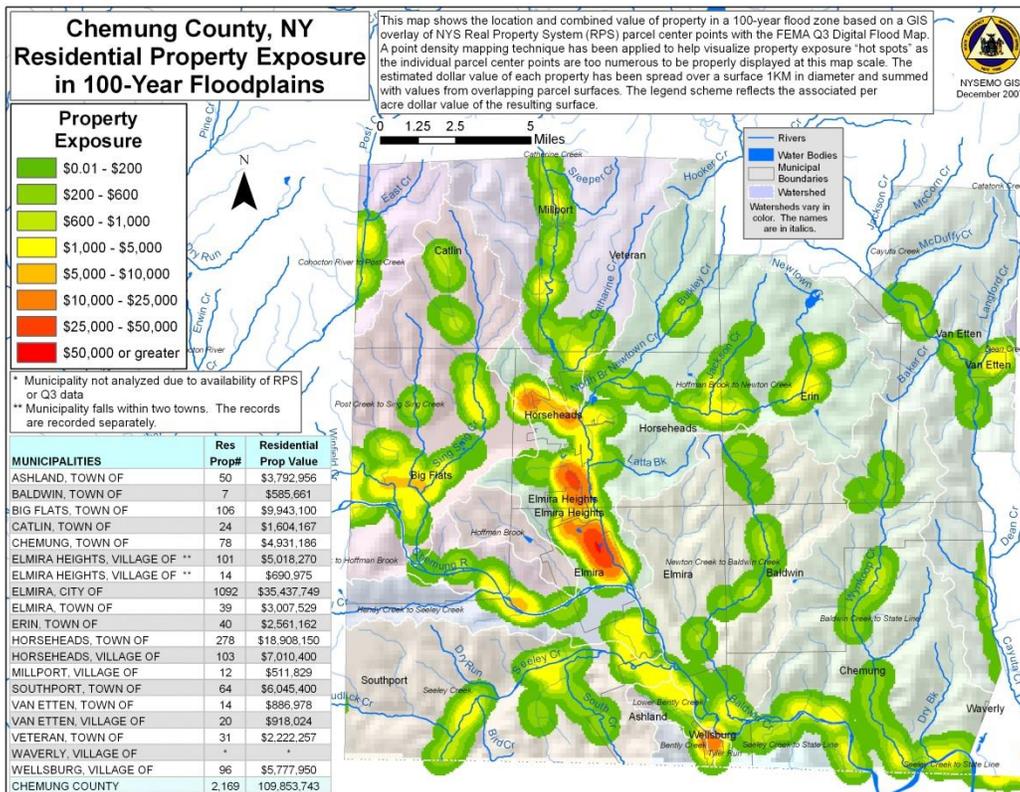


Figure A.3-19: Chenango County, NY Residential Property Exposure in 100-Yr Floodplains

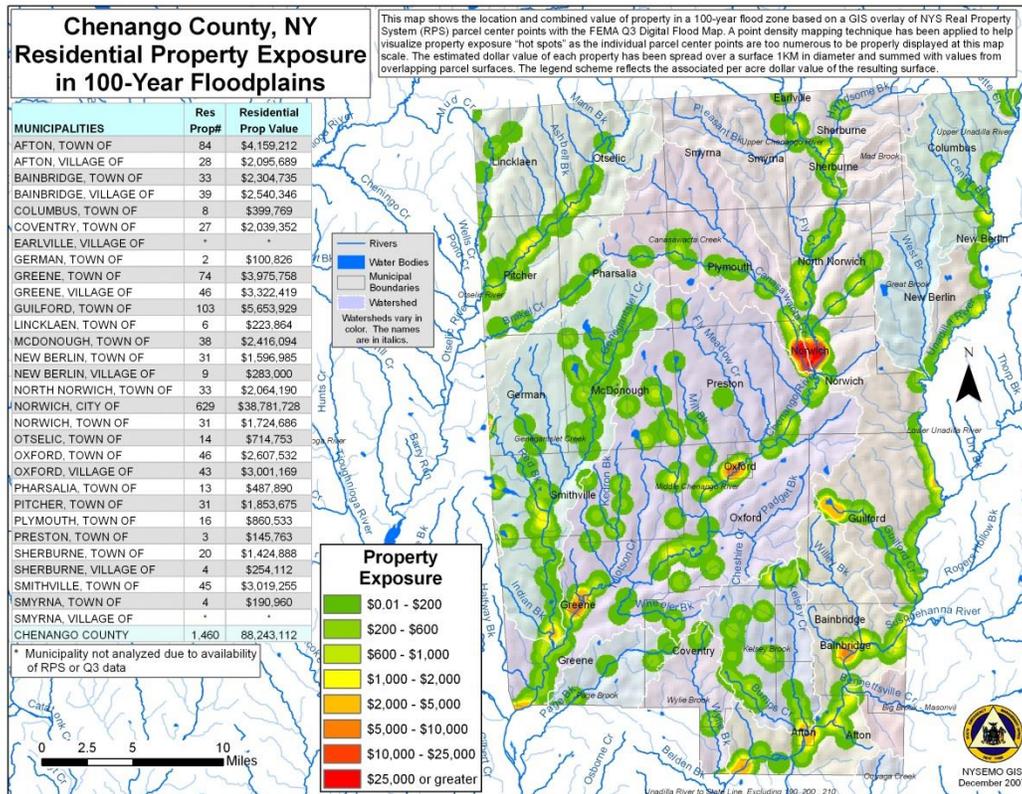


Figure A.3-20: Columbia County, NY Residential Property Exposure in 100-Yr Floodplains

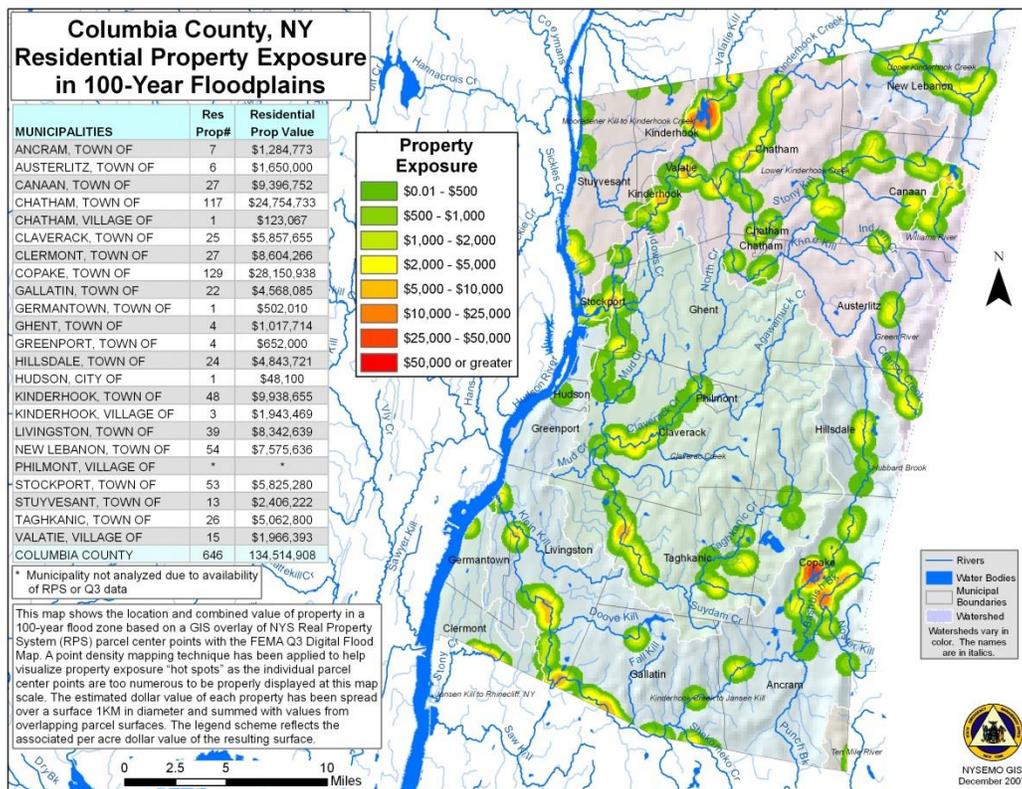


Figure A.3-21: Cortland County, NY Residential Property Exposure in 100-Yr Floodplains

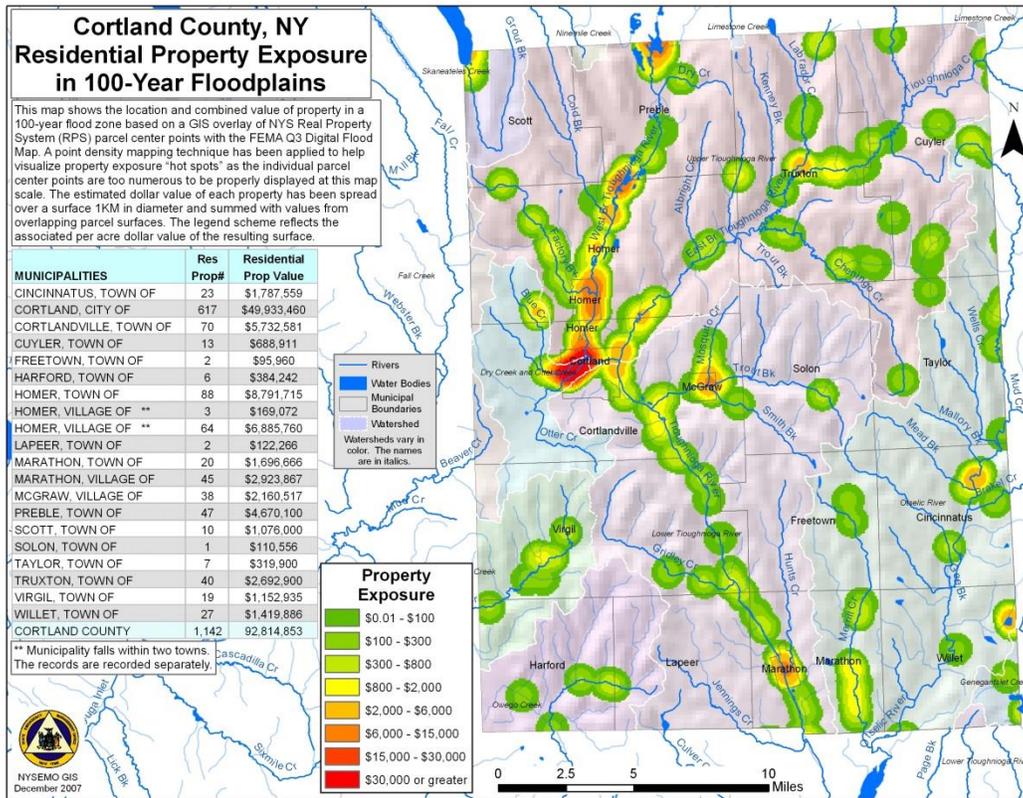


Figure A.3-22: Delaware County, NY Residential Property Exposure in 100-Yr Floodplains

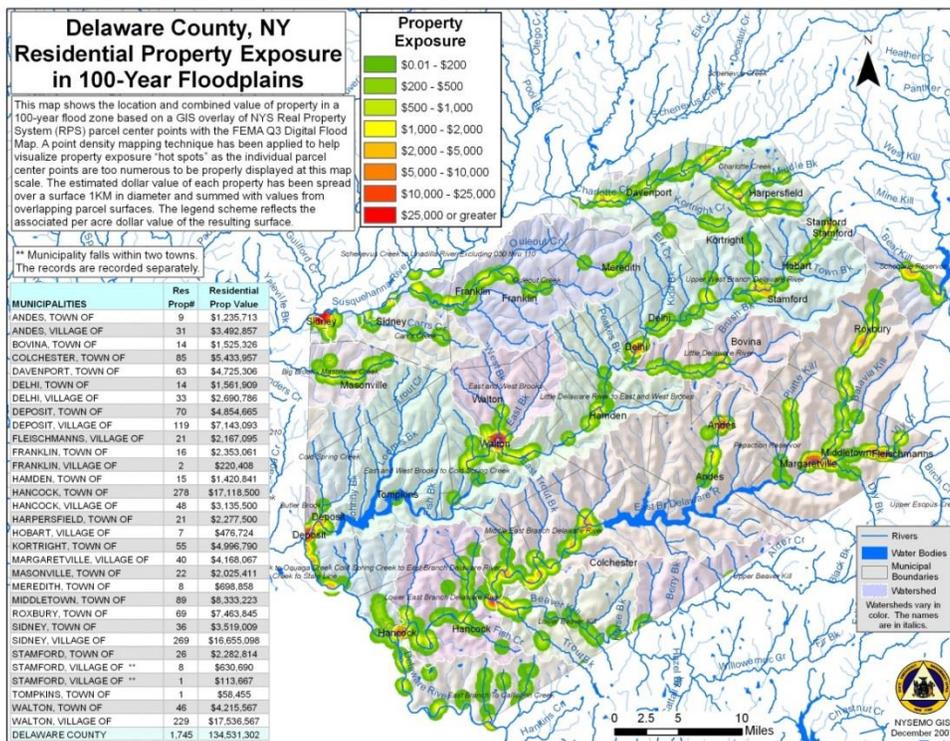


Figure A.3-23: Dutchess County, NY Residential Property Exposure in 100-Yr Floodplains

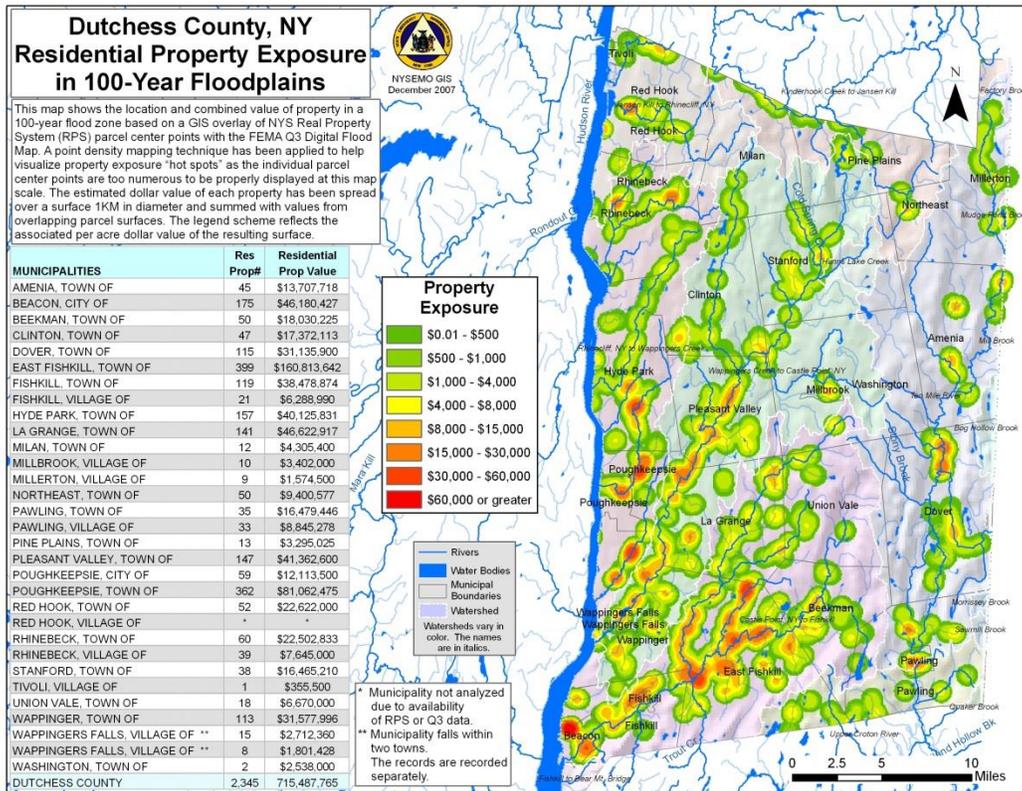


Figure A.3-24: Erie County, NY Residential Property Exposure in 100-Yr Floodplains

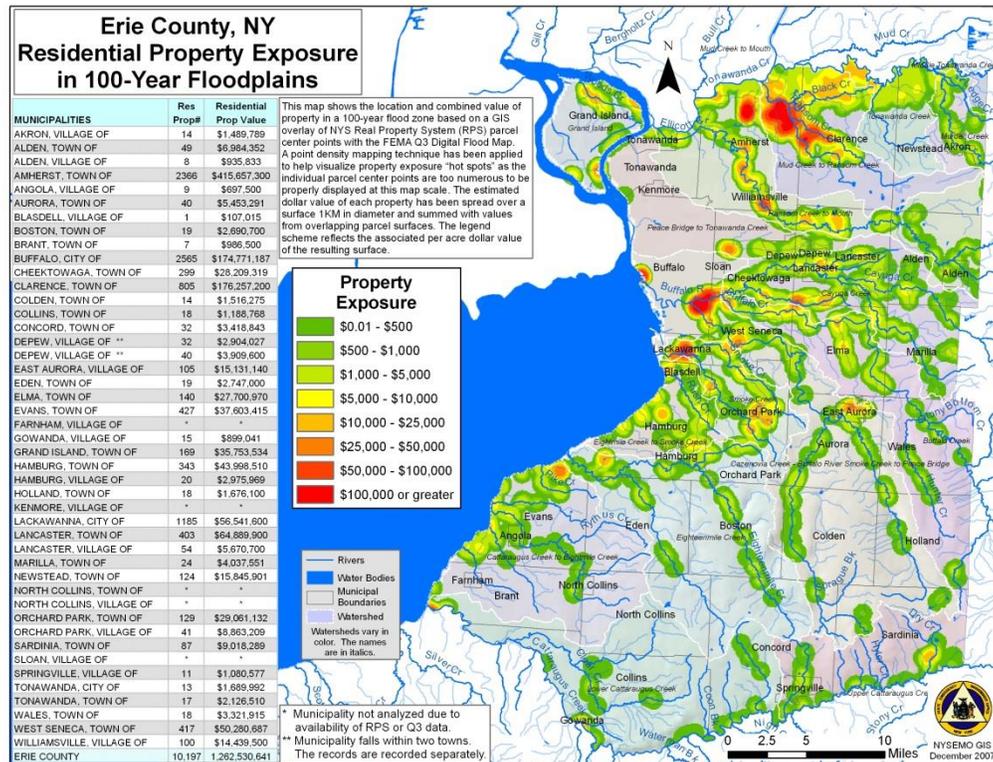


Figure A.3-25: Genesee County, NY Residential Property Exposure in 100-Yr Floodplains

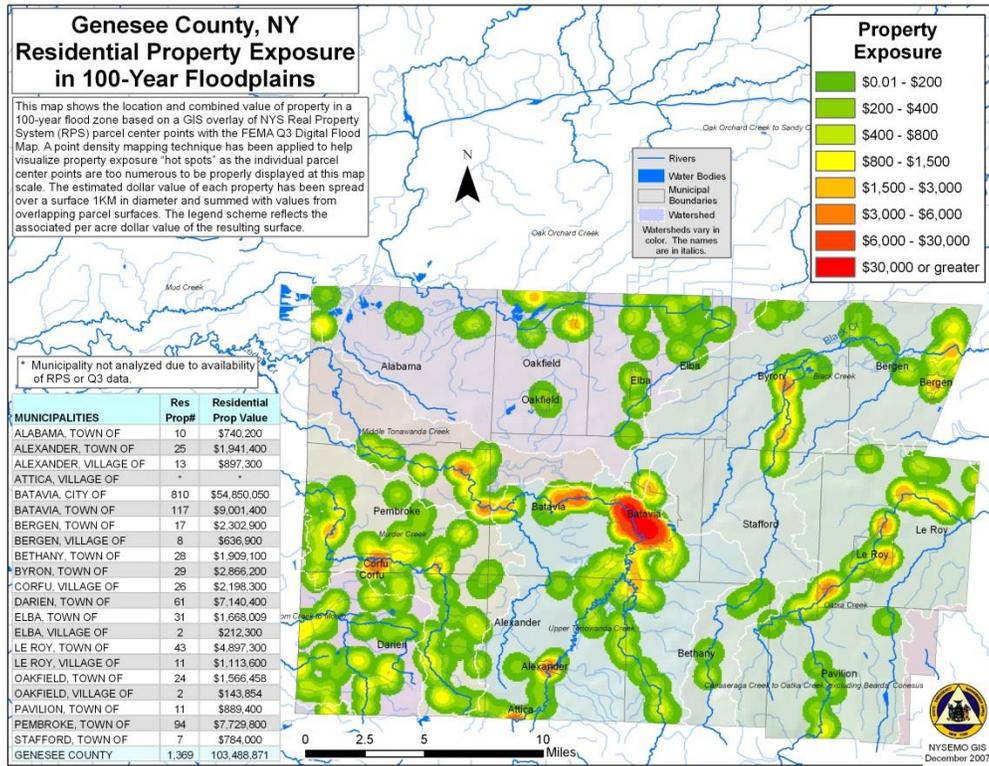


Figure A.3-26: Herkimer County, NY Residential Property Exposure in 100-Yr Floodplains

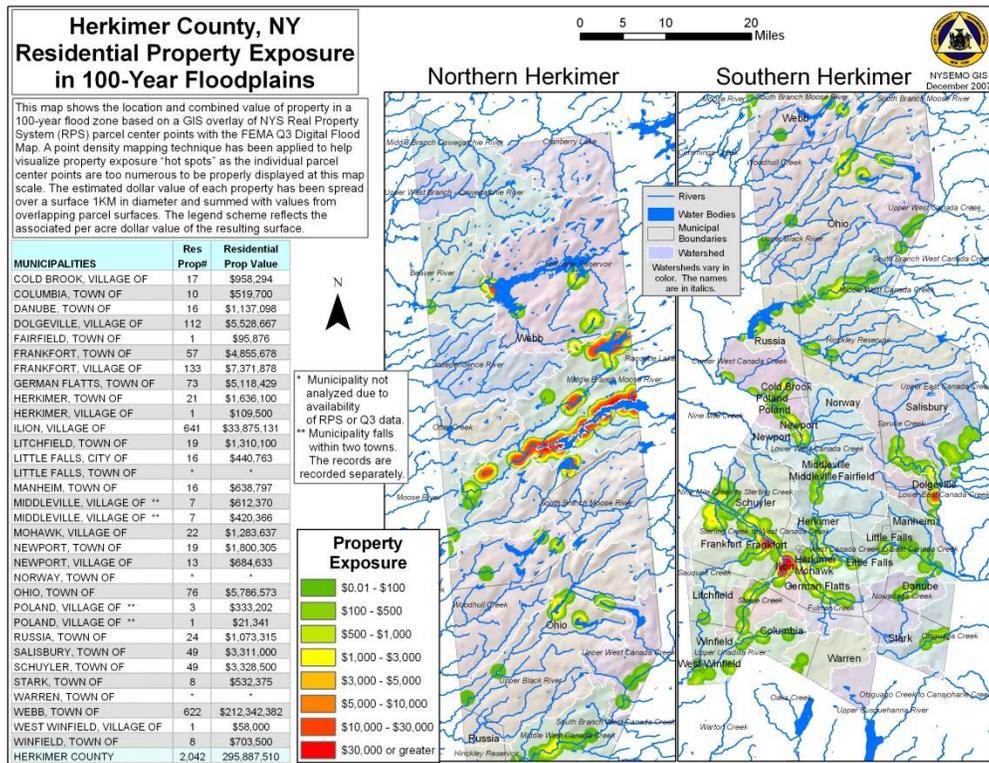


Figure A.3-27: Jefferson County, NY Residential Property Exposure in 100-Yr Floodplains

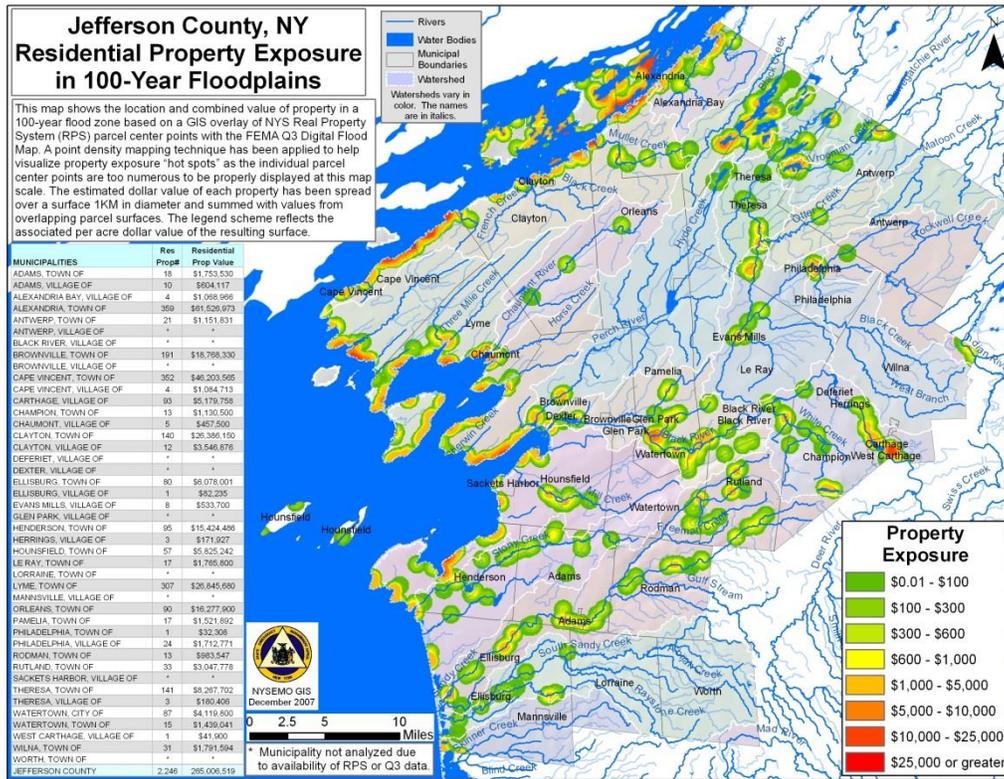


Figure A.3-28: Livingston County, NY Residential Property Exposure in 100-Yr Floodplains

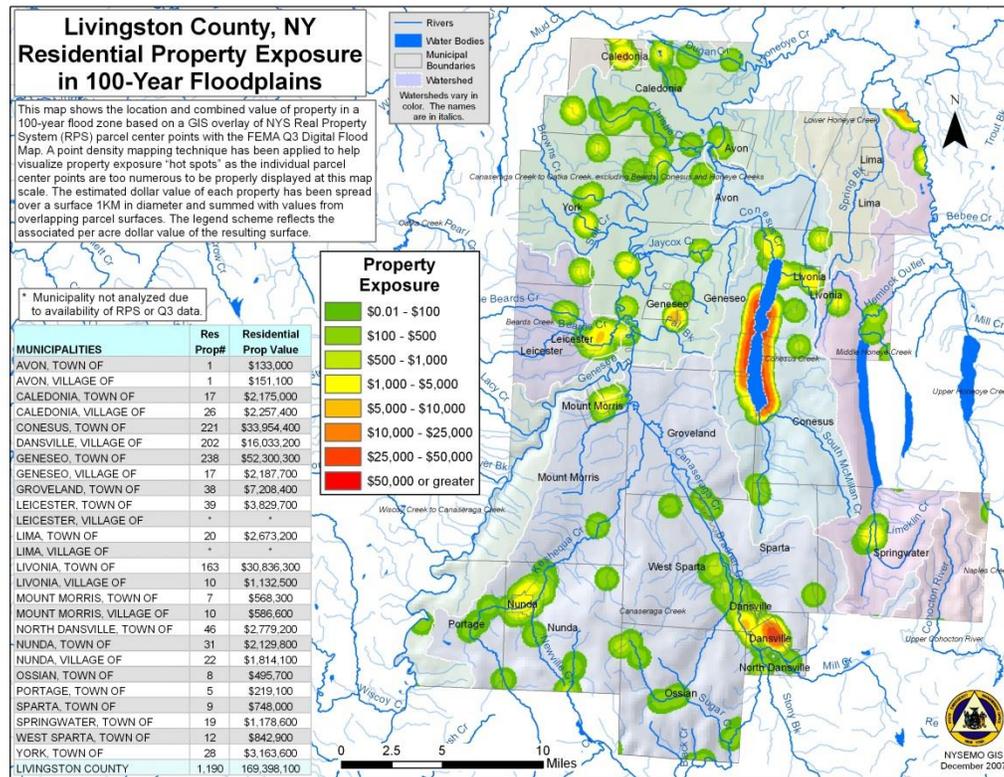


Figure A.3-29: Madison County, NY Residential Property Exposure in 100-Yr Floodplains

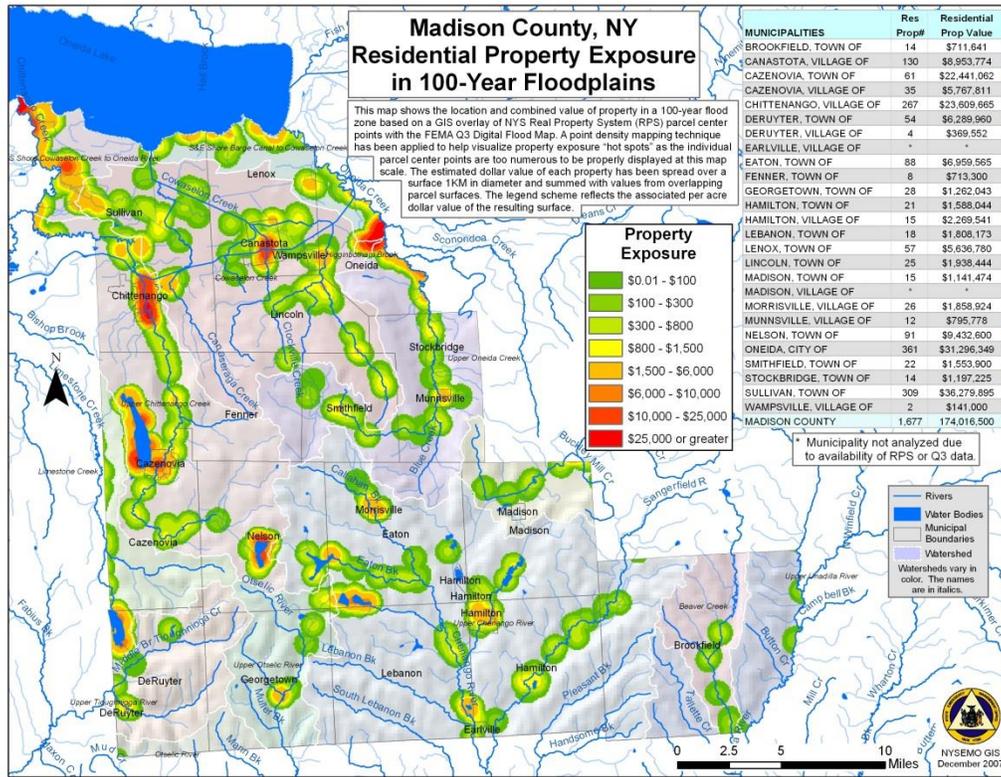


Figure A.3-30: Monroe County, NY Residential Property Exposure in 100-Yr Floodplains

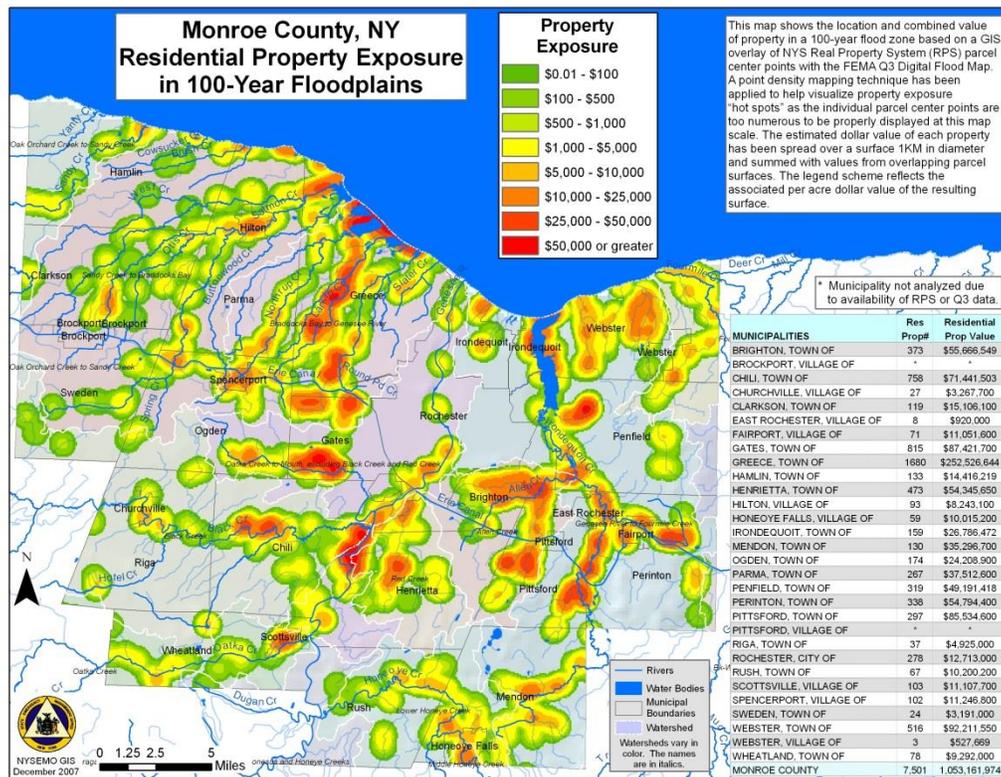


Figure A.3-31: Niagara County, NY Residential Property Exposure in 100-Yr Floodplains

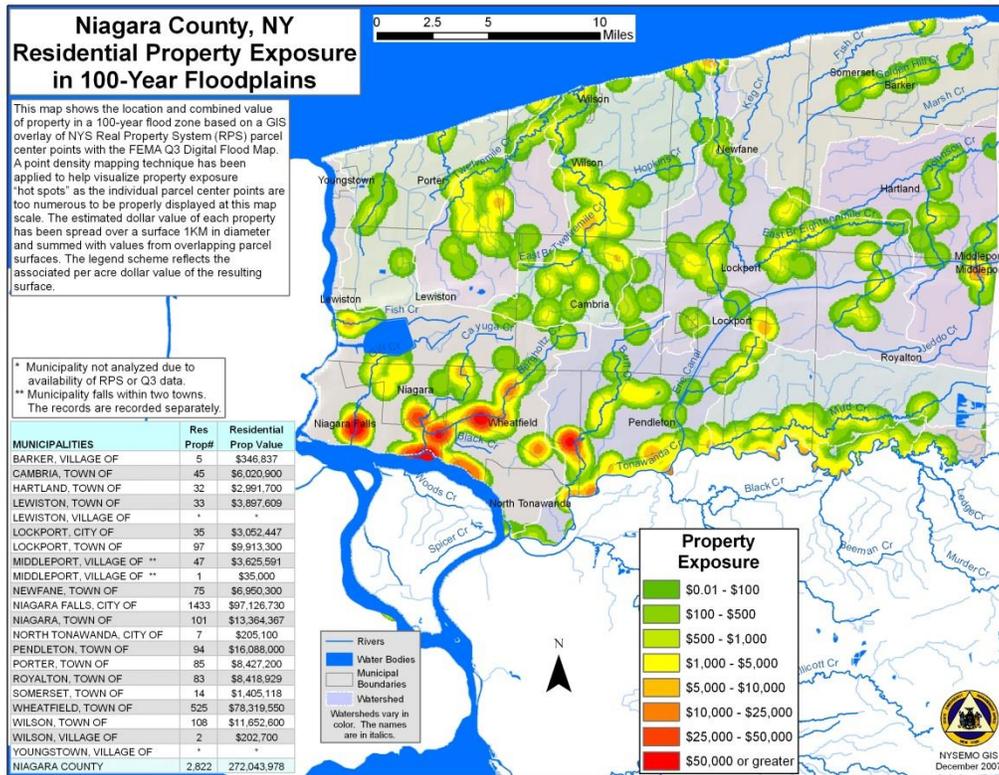


Figure A.3-32: Oneida County, NY Residential Property Exposure in 100-Yr Floodplains

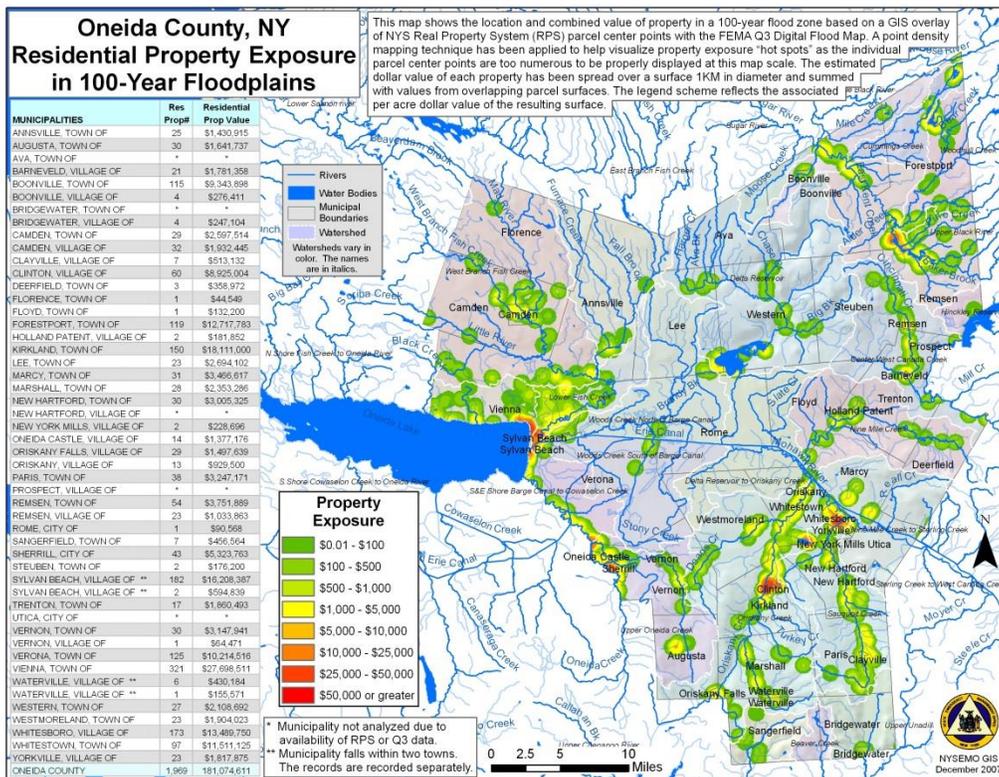


Figure A.3-33: Onondaga County, NY Residential Property Exposure in 100-Yr Floodplains

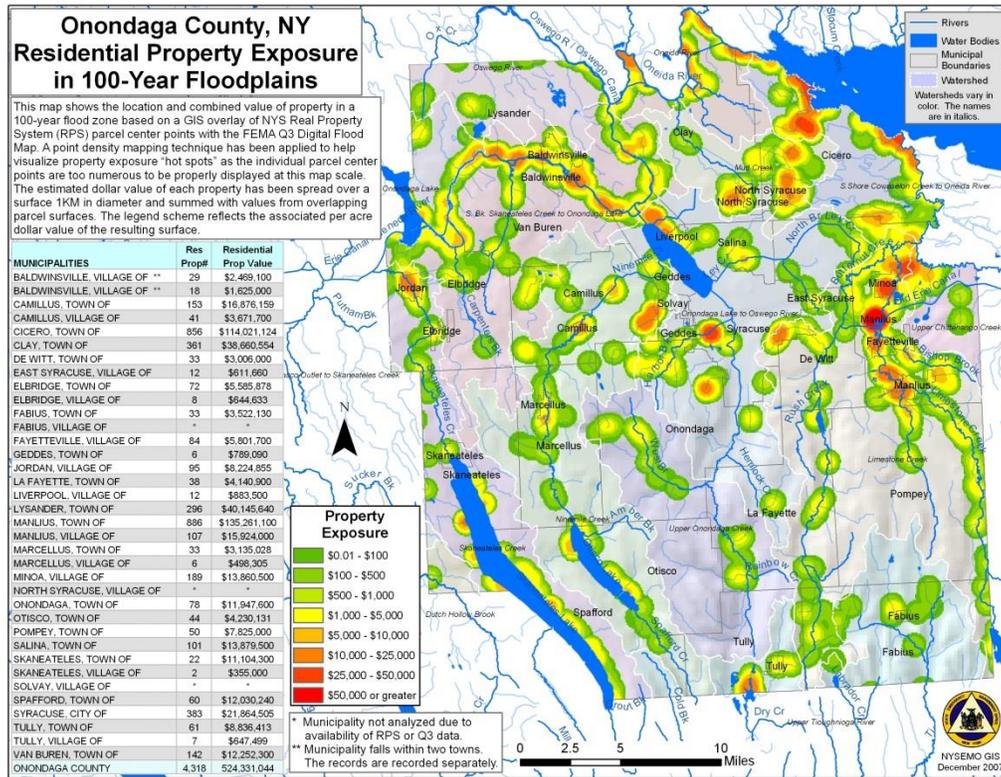


Figure A.3-34: Ontario County, NY Residential Property Exposure in 100-Yr Floodplains

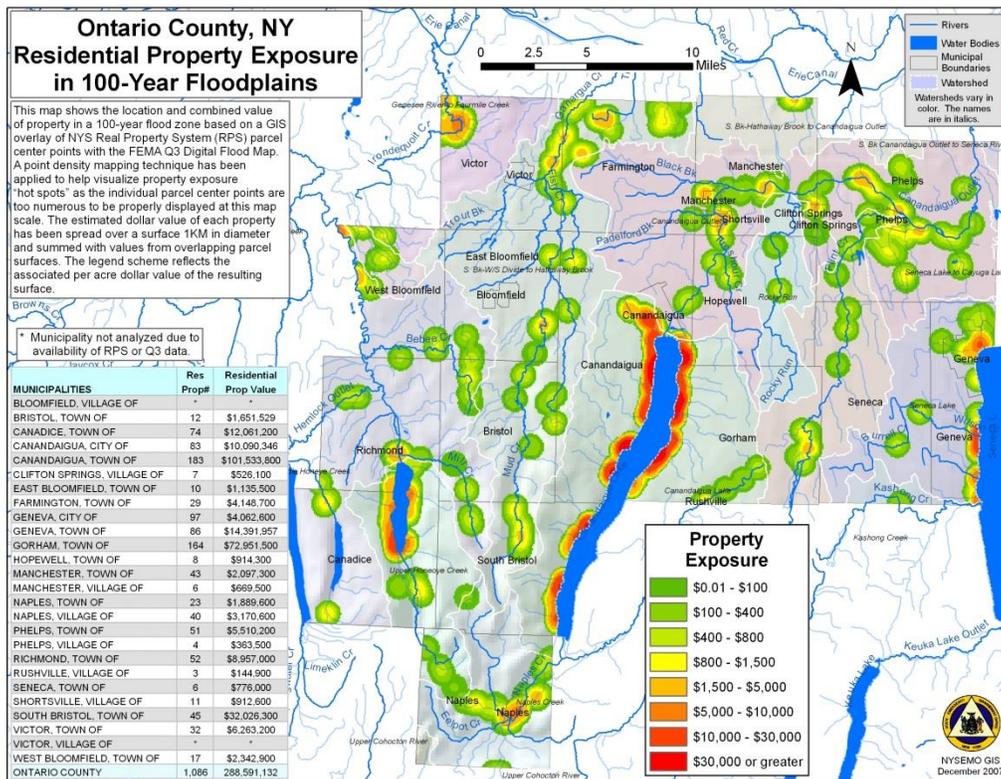


Figure A.3-35: Orange County, NY Residential Property Exposure in 100-Yr Floodplains

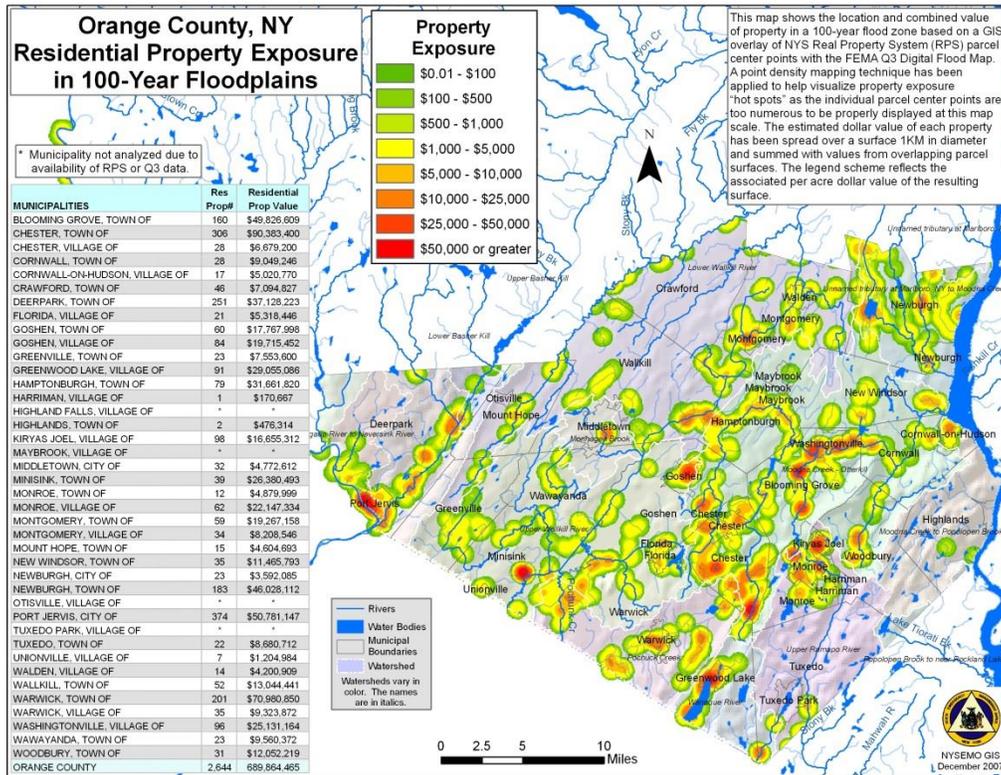


Figure A.3-36: Oswego County, NY Residential Property Exposure in 100-Yr Floodplains

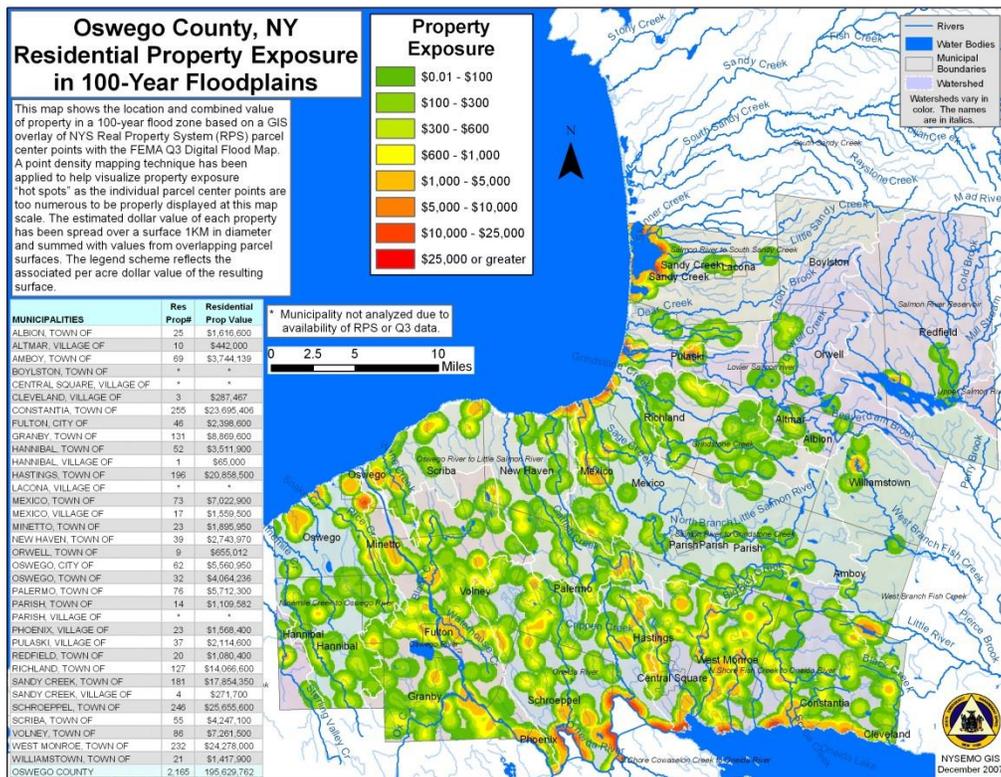


Figure A.3-37: Rensselaer County, NY Residential Property Exposure in 100-Yr Floodplains

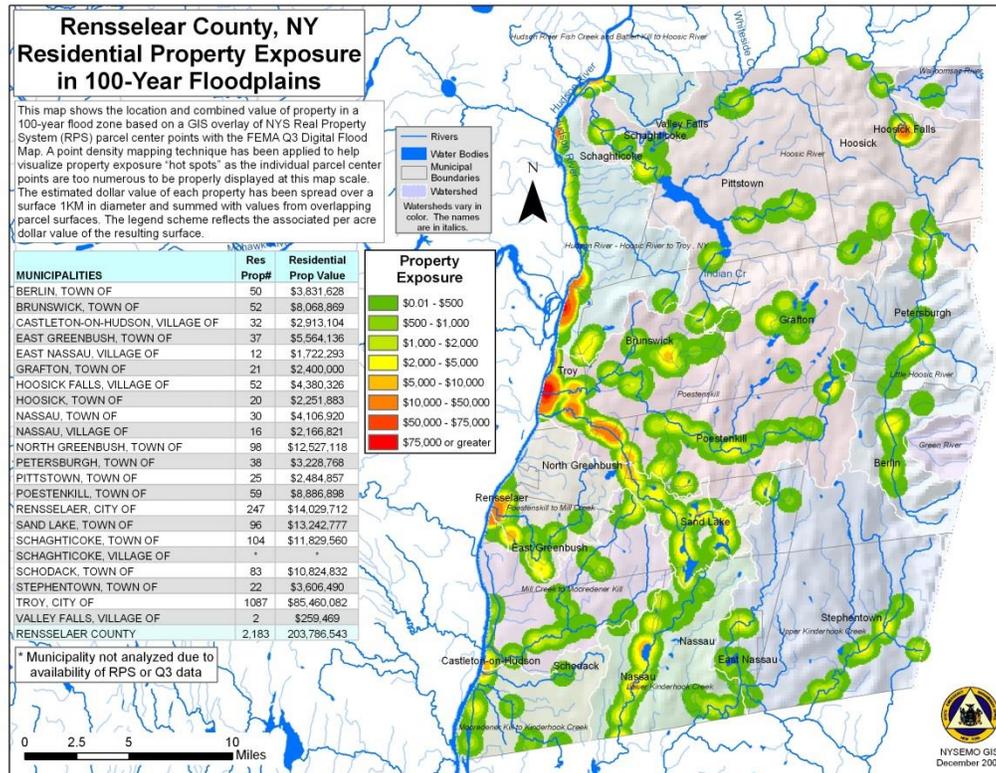


Figure A.3-38: Rockland County, NY Residential Property Exposure in 100-Yr Floodplains

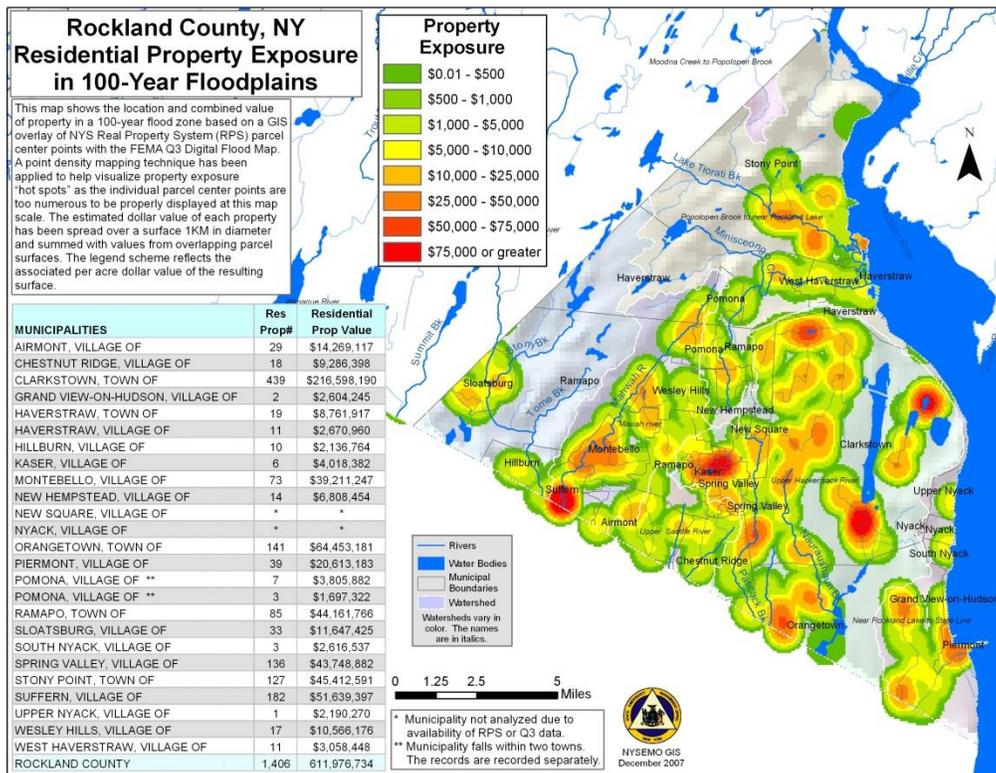


Figure A.3-39: Saratoga County, NY Residential Property Exposure in 100-Yr Floodplains

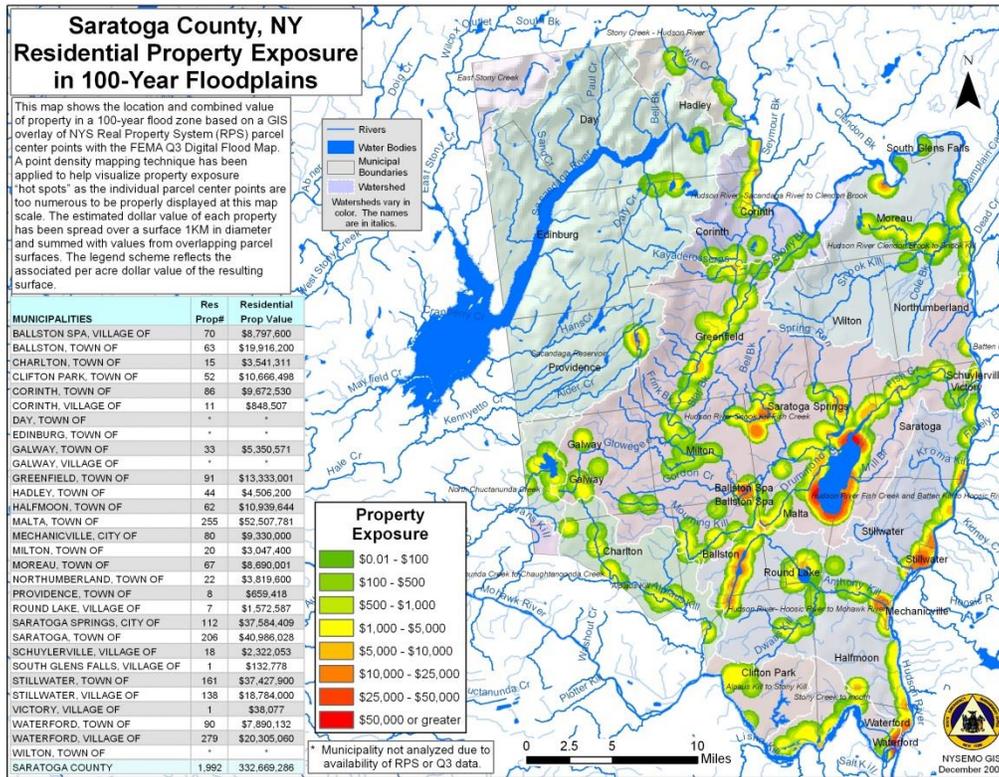


Figure A.3-40: Steuben County, NY Residential Property Exposure in 100-Yr Floodplains

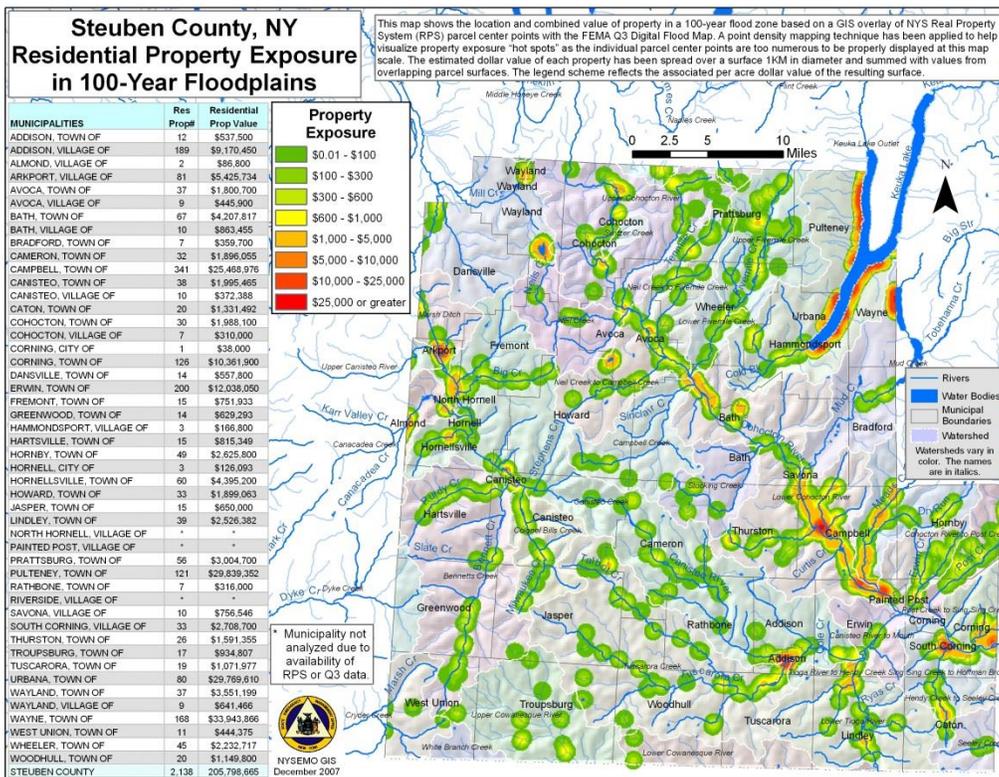


Figure A.3-41: Suffolk County, NY Residential Property Exposure in 100-Yr Floodplains

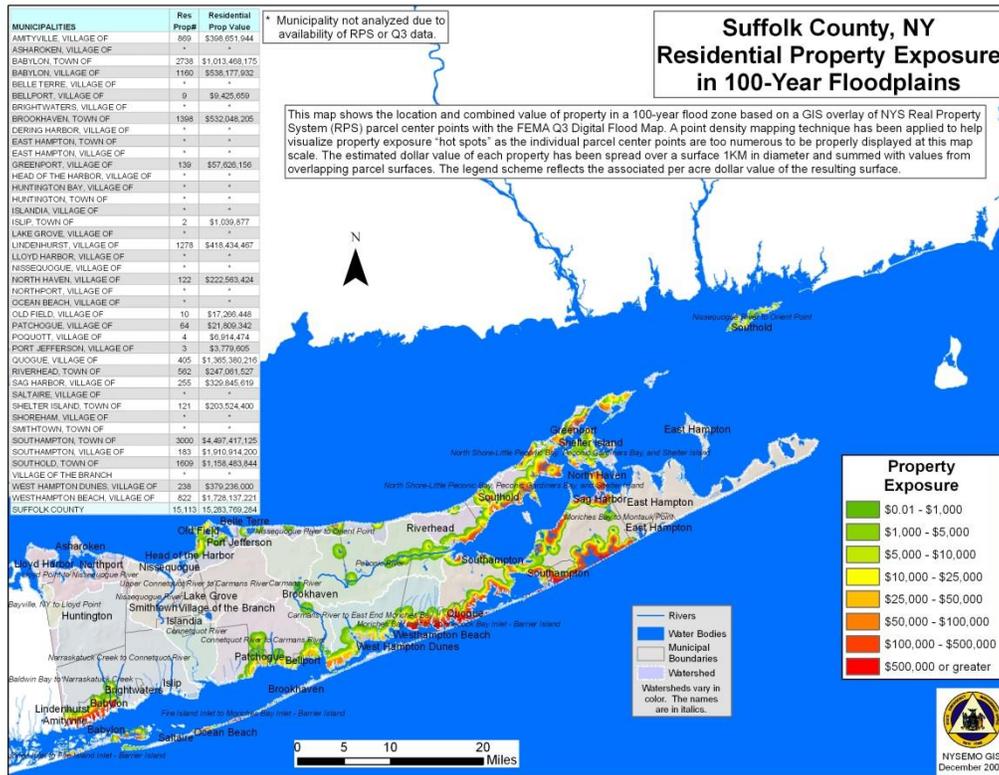


Figure A.3-42: Sullivan County, NY Residential Property Exposure in 100-Yr Floodplains

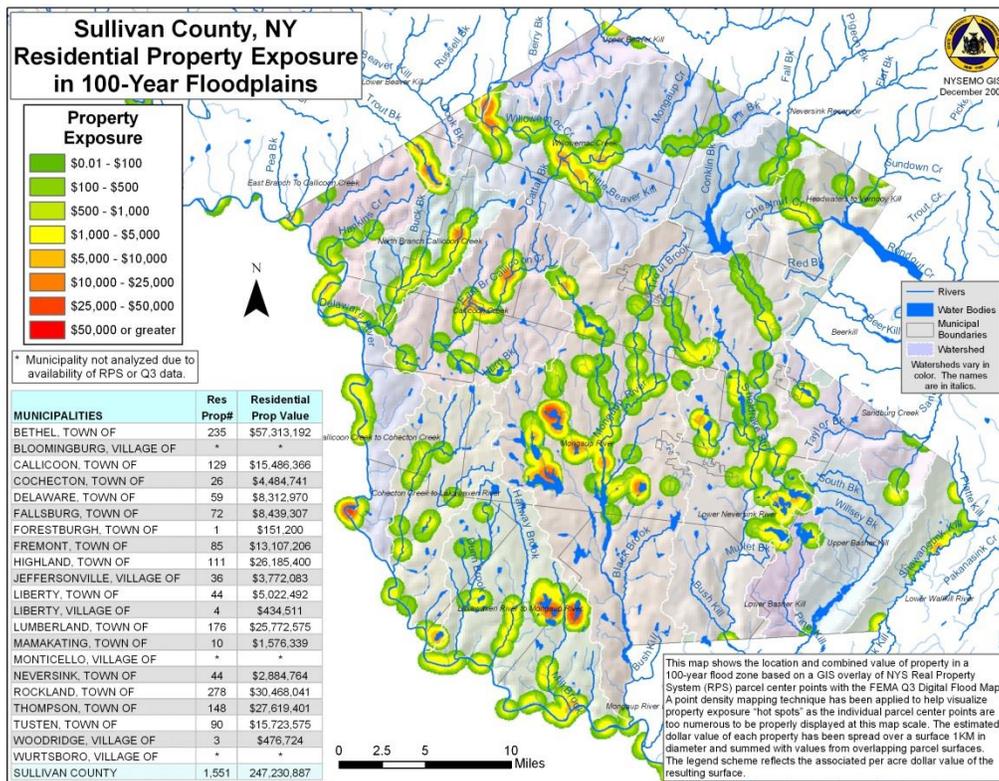


Figure A.3-43: Tioga County, NY Residential Property Exposure in 100-Yr Floodplains

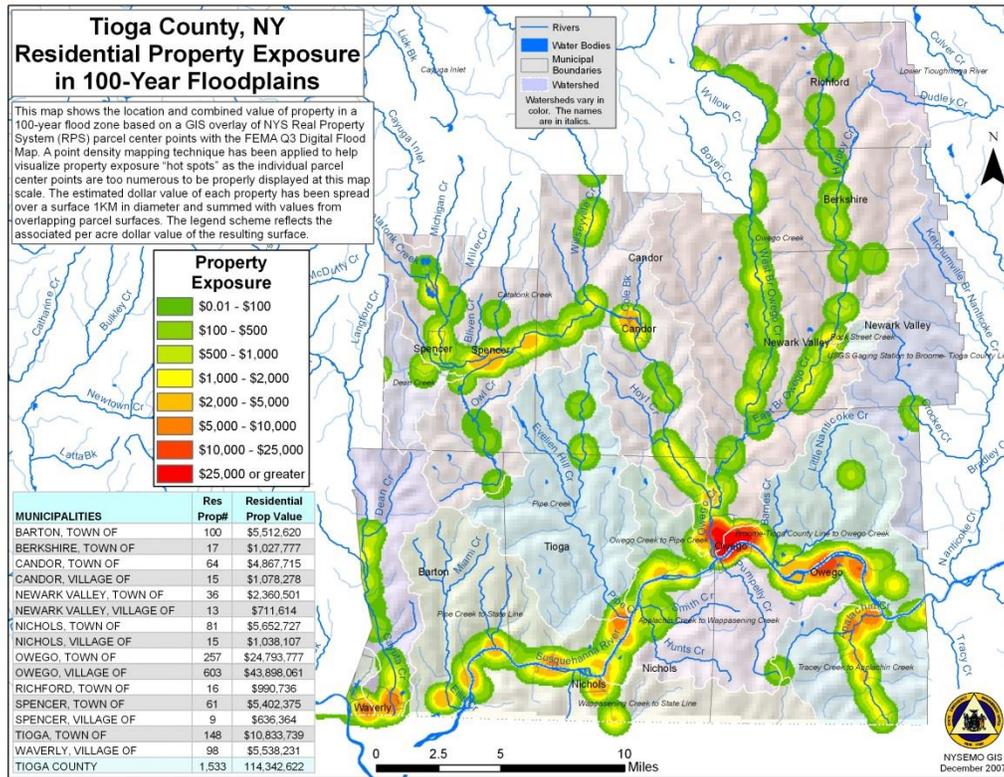


Figure A.3-44: Tompkins County, NY Residential Property Exposure in 100-Yr Floodplains

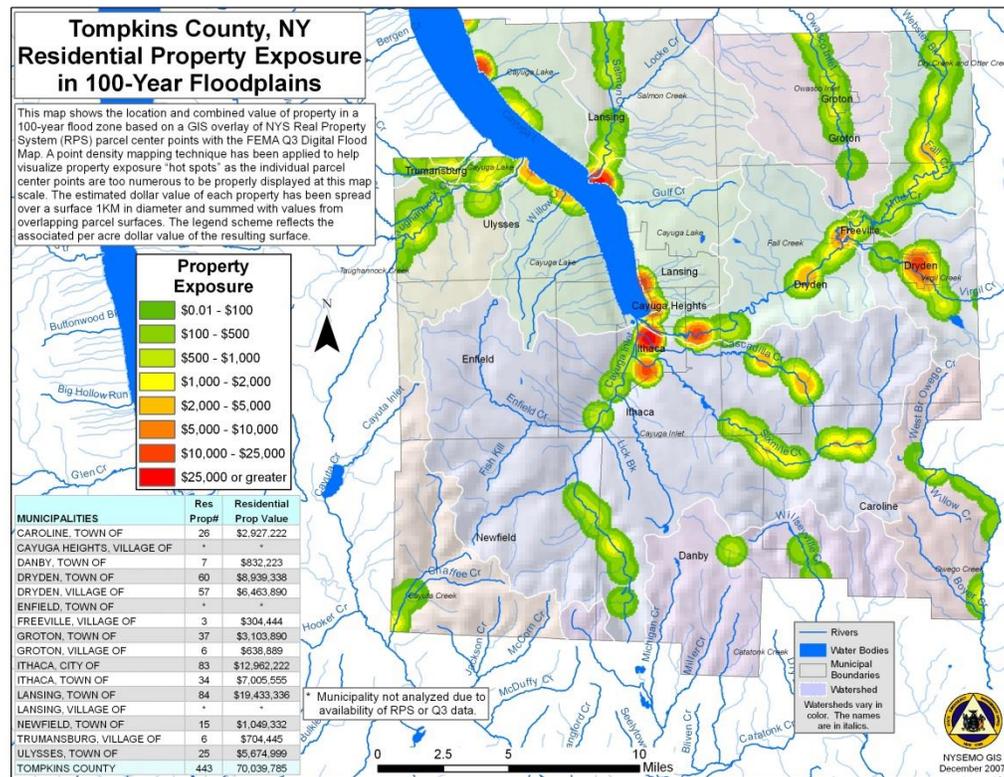


Figure A.3-45: Ulster County, NY Residential Property Exposure

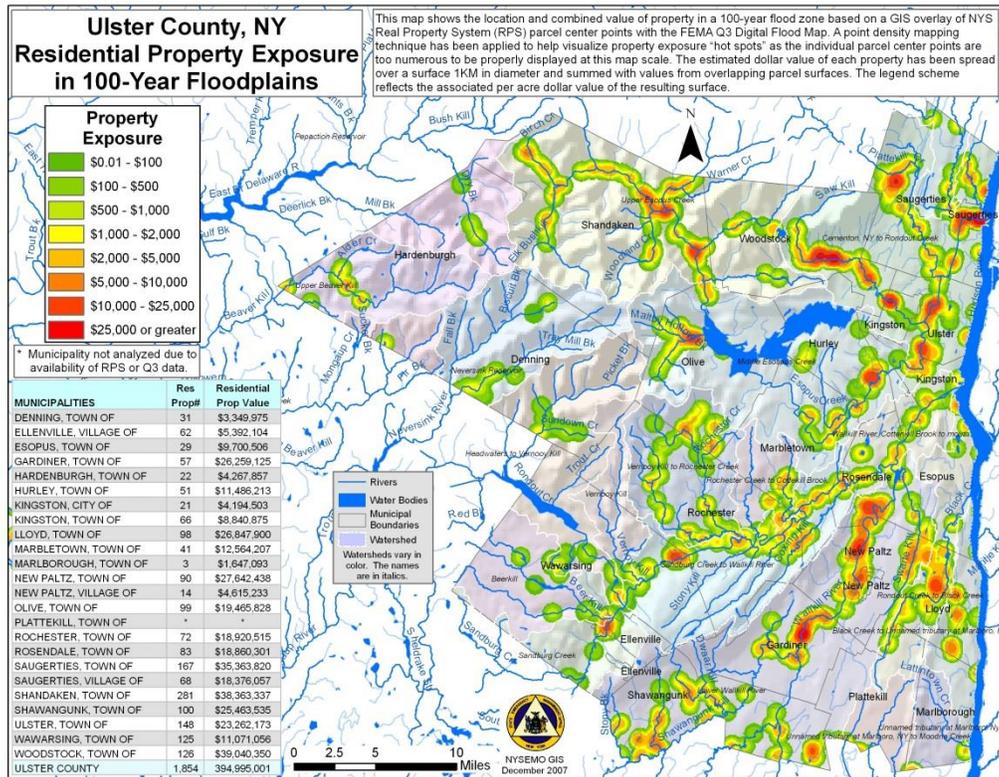
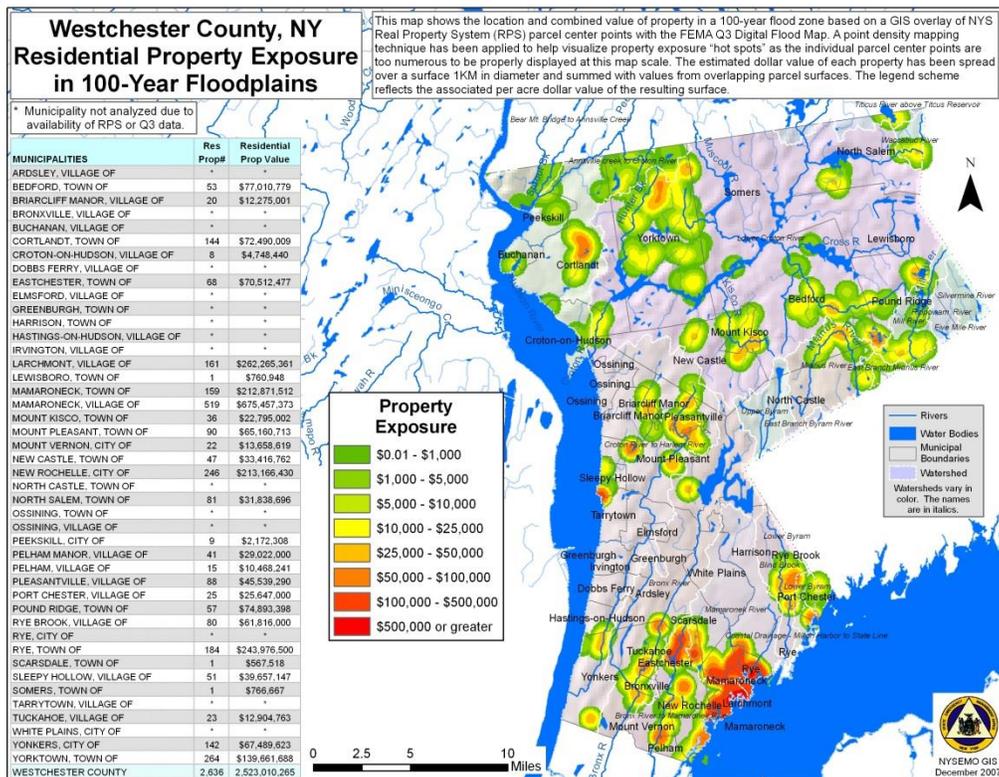


Figure A.3-46: Westchester County, NY Residential Property Exposure in 100-Yr Floodplains



This section from the 2011 Hazard Mitigation Plan (HMP) demonstrates the method of comparing National Flood Insurance Program (NFIP) and Real Property Services (RPS) data as part of the floodplain analysis. The following series of maps were extracted from the 2011 Hazard Mitigation Plan to demonstrate the level of exposure analysis that can be done at the municipality level geography. The 2014 State Hazard Mitigation Plan does similar analysis but was updated to the county level geography. The inclusion of the data here serves as a resource and to demonstrate the type of analysis that can be done at the local level.

Figure A.3-47: Number of Residential Properties in a 100-Yr Flood Zone Compared to the Number of NFIP Policies in Either an A-Zone or V-Zone by Municipality

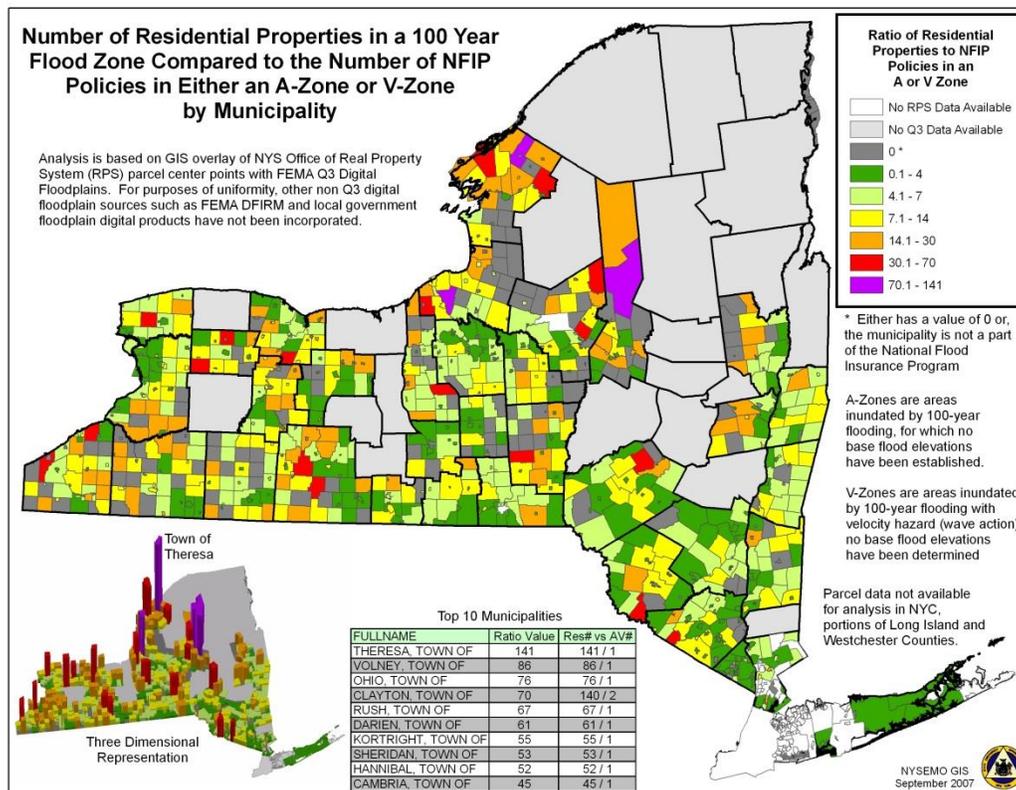


Figure A.3-48: Number of Residential Properties in a 100-Yr Flood Zone Compared to the Number of NFIP Policies by Municipality

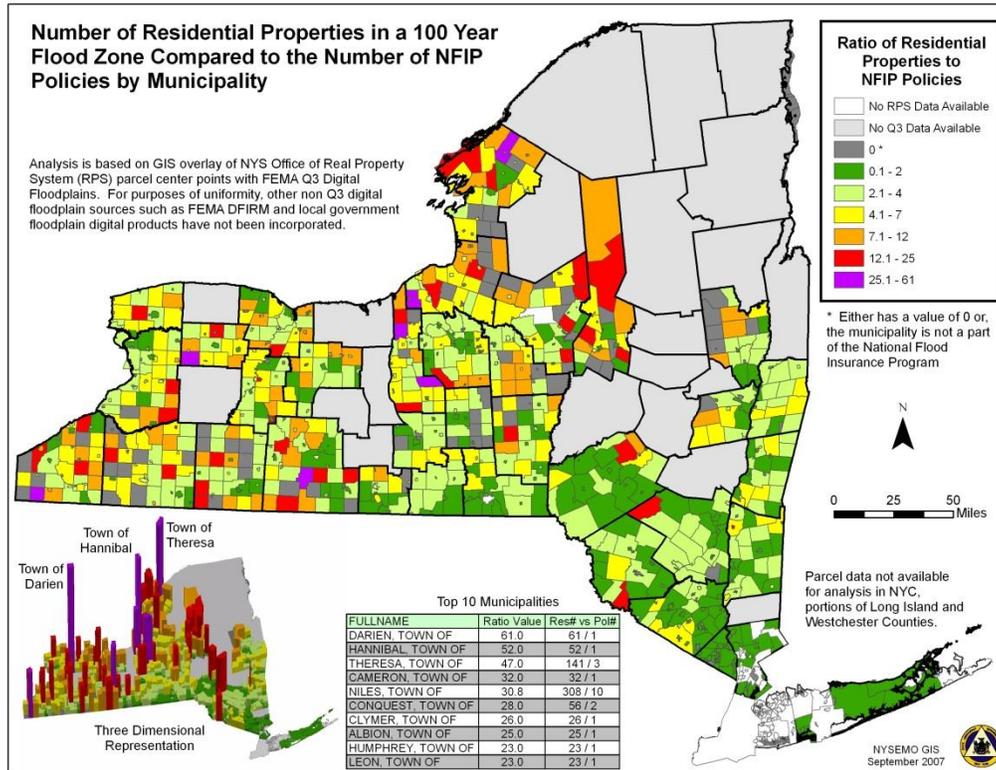


Figure A.3-49: Value of Residential Property in a 100-Yr Flood Zone Compared to the Total Insurance Coverage by Municipality

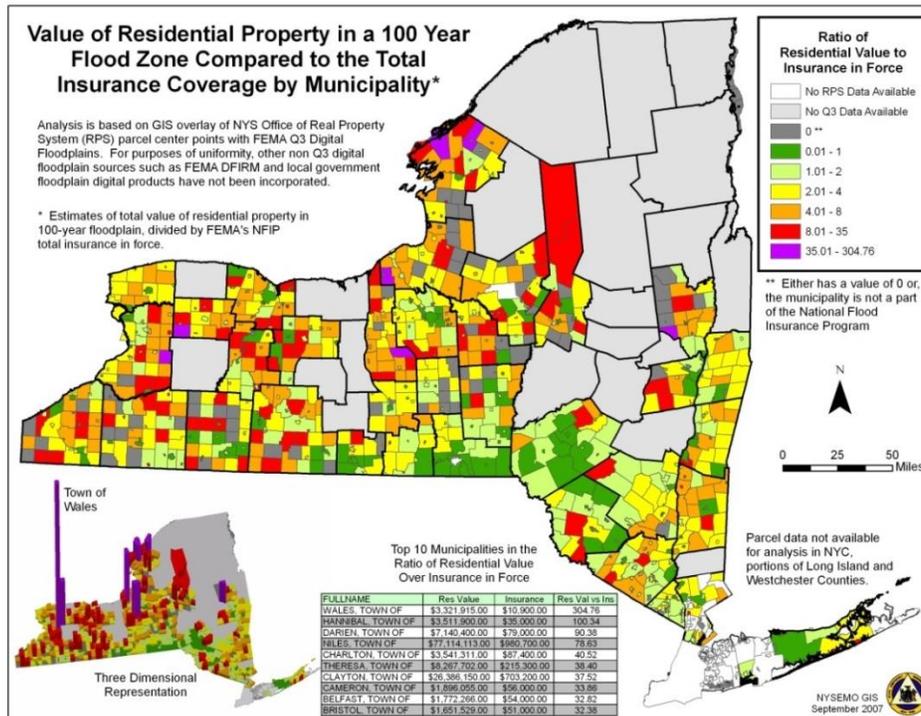


Figure A.3-50: Residential Properties in an A-Zone or V-Zone by Municipality

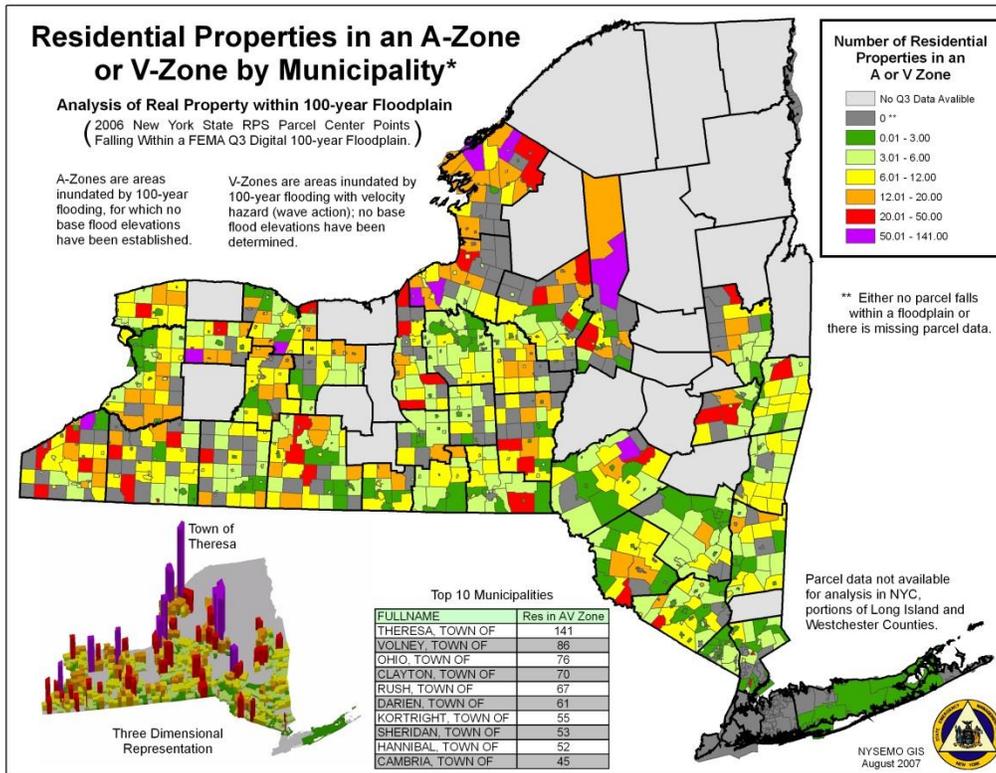
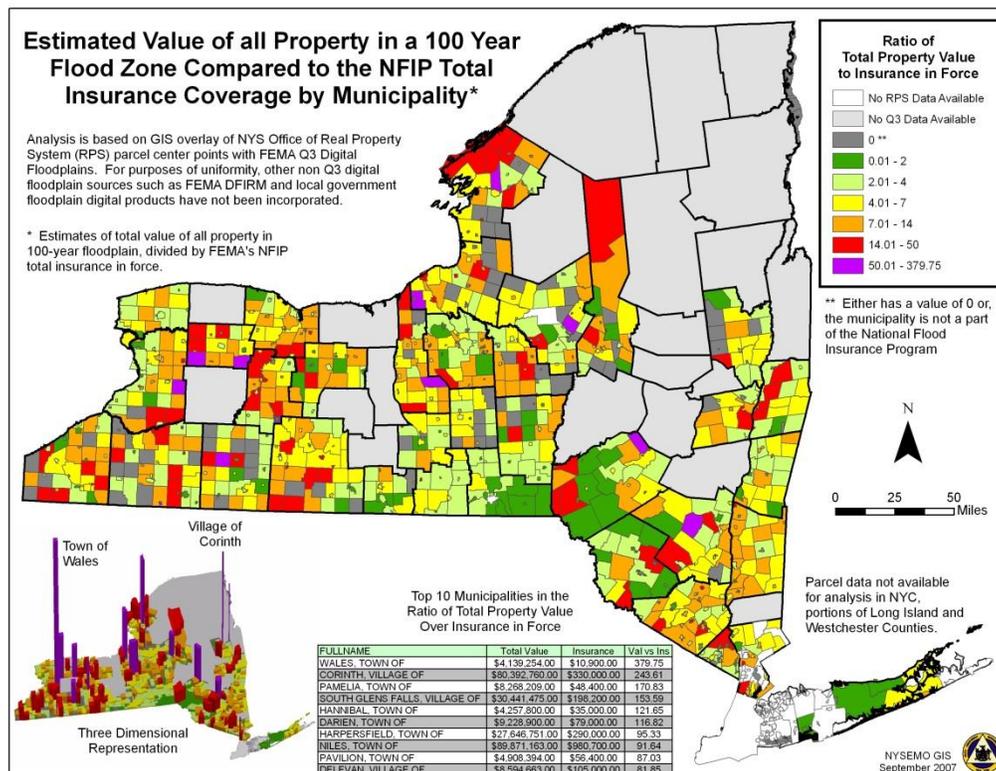


Figure A.3-51: Estimated Value of all Property in a 100-Yr Flood Zone Compared to the NFIP Total Insurance Coverage by Municipality



Delaware County 2013 Flood Vulnerability Assessment Data using Hazus

(Please note Delaware County's LHMP was created by Tetra Tech.)

VULNERABILITY ASSESSMENT

To understand risk, a community must evaluate what assets are exposed or vulnerable in the identified hazard area. For the flood hazard, areas identified as hazard areas include the 1% and 0.2% (100- and 500-year) floodplains. The following text evaluates and estimates the potential impact of flooding in Delaware County including:

Overview of vulnerability

Data and methodology used for the evaluation

Impact on: (1) life, safety and health, (2) general building stock, (3) critical facilities and infrastructure, (4) economy and (5) future growth and development

Further data collections that will assist understanding of this hazard over time

Overall vulnerability conclusion

Overview of Vulnerability

All types of flooding can cause widespread damage throughout rural and urban areas, including but not limited to: water-related damage to the interior and exterior of buildings; destruction of electrical and other expensive and difficult-to-replace equipment; injury and loss of life; proliferation of disease vectors; disruption of utilities, including water, sewer, electricity, communications networks and facilities; loss of agricultural crops and livestock; placement of stress on emergency response and healthcare facilities and personnel; loss of productivity; and displacement of persons from homes and places of employment (Foster, Date Unknown).

The flood hazard is a major concern for Delaware County. To assess vulnerability, potential losses were calculated for the County for riverine flooding for 1% (100-year) and 0.2% (500-year) annual chance flood events. Historic loss data associated with ice jam events and dam failures is limited. Flooding, impacts and losses associated with ice jam and dam failure events are similar to flash flooding events. The flood hazard exposure and loss estimate analysis is presented below.

Data and Methodology

The 1% and 0.2% (100- and 500-year) annual chance flood events were examined to evaluate Delaware County's risk and vulnerability to the flood hazard. These flood events are generally those considered by planners and evaluated under federal programs such as the NFIP.

Delaware and Broome Counties' Flood Insurance Rate Maps (FIRMs) are currently being updated and the latest versions are considered preliminary. Their preliminary Digital FIRMS (DFIRMs), considered the best available data, were used for analysis. A modified Level 1 HAZUS-MH analysis was performed to analyze the risk and vulnerability to Delaware County. The model uses 2000 U.S. Census data at the block level and default general building stock data (RSMMeans 2006), which has a level of accuracy acceptable for planning purposes. Where possible, the HAZUS-MH default data was enhanced using



Local GIS data from the county, state and federal sources and updated 2010 U.S. Census data was used for the exposure analysis.

The hydrology and hydraulics for the selected river reaches in the County was run in HAZUS and the flood-depth grid and flood boundary for the specified return periods (100- and 500-year mean return period [MRP]) were generated. To estimate exposure, the preliminary DFIRM flood boundaries were used. HAZUS-MH 2.0 calculated the estimated damages to the general building stock and critical facilities based on the depth grid generated and the default HAZUS damage functions in the flood model. Figure 5.4.3-6 illustrates the flood boundaries used for this vulnerability assessment.



Impact on Life, Health and Safety

The impact of flooding on life, health and safety is dependent upon several factors including the severity of the event and whether or not adequate warning time is provided to residents. Exposure represents the population living in or near floodplain areas that could be impacted should a flood event occur. Additionally, exposure should not be limited to only those who reside in a defined hazard zone, but everyone who may be affected by the effects of a hazard event (e.g., people are at risk while traveling in flooded areas, or their access to emergency services is compromised during an event). The degree of that impact will vary and is not measurable.

To estimate the population exposed to the 1% and 0.2% annual chance (100- and 500-year) flood events, the preliminary FEMA DFIRM floodplain boundaries were overlaid upon the 2010 Census population data in GIS (U.S. Census 2010). Census blocks do not follow the boundaries of the floodplain. The Census blocks with their centroid in the flood boundaries were used to calculate the estimated population exposed to this hazard. Using this approach, it is estimated that 5,863 people are within the 1% (100-year) floodplain or 11.6% of the total County population (population total 50,402 including the entire Village of Deposit), and 6,559 people are within the 0.2% (500-year) floodplain (13.0% of the total County population of 50,402 people). Table 5.4.3-5 lists the estimated population located within these flood zones by municipality.

Table 5.4.3-1. Estimated Delaware County Population Vulnerable to the 1% and 0.2% (100-Year and 500-Year MRP) Flood Hazard

Municipality	Population in the 1% annual chance event (100- Year) Flood Boundary	Population in the 0.2% annual chance (500-Year) Flood Boundary
Andes (T)	65	65
Bovina (T)	29	29
Colchester (T)	330	338
Davenport (T)	453	458
Delhi (T)	217	226
Delhi (V)	117	173
Deposit (T)	74	74
Deposit (V)	767	853
Fleischmanns (V)	82	82
Franklin (T)	115	115
Franklin (V)	0	0
Hamden (T)	137	137
Hancock (T)	284	299
Hancock (V)	48	126
Harpersfield (T)	36	36
Hobart (V)	76	76
Kortright (T)	85	85
Margaretville (V)	282	282
Masonville (T)	1	1
Meredith (T)	5	5
Middletown (T)	317	317
Roxbury (T)	70	70
Sidney (T)	120	129



Municipality	Population in the 1% annual chance event (100- Year) Flood Boundary	Population in the 0.2% annual chance (500-Year) Flood Boundary
Sidney (V)	1,176	1512
Stamford (T)	121	121
Stamford (V)	0	0
Tompkins (T)	10	10
Walton (T)	76	76
Walton (V)	770	864
Delaware County	5,863	6,559

Source: Census, 2010; FEMA, 2011

Notes: The exposed population for the Village of Deposit represents the entire Village; area in both Delaware and Broome Counties.

Of the population exposed, the most vulnerable include the economically disadvantaged and the population over the age of 65. Economically disadvantaged populations are more vulnerable because they are likely to evaluate their risk and make decisions to evacuate based on the net economic impact to their family. The population over the age of 65 is also more vulnerable because they are more likely to seek or need medical attention which may not be available to due isolation during a flood event and they may have more difficulty evacuating.

HAZUS-MH 2.0 estimates the potential sheltering needs as a result of a 1% and 0.2% annual chance (100- and 500-year MRP) flood events. For the 1% (100-year) event, HAZUS-MH 2.0 estimates 6,317 people will be displaced and 3,699 people will seek short-term sheltering, representing 12.9% and 7.5% of the County population, respectively. For the 0.2% (500-year) event, HAZUS-MH 2.0 estimates 6,904 people will be displaced and 4,119 people will seek short-term sheltering, representing 14.1% and 8.4% of the County population, respectively. Refer to Table 5.4.3-6.

The total number of injuries and casualties resulting from flooding is generally limited based on advance weather forecasting, blockades and warnings. Therefore, injuries and deaths generally are not anticipated if proper warning and precautions are in place. Ongoing mitigation efforts should help to avoid the most likely cause of injury, which results from persons trying to cross flooded roadways or channels during a flood.



Table 5.4.3-2. Estimated Delaware County Population Displaced or Seeking Short-Term Shelter from the 1% and 0.2% Annual Chance (100-Year and 500-Year MRP) Flood Events

Municipality	1% Annual Chance (100 Year)				0.2% Annual Chance (500 Year)			
	Displaced Persons	Percent Displaced	Persons Seeking Short-Term Sheltering	Percent Seeking Shelter	Displaced Persons	Percent Displaced	Persons Seeking Short-Term Sheltering	Percent Seeking Shelter
Andes (T)	76	5.6	25	1.8	84	6.2	28	2.1
Bovina (T)	9	1.4	0	0.0	10	1.5	0	0.0
Colchester (T)	235	11.5	115	5.6	272	13.3	135	6.6
Davenport (T)	289	10.4	60	2.2	308	11.1	74	2.7
Delhi (T)	119	5.8	44	2.2	133	6.5	50	2.4
Delhi (V)	97	3.8	49	1.9	111	4.3	58	2.2
Deposit (T)	106	13.2	45	5.6	110	13.7	48	6.0
Deposit (V)	587	30.3	417	21.5	647	33.4	465	24.0
Fleischmanns (V)	75	24.4	19	6.2	84	27.3	29	9.4
Franklin (T)	109	4.9	15	0.7	119	5.4	23	1.0
Franklin (V)	28	7.0	9	2.2	33	8.2	11	2.7
Hamden (T)	68	5.3	15	1.2	78	6.1	22	1.7
Hancock (T)	349	15.7	53	2.4	428	19.3	94	4.2
Hancock (V)	289	23.7	213	17.5	343	28.2	252	20.7
Harpersfield (T)	31	3.0	1	0.1	35	3.3	1	0.1
Hobart (V)	32	11.0	4	1.4	39	13.4	7	2.4
Kortright (T)	98	6.0	4	0.2	108	6.6	6	0.4
Margaretville (V)	174	32.5	136	25.4	186	34.7	155	28.9
Masonville (T)	49	3.5	1	0.1	58	4.1	3	0.2
Meredith (T)	34	2.1	1	0.1	36	2.3	1	0.1
Middletown (T)	212	6.6	86	2.7	228	7.1	95	3.0
Roxbury (T)	263	10.5	149	5.9	278	11.1	166	6.6
Sidney (T)	171	8.2	14	0.7	208	10.0	18	0.9
Sidney (V)	1,717	42.2	1,524	37.5	1,826	44.9	1,635	40.2
Stamford (T)	103	6.2	13	0.8	119	7.2	15	0.9
Stamford (V)	63	11.3	9	1.6	73	13.1	14	2.5



Municipality	1% Annual Chance (100 Year)				0.2% Annual Chance (500 Year)			
	Displaced Persons	Percent Displaced	Persons Seeking Short-Term Sheltering	Percent Seeking Shelter	Displaced Persons	Percent Displaced	Persons Seeking Short-Term Sheltering	Percent Seeking Shelter
Tompkins (T)	13	1.2	0	0.0	22	2.0	0	0.0
Walton (T)	120	4.7	15	0.6	120	4.7	17	0.7
Walton (V)	801	26.1	663	21.6	808	26.3	697	22.7
Delaware County	6,317	12.9	3,699	7.5	6,904	14.1	4,119	8.4

Source: HAZUS-MH 2.0

Note: The percent of the population displaced and seeking shelter was calculated using the 2000 U.S. Census data for Delaware County including the portion of the Village of Deposit in Broome County (population of 49,130).



Impact on General Building Stock

After considering the population exposed to the flood hazard, developed land, the HAZUS-MH 2.0 default value of general building stock exposed to, and damaged by, the 1% and 0.2% (100- and 500-year MRP) annual chance flood events was evaluated. Exposure in the flood zone includes those buildings located in the flood zone. Potential damage is the modeled loss that could occur to the exposed inventory, including structural and content value.

The HAZUS-MH 2.0 flood model does not estimate general building stock exposure to the flood hazard. To provide a general estimate of number of properties and structural/content replacement value exposure, the preliminary FEMA DFIRM flood boundaries, Delaware County parcel GIS shapefile, July 2011 Real Property assessed values and HAZUS-MH 2.0 general building stock inventory were used. The FEMA preliminary DFIRM 1% and 0.2% (100- and 500-year) flood zones were overlaid upon the County parcel layer and the Real Property layers provided for each municipality. The polygons that cross the 1% and 0.2% flood zones were totaled for each municipality to approximate the number of properties and assessed values (total, building and land) located in the flood zone. Although it is unknown where on each parcel/property a structure may/may not be located, a portion of each property is within the flood zone and is inundated by flood waters.

The HAZUS-MH 2.0 Census blocks with their centroid in the FEMA preliminary DFIRM flood zones were used to estimate the building replacement cost value exposed to this hazard (Table 5.4.3-7).

In summary, there are approximately 54 and 56 square miles of land in Delaware County located in the preliminary DFIRM 1% and 0.2% (100-year and 500-year) floodplains, respectively. Approximately 4.7 miles and 5.3 miles (or 9- to 10-percent) of this land is developed land and located within the 1% and 0.2% preliminary DFIRM floodplains and thus exposed to the flood hazard (FEMA, 2011; USGS, 2011). Refer to Table 5.4.3-8 below.

There are 5,879 parcels and 6,165 parcels exposed to the 1% and 0.2% annual chance (100- and 500-year) events, respectively (refer to Table 5.4.3-9 below). This closely agrees with the Real Property exposure analysis conducted. There are 5,871 properties and greater than \$775K in total assessed value (building and land) exposed to the 1% (100-year) flood. In addition, there are 6,203 properties and nearly \$800K in total assessed value exposed to the 0.2% (500-year) flood. For more detailed information per municipality, please refer to Tables 5.4.3-10 and 5.4.3-11 below.

According to the HAZUS Census block analysis (blocks with the centroid located in the flood zones), there is approximately \$795 million of building/contents exposed to the 1% (100-year) flood in Delaware County. This represents approximately 12-percent of the County's total general building stock replacement value inventory (approximately \$6.5 billion; see Section 4). For the 0.2% (500-year) event, it is estimated there is nearly \$960 million of buildings/contents exposed in Delaware County or nearly 15-percent (Table 5.4.3-12).

HAZUS-MH 2.0 estimates the potential damage to the general building stock inventory associated with the 1% (100-year) flood is approximately \$317 million or 4.8-percent of the County's general building stock inventory. For the 0.2% (500-year) event, the HAZUS-MH 2.0 potential damage estimate is approximately \$377 million (structure and contents) or 5.8-percent of the County's general building stock inventory. HAZUS-MH damage assessments for Delaware County are displayed in Table 5.4.3-13.



Table 5.4.3-3. Land Use (2006) in the 1% and 0.2% (100- and 500-year) FEMA Preliminary DFIRM Flood Boundaries

Land Use	Total Area (sq. mi.)	1% (100-Year)		0.2% (500-Year)	
		Area (sq. mi.)	Percent of Total	Area (sq. mi.)	Percent of Total
Barren	5.7	4.4	77.2	4.4	77.2
Developed	50.1	4.7	9.4	5.3	10.6
Farmland	233.3	14.3	6.1	15.6	6.7
Forested	1,140.1	7.7	0.7	7.9	0.7
Open Water	17	6.4	37.6	6.4	37.6
Wetlands	22.4	7.5	33.5	7.6	33.9
Total	1,468.6	45.0	3.1	47.2	3.2

Source: FEMA, 2011; USGS, 2011 (2006 National Land Cover Database)

Note: sq. mi. = square miles

Table 5.4.3-4. Area and Estimated Number of Parcels Located in the 1% and 0.2% (100- and 500-year) FEMA Preliminary DFIRM Flood Boundaries

Municipality	Total Area (sq. mi.)	Area Exposed (sq. miles)		Percent Area Exposed		Total Number of Parcels	Number of Parcels Exposed		Percent of Parcels Exposed	
		1% (100 Year)	02.% (500 Year)	1% (100 Year)	02.% (500 Year)		1% (100 Year)	02.% (500 Year)	1% (100 Year)	02.% (500 Year)
Andes (T)	112.5	4.1	4.1	3.7	3.7	2,382	158	158	6.6	6.6
Bovina (T)	44.5	0.3	0.3	0.6	0.6	966	59	59	6.1	6.1
Colchester (T)	142.2	7.6	7.8	5.3	5.5	2,927	427	476	14.6	16.3
Davenport (T)	52.5	2.3	2.5	4.4	4.7	1,984	249	229	12.6	11.5
Delhi (T)	64.6	2.5	2.6	3.9	4.1	1,409	194	199	13.8	14.1
Delhi (V)	3.2	0.3	0.3	8.5	9.5	750	181	215	24.1	28.7
Deposit (T)	44.6	2.5	2.8	5.7	6.2	1,192	135	148	11.3	12.4
Deposit (V)*	1.3	0.3	0.3	20.6	24.4	364	114	126	31.3	34.6
Fleischmanns (V)	0.7	0.1	0.1	19.4	19.4	330	128	128	38.8	38.8
Franklin (T)	81.6	1.8	1.8	2.2	2.2	1,942	121	121	6.2	6.2
Franklin (V)	0.4	0.1	0.1	31.4	31.4	200	18	18	9.0	9.0
Hamden (T)	59.9	1.6	1.6	2.7	2.7	1,388	97	101	7.0	7.3
Hancock (T)	161.8	7.6	8.2	4.7	5.1	3,569	1,245	1,316	34.9	36.9
Hancock (V)	1.7	0.3	0.4	19.2	22.8	595	103	140	17.3	23.5
Harpersfield (T)	42.4	1.0	1.0	2.4	2.4	1,189	116	116	9.8	9.8
Hobart (V)	0.5	0.1	0.1	10.4	10.4	258	59	59	22.9	22.9



Municipality	Total Area (sq. mi.)	Area Exposed (sq. miles)		Percent Area Exposed		Total Number of Parcels	Number of Parcels Exposed		Percent of Parcels Exposed	
		1% (100 Year)	02.% (500 Year)	1% (100 Year)	02.% (500 Year)		1% (100 Year)	02.% (500 Year)		
Kortright (T)	62.7	2.3	2.3	3.7	3.7	1,599	238	238	14.9	14.9
Margaretville (V)	0.7	0.3	0.3	45.7	48.6	380	117	134	30.8	35.3
Masonville (T)	54.3	0.4	0.4	0.7	0.7	1,261	85	85	6.7	6.7
Meredith (T)	58.3	0.2	0.2	0.3	0.3	1,295	72	72	5.6	5.6
Middletown (T)	97.3	3.9	3.9	4.1	4.1	3,646	489	490	13.4	13.4
Roxbury (T)	87.6	1.7	1.7	1.9	1.9	3,231	247	247	7.6	7.6
Sidney (T)	50.7	2.4	2.6	4.8	5.2	1,466	226	235	15.4	16.0
Sidney (V)	2.4	0.8	0.9	34.6	39.2	1,686	262	278	15.5	16.5
Stamford (T)	48.5	0.9	0.9	1.8	1.8	1,237	88	88	7.1	7.1
Stamford (V)	1.3	0.1	0.1	4.7	4.7	564	70	70	12.4	12.4
Tompkins (T)	104.5	4.6	4.6	4.4	4.4	1,397	49	49	3.5	3.5
Walton (T)	97.6	3.2	3.3	3.2	3.3	2,063	256	258	12.4	12.5
Walton (V)	1.6	0.5	0.5	28.8	31.3	1,405	276	312	19.6	22.2
Delaware County	1,481.5	53.7	55.7	3.6	3.8	42,675	5,879	6,165	13.8	14.4

Source: FEMA, 2011; Delaware County GIS 2010

Notes:

sq.mi. = square miles; T = Town' V = Village

* Please note that the parcel count only includes the parcels located within Delaware County. Therefore, parcels in the Village of Deposit located in Broome County were not available and are not included in the table above.



Table 5.4.3-5. Estimated Assessed Value (Building and Land) Located in the 1% and 0.2% (100- and 500-year) MRP Flood Boundaries

Municipality	Number of Properties		1% (100 Year)			0.2% Annual Chance (500 Year)		
	1% (100 Year)	0.2% (500 Year)	Land AV	Building AV	Total AV	Land AV	Building AV	Total AV
Andes (T)	161	161	\$58,078,468	\$42,580,441	\$100,658,909	\$58,078,468	\$42,580,441	\$100,658,909
Bovina (T)	61	61	\$1,056,801	\$3,021,310	\$4,078,111	\$1,056,801	\$3,021,310	\$4,078,111
Colchester (T)	420	469	\$406,925	\$18,945,200	\$19,352,125	\$445,287	\$19,067,300	\$19,512,587
Davenport (T)	232	253	\$10,488,433	\$22,381,342	\$32,869,775	\$11,090,557	\$24,046,703	\$35,137,260
Delhi (T)	194	199	\$6,144,448	\$24,862,459	\$31,006,907	\$6,221,848	\$25,071,489	\$31,293,337
Delhi (V)	179	215	\$4,518,937	\$79,177,798	\$83,696,735	\$5,183,537	\$83,119,529	\$88,303,066
Deposit (T)	136	150	\$338,296	\$7,199,396	\$7,537,692	\$349,256	\$7,233,646	\$7,582,902
Deposit (V)	115	127	\$93,165	\$1,364,613	\$1,457,778	\$99,115	\$1,407,863	\$1,506,978
Fleischmanns (V)	128	128	\$2,266,400	\$17,530,000	\$19,796,400	\$2,266,400	\$17,530,000	\$19,796,400
Franklin (T)	123	123	\$5,698,999	\$16,617,001	\$22,316,000	\$5,698,999	\$16,617,001	\$22,316,000
Franklin (V)	18	18	\$383,000	\$8,778,000	\$9,161,000	\$383,000	\$8,778,000	\$9,161,000
Hamden (T)	99	103	\$960,689	\$2,549,537	\$3,510,226	\$972,489	\$2,583,037	\$3,555,526
Hancock (T)	1,245	1,316	\$8,315,061	\$12,751,090	\$21,066,151	\$8,703,845	\$13,494,383	\$22,198,228
Hancock (V)	103	140	\$360,800	\$1,572,873	\$1,933,673	\$471,650	\$2,232,473	\$2,704,123
Harpersfield (T)	116	116	\$2,257,195	\$6,015,499	\$8,272,694	\$2,257,195	\$6,015,499	\$8,272,694
Hobart (V)	60	60	\$80,600	\$990,500	\$1,071,100	\$80,600	\$990,500	\$1,071,100
Kortright (T)	234	234	\$17,774,100	\$36,243,500	\$54,017,600	\$17,774,100	\$36,243,500	\$54,017,600
Margaretville (V)	117	134	\$3,254,800	\$59,830,100	\$63,084,900	\$3,559,900	\$62,568,200	\$66,128,100
Masonville (T)	85	85	\$3,559,560	\$6,646,100	\$10,205,660	\$3,559,560	\$6,646,100	\$10,205,660
Meredith (T)	73	73	\$4,860,700	\$5,391,600	\$10,252,300	\$4,860,700	\$5,391,600	\$10,252,300
Middletown (T)	492	493	\$60,702,100	\$52,689,814	\$113,391,914	\$60,751,100	\$52,876,514	\$113,627,614
Roxbury (T)	247	247	\$4,204,966	\$25,351,409	\$29,556,375	\$4,204,966	\$25,351,409	\$29,556,375
Sidney (T)	229	241	\$6,332,740	\$49,023,667	\$55,356,407	\$6,479,340	\$49,641,327	\$56,120,667
Sidney (V)	262	278	\$4,772,870	\$26,291,040	\$31,063,910	\$5,079,770	\$27,660,110	\$32,739,880
Stamford (T)	90	90	\$955,797	\$2,150,640	\$3,106,437	\$955,797	\$2,150,640	\$3,106,437
Stamford (V)	71	71	\$311,726	\$2,502,400	\$2,814,126	\$311,726	\$2,502,400	\$2,814,126
Tompkins (T)	49	49	\$3,263,647	\$84,900	\$3,348,547	\$3,263,647	\$84,900	\$3,348,547
Walton (T)	256	258	\$3,921,238	\$16,745,578	\$20,666,816	\$3,931,462	\$16,797,270	\$20,728,732
Walton (V)	276	311	\$1,352,300	\$12,844,498	\$14,196,798	\$1,440,476	\$13,731,464	\$15,171,940



Municipality	Number of Properties		1% (100 Year)			02.% Annual Chance (500 Year)		
	1% (100 Year)	02.% (500 Year)	Land AV	Building AV	Total AV	Land AV	Building AV	Total AV
Delaware County	5,871	6,203	\$216,714,761	\$562,132,305	\$778,847,066	\$219,531,591	\$575,434,608	\$794,966,199

Source: Real Property Data (July 2011) provided by Delaware County

Notes:

1. This analysis was conducted using the preliminary DFIRM for Delaware County.
2. Building assessed value (AV) was calculated by subtracting the land AV from the total AV.
3. Please note that the Real Property GIS shapefile for the Village of Deposit only includes the properties located within Delaware County. Therefore, property in the Village of Deposit located in Broome County was not available and are not included in the table above.



Table 5.4.3-6. Estimated HAZUS General Building Stock Replacement Value (Structure and Contents) Located in the 1% and 0.2% (100- and 500-year) Flood Boundaries

Municipality	Total Buildings (All Occupancy Classes)				Residential Buildings		Commercial Buildings		Industrial Buildings	
	1% (100 Year)	% Total	0.2% (500 Year)	% Total	1% (100 Year)	0.2% (500 Year)	1% (100 Year)	0.2% (500 Year)	1% (100 Year)	0.2% (500 Year)
Andes (T)	\$9,585,000	3.8	\$9,585,000	3.8	\$6,781,000	\$6,781,000	\$2,240,000	\$2,240,000	\$224,000	\$224,000
Bovina (T)	\$3,602,000	2.9	\$3,602,000	2.9	\$3,602,000	\$3,602,000	\$0	\$0	\$0	\$0
Colchester (T)	\$27,407,000	8.8	\$28,042,000	9.0	\$25,589,000	\$26,224,000	\$926,000	\$926,000	\$102,000	\$102,000
Davenport (T)	\$26,146,000	10.1	\$26,720,000	10.3	\$9,547,000	\$9,547,000	\$9,993,000	\$10,567,000	\$1,392,000	\$1,392,000
Delhi (T)	\$10,490,000	4.1	\$10,738,000	4.2	\$9,258,000	\$9,506,000	\$1,106,000	\$1,106,000	\$126,000	\$126,000
Delhi (V)	\$67,431,000	16.0	\$67,431,000	16.0	\$19,526,000	\$19,526,000	\$33,164,000	\$33,164,000	\$1,611,000	\$1,611,000
Deposit (T)	\$5,475,000	6.3	\$7,311,000	8.4	\$5,327,000	\$7,163,000	\$148,000	\$148,000	\$0	\$0
Deposit (V)	\$86,005,000	30.4	\$108,248,000	38.3	\$49,163,000	\$54,673,000	\$19,752,000	\$34,845,000	\$1,474,000	\$1,672,000
Fleischmanns (V)	\$16,128,000	24.0	\$16,128,000	24.0	\$9,420,000	\$9,420,000	\$5,972,000	\$5,972,000	\$0	\$0
Franklin (T)	\$7,401,000	3.2	\$7,401,000	3.2	\$6,162,000	\$6,162,000	\$0	\$0	\$563,000	\$563,000
Franklin (V)	\$9,994,000	22.7	\$9,994,000	22.7	\$7,142,000	\$7,142,000	\$618,000	\$618,000	\$0	\$0
Hamden (T)	\$12,449,000	7.4	\$12,449,000	7.4	\$11,547,000	\$11,547,000	\$470,000	\$470,000	\$0	\$0
Hancock (T)	\$29,799,000	10.4	\$30,912,000	10.7	\$21,897,000	\$23,010,000	\$4,764,000	\$4,764,000	\$268,000	\$268,000
Hancock (V)	\$3,382,000	1.9	\$34,419,000	19.6	\$3,382,000	\$11,283,000	\$0	\$16,036,000	\$0	\$6,350,000
Harpersfield (T)	\$2,998,000	3.0	\$2,998,000	3.0	\$2,896,000	\$2,896,000	\$0	\$0	\$102,000	\$102,000
Hobart (V)	\$2,166,000	6.2	\$2,166,000	6.2	\$2,166,000	\$2,166,000	\$0	\$0	\$0	\$0
Kortright (T)	\$9,293,000	4.8	\$9,293,000	4.8	\$7,185,000	\$7,185,000	\$1,686,000	\$1,686,000	\$0	\$0
Margaretville (V)	\$49,535,000	53.8	\$49,535,000	53.8	\$26,078,000	\$26,078,000	\$13,597,000	\$13,597,000	\$696,000	\$696,000
Masonville (T)	\$0	0.0	\$0	0.0	\$0	\$0	\$0	\$0	\$0	\$0
Meredith (T)	\$353,000	0.2	\$353,000	0.2	\$353,000	\$353,000	\$0	\$0	\$0	\$0
Middletown (T)	\$24,128,000	5.1	\$24,128,000	5.1	\$20,282,000	\$20,282,000	\$1,348,000	\$1,348,000	\$2,266,000	\$2,266,000
Roxbury (T)	\$17,870,000	4.2	\$17,870,000	4.2	\$15,090,000	\$15,090,000	\$732,000	\$732,000	\$864,000	\$864,000
Sidney (T)	\$9,493,000	5.2	\$12,589,000	6.7	\$8,367,000	\$11,187,000	\$876,000	\$1,152,000	\$250,000	\$250,000
Sidney (V)	\$228,534,000	39.6	\$289,423,000	50.1	\$92,300,000	\$116,704,000	\$84,584,000	\$114,200,000	\$26,647,000	\$27,440,000
Stamford (T)	\$7,131,000	2.4	\$7,131,000	2.4	\$7,131,000	\$7,131,000	\$0	\$0	\$0	\$0
Stamford (V)	\$7,673,000	8.4	\$7,673,000	8.4	\$3,245,000	\$3,245,000	\$902,000	\$902,000	\$3,526,000	\$3,526,000
Tompkins (T)	\$1,384,000	1.1	\$1,384,000	1.1	\$127,000	\$127,000	\$0	\$0	\$1,257,000	\$1,257,000



Municipality	Total Buildings (All Occupancy Classes)				Residential Buildings		Commercial Buildings		Industrial Buildings	
	1% (100 Year)	% Total	0.2% (500 Year)	% Total	1% (100 Year)	0.2% (500 Year)	1% (100 Year)	0.2% (500 Year)	1% (100 Year)	0.2% (500 Year)
Walton (T)	\$13,258,000	5.7	\$13,258,000	5.7	\$9,392,000	\$9,392,000	\$2,820,000	\$2,820,000	\$436,000	\$436,000
Walton (V)	\$104,315,000	25.0	\$146,670,000	35.2	\$52,268,000	\$72,084,000	\$35,600,000	\$52,114,000	\$5,345,000	\$6,904,000
Delaware County	\$794,551,000	12.1	\$958,577,000	14.6	\$436,349,000	\$500,632,000	\$221,298,000	\$299,407,000	\$47,149,000	\$56,049,000

Source: HAZUS-MH 2.0

Notes:

1. Values represent replacement values (RV) for building structure and contents.
2. The general building stock valuations provided in HAZUS-MH 2.0 are Replacement Cost Value from RSMeans as of 2006.
3. RV represents the entire Village of Deposit; area in both Delaware and Broome Counties.



Table 5.4.3-7. Estimated General Building Stock Replacement Value (Structure and Contents) Located in the 1% and 0.2% (100- and 500-year) Flood Boundaries

Municipality	Agricultural Buildings		Religious Buildings		Government Buildings		Educational Buildings	
	1% (100 Year)	0.2% (500 Year)	1% (100 Year)	0.2% (500 Year)	1% (100 Year)	0.2% (500 Year)	1% (100 Year)	0.2% (500 Year)
Andes (T)	\$0	\$0	\$0	\$0	\$0	\$0	\$340,000	\$340,000
Bovina (T)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Colchester (T)	\$0	\$0	\$790,000	\$790,000	\$0	\$0	\$0	\$0
Davenport (T)	\$1,792,000	\$1,792,000	\$0	\$0	\$66,000	\$66,000	\$3,356,000	\$3,356,000
Delhi (T)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Delhi (V)	\$0	\$0	\$3,678,000	\$3,678,000	\$9,452,000	\$9,452,000	\$0	\$0
Deposit (T)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Deposit (V)	\$608,000	\$608,000	\$5,314,000	\$6,756,000	\$842,000	\$842,000	\$8,852,000	\$8,852,000
Fleischmanns (V)	\$0	\$0	\$736,000	\$736,000	\$0	\$0	\$0	\$0
Franklin (T)	\$0	\$0	\$0	\$0	\$676,000	\$676,000	\$0	\$0
Franklin (V)	\$0	\$0	\$2,234,000	\$2,234,000	\$0	\$0	\$0	\$0
Hamden (T)	\$432,000	\$432,000	\$0	\$0	\$0	\$0	\$0	\$0
Hancock (T)	\$150,000	\$150,000	\$0	\$0	\$0	\$0	\$2,720,000	\$2,720,000
Hancock (V)	\$0	\$508,000	\$0	\$242,000	\$0	\$0	\$0	\$0
Harpersfield (T)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Hobart (V)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Kortright (T)	\$0	\$0	\$0	\$0	\$422,000	\$422,000	\$0	\$0
Margaretville (V)	\$0	\$0	\$5,130,000	\$5,130,000	\$272,000	\$272,000	\$3,762,000	\$3,762,000
Masonville (T)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Meredith (T)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Middletown (T)	\$0	\$0	\$0	\$0	\$232,000	\$232,000	\$0	\$0
Roxbury (T)	\$448,000	\$448,000	\$736,000	\$736,000	\$0	\$0	\$0	\$0
Sidney (T)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Sidney (V)	\$690,000	\$1,034,000	\$10,544,000	\$16,074,000	\$11,005,000	\$11,207,000	\$2,764,000	\$2,764,000
Stamford (T)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Stamford (V)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Tompkins (T)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Walton (T)	\$610,000	\$610,000	\$0	\$0	\$0	\$0	\$0	\$0
Walton (V)	\$298,000	\$464,000	\$6,422,000	\$7,158,000	\$3,362,000	\$3,616,000	\$1,020,000	\$4,330,000



Municipality	Agricultural Buildings		Religious Buildings		Government Buildings		Educational Buildings	
	1% (100 Year)	0.2% (500 Year)	1% (100 Year)	0.2% (500 Year)	1% (100 Year)	0.2% (500 Year)	1% (100 Year)	0.2% (500 Year)
Delaware County	\$5,028,000	\$6,046,000	\$35,584,000	\$43,534,000	\$26,329,000	\$26,785,000	\$22,814,000	\$26,124,000

Source: HAZUS-MH 2.0

Notes:

1. Values represent replacement values (RV) for building structure and contents.
2. The general building stock valuations provided in HAZUS-MH 2.0 are Replacement Cost Value from RSMeans as of 2006.
3. RV represents the entire Village of Deposit; area in both Delaware and Broome Counties.



Table 5.4.3-8. Estimated Potential General Building Stock Loss (Structure and Contents) by the 1% and 0.2% (100- and 500-year) Flood Events

Municipality	Total Buildings (All Occupancies)		Percentage of Total Building Value		Residential Buildings		Commercial Buildings		Industrial Buildings	
	1% (100 Year)	0.2% (500 Year)	1% (100 Year)	0.2% (500 Year)	1% (100 Year)	0.2% (500 Year)	1% (100 Year)	0.2% (500 Year)	1% (100 Year)	0.2% (500 Year)
Andes (T)	\$3,124,000	\$3,514,000	1.2	1.4	\$1,054,000	\$1,185,000	\$1,348,000	\$1,505,000	\$119,000	\$119,000
Bovina (T)	\$276,000	\$340,000	0.2	0.3	\$273,000	\$335,000	\$1,000	\$2,000	\$0	\$0
Colchester (T)	\$10,947,000	\$13,808,000	3.5	4.4	\$7,895,000	\$10,001,000	\$787,000	\$938,000	\$1,695,000	\$2,172,000
Davenport (T)	\$13,039,000	\$15,187,000	5.0	5.9	\$5,105,000	\$6,043,000	\$5,376,000	\$6,162,000	\$1,700,000	\$1,979,000
Delhi (T)	\$3,723,000	\$4,804,000	1.5	1.9	\$2,902,000	\$3,538,000	\$746,000	\$1,137,000	\$75,000	\$101,000
Delhi (V)	\$11,105,000	\$13,610,000	2.6	3.2	\$3,442,000	\$3,854,000	\$6,076,000	\$6,766,000	\$309,000	\$352,000
Deposit (T)	\$1,577,000	\$1,975,000	1.8	2.3	\$1,611,000	\$1,906,000	\$36,000	\$55,000	\$0	\$0
Deposit (V)	\$13,000,000	\$17,561,000	4.6	6.2	\$8,435,000	\$12,488,000	\$2,894,000	\$4,064,000	\$587,000	\$726,000
Fleischmanns (V)	\$4,507,000	\$5,244,000	6.7	7.8	\$2,118,000	\$2,728,000	\$1,998,000	\$2,096,000	\$0	\$0
Franklin (T)	\$2,483,000	\$2,991,000	1.1	1.3	\$1,980,000	\$1,606,000	\$23,000	\$28,000	\$236,000	\$0
Franklin (V)	\$1,001,000	\$1,177,000	2.3	2.7	\$682,000	\$815,000	\$60,000	\$69,000	\$0	\$263,000
Hamden (T)	\$2,179,000	\$2,755,000	1.3	1.6	\$1,913,000	\$2,462,000	\$115,000	\$134,000	\$14,000	\$17,000
Hancock (T)	\$16,687,000	\$22,274,000	5.8	7.7	\$11,488,000	\$15,399,000	\$3,646,000	\$4,524,000	\$1,127,000	\$1,399,000
Hancock (V)	\$21,048,000	\$23,752,000	12.0	13.5	\$7,670,000	\$8,862,000	\$10,059,000	\$11,274,000	\$2,104,000	\$2,197,000
Harpersfield (T)	\$409,000	\$510,000	0.4	0.5	\$291,000	\$365,000	\$92,000	\$115,000	\$17,000	\$20,000
Hobart (V)	\$782,000	\$990,000	2.2	2.8	\$679,000	\$828,000	\$72,000	\$117,000	\$12,000	\$17,000
Kortright (T)	\$2,372,000	\$2,851,000	1.2	1.5	\$1,440,000	\$1,699,000	\$363,000	\$427,000	\$23,000	\$25,000
Margaretville (V)	\$13,070,000	\$15,156,000	14.2	16.5	\$5,269,000	\$6,276,000	\$5,566,000	\$6,306,000	\$291,000	\$332,000
Masonville (T)	\$1,017,000	\$1,250,000	0.7	0.9	\$436,000	\$582,000	\$1,000	\$1,000	\$54,000	\$70,000
Meredith (T)	\$650,000	\$762,000	0.4	0.4	\$544,000	\$647,000	\$66,000	\$72,000	\$27,000	\$26,000
Middletown (T)	\$7,758,000	\$9,558,000	1.6	2.0	\$5,347,000	\$6,756,000	\$860,000	\$1,023,000	\$1,277,000	\$1,476,000
Roxbury (T)	\$6,128,000	\$7,557,000	1.4	1.8	\$4,229,000	\$5,340,000	\$764,000	\$989,000	\$462,000	\$562,000
Sidney (T)	\$7,626,000	\$9,312,000	3.7	4.6	\$5,160,000	\$6,947,000	\$1,580,000	\$1,812,000	\$796,000	\$1,037,000
Sidney (V)	\$129,241,000	\$154,905,000	22.4	26.8	\$60,459,000	\$70,895,000	\$49,114,000	\$61,877,000	\$6,494,000	\$5,833,000
Stamford (T)	\$2,864,000	\$3,434,000	1.0	1.1	\$1,097,000	\$1,423,000	\$973,000	\$1,090,000	\$277,000	\$274,000
Stamford (V)	\$1,905,000	\$2,396,000	2.1	2.6	\$526,000	\$711,000	\$180,000	\$217,000	\$1,073,000	\$1,316,000



Municipality	Total Buildings (All Occupancies)		Percentage of Total Building Value		Residential Buildings		Commercial Buildings		Industrial Buildings	
	1% (100 Year)	0.2% (500 Year)	1% (100 Year)	0.2% (500 Year)	1% (100 Year)	0.2% (500 Year)	1% (100 Year)	0.2% (500 Year)	1% (100 Year)	0.2% (500 Year)
Tompkins (T)	\$261,000	\$395,000	0.2	0.3	\$239,000	\$381,000	\$5,000	\$10,000	\$15,000	\$18,000
Walton (T)	\$5,321,000	\$5,381,000	2.3	2.3	\$3,462,000	\$3,293,000	\$1,342,000	\$1,510,000	\$231,000	\$250,000
Walton (V)	\$33,001,000	\$33,406,000	7.9	8.0	\$8,888,000	\$9,633,000	\$17,017,000	\$16,872,000	\$2,505,000	\$2,375,000
Delaware County	\$317,101,000	\$376,855,000	4.8	5.8	\$154,634,000	\$186,998,000	\$111,160,000	\$131,192,000	\$21,520,000	\$22,956,000

Source: HAZUS-MH 2.0

Notes:

1. Values represent replacement values (RV) for building structure and contents.
2. The general building stock valuations provided in HAZUS-MH 2.0 are Replacement Cost Value from RSMeans as of 2006.
3. RV represents the entire Village of Deposit; portions of the Village are located in Delaware and Broome Counties.



Table 5.4.3-12. Potential Estimated General Building Stock Loss (Structure and Contents) by the 1% and 0.2% (100- and 500-year) Flood Events (Continued)

Municipality	Agriculture Buildings		Religious Buildings		Government Buildings		Education Buildings	
	1% (100 Year)	0.2% (500 Year)	1% (100 Year)	0.2% (500 Year)	1% (100 Year)	0.2% (500 Year)	1% (100 Year)	0.2% (500 Year)
Andes (T)	\$13,000	\$15,000	\$186,000	\$217,000	\$1,000	\$2,000	\$403,000	\$471,000
Bovina (T)	\$2,000	\$3,000	\$0	\$0	\$0	\$0	\$0	\$0
Colchester (T)	\$4,000	\$6,000	\$419,000	\$465,000	\$146,000	\$177,000	\$0	\$0
Davenport (T)	\$423,000	\$485,000	\$33,000	\$37,000	\$112,000	\$126,000	\$290,000	\$355,000
Delhi (T)	\$13,000	\$14,000	\$13,000	\$31,000	\$0	\$0	\$0	\$0
Delhi (V)	\$0	\$0	\$536,000	\$606,000	\$1,864,000	\$2,032,000	\$0	\$0
Deposit (T)	\$1,000	\$1,000	\$0	\$0	\$0	\$0	\$0	\$0
Deposit (V)	\$40,000	\$65,000	\$831,000	\$1,093,000	\$0	\$21,000	\$213,000	\$215,000
Fleischmanns (V)	\$30,000	\$33,000	\$361,000	\$386,000	\$0	\$1,000	\$0	\$0
Franklin (T)	\$51,000	\$64,000	\$56,000	\$61,000	\$147,000	\$154,000	\$69,000	\$80,000
Franklin (V)	\$0		\$259,000	\$293,000	\$0	\$0	\$0	\$0
Hamden (T)	\$121,000	\$142,000	\$0	\$0	\$0	\$0	\$0	\$0
Hancock (T)	\$34,000	\$45,000	\$24,000	\$28,000	\$833,000	\$0	\$412,000	\$714,000
Hancock (V)	\$67,000	\$75,000	\$161,000	\$203,000	\$0	\$922,000	\$154,000	\$219,000
Harpersfield (T)	\$0	\$0	\$0	\$0	\$9,000	\$10,000	\$0	\$0
Hobart (V)	\$19,000	\$28,000	\$0	\$0	\$0	\$0	\$0	\$0
Kortright (T)	\$25,000	\$32,000	\$25,000	\$27,000	\$188,000	\$220,000	\$386,000	\$423,000
Margaretville (V)	\$4,000	\$4,000	\$1,521,000	\$1,757,000	\$38,000	\$60,000	\$381,000	\$421,000
Masonville (T)	\$0	\$0	\$1,000	\$1,000	\$525,000	\$613,000	\$0	\$0
Meredith (T)	\$10,000	\$12,000	\$0	\$0	\$3,000	\$5,000	\$0	\$0
Middletown (T)	\$61,000	\$67,000	\$78,000	\$78,000	\$141,000	\$158,000	\$0	\$0
Roxbury (T)	\$136,000	\$170,000	\$522,000	\$620,000	\$15,000	\$19,000	\$0	\$0
Sidney (T)	\$59,000	\$79,000	\$13,000	\$13,000	\$10,000	\$12,000	\$8,000	\$10,000
Sidney (V)	\$245,000	\$278,000	\$6,460,000	\$8,775,000	\$5,569,000	\$6,087,000	\$900,000	\$1,160,000
Stamford (T)	\$1,000	\$1,000	\$236,000	\$249,000	\$224,000	\$332,000	\$62,000	\$68,000
Stamford (V)	\$8,000	\$9,000	\$78,000	\$98,000	\$0	\$0	\$40,000	\$45,000
Tompkins (T)	\$15,000	\$0	\$0	\$0	\$0	\$0	\$1,000	\$1,000



Municipality	Agriculture Buildings		Religious Buildings		Government Buildings		Education Buildings	
	1% (100 Year)	0.2% (500 Year)	1% (100 Year)	0.2% (500 Year)	1% (100 Year)	0.2% (500 Year)	1% (100 Year)	0.2% (500 Year)
Walton (T)	\$99,000	\$118,000	\$0	\$0	\$187,000	\$210,000	\$0	\$0
Walton (V)	\$213,000	\$205,000	\$1,640,000	\$1,884,000	\$1,500,000	\$1,149,000	\$1,238,000	\$1,288,000
Delaware County	\$1,694,000	\$1,951,000	\$13,453,000	\$16,922,000	\$11,512,000	\$12,310,000	\$4,557,000	\$5,470,000

Source: HAZUS-MH 2.0

Notes:

1. Values represent replacement values (RV) for building structure and contents.
2. The general building stock valuations provided in HAZUS-MH 2.0 are Replacement Cost Value from RSMeans as of 2006.
3. RV represents the entire Village of Deposit; area in both Delaware and Broome Counties.



In addition to total building stock modeling, individual data available on flood policies, claims, RLP and severe RLP (SRLs) were analyzed. FEMA Region 2 provided a list of residential properties with NFIP policies, past claims and multiple claims (RLPs). According to the metadata provided: “The NFIP Repetitive Loss File contains losses reported from individuals who have flood insurance through the Federal Government. A property is considered a repetitive loss property when there are two or more losses reported which were paid more than \$1,000 for each loss. The two losses must be within 10 years of each other & be as least 10 days apart. Only losses from (*sic* since) 1/1/1978 that are closed are considered.”

Severe RLPs (SRL) were then examined in Delaware County. According to section 1361A of the National Flood Insurance Act, as amended (NFIA), 42 U.S.C. 4102a, an SRL property is defined as a residential property that is covered under an NFIP flood insurance policy and:

- Has at least four NFIP claim payments (including building and contents) over \$5,000 each, and the cumulative amount of such claims payments exceeds \$20,000; or
 - For which at least two separate claims payments (building payments only) have been made with the cumulative amount of the building portion of such claims exceeding the market value of the building.
- For both of the above, at least two of the referenced claims must have occurred within any 10-year period, and must be greater than 10 days apart.

Table 5.4.3-13 and Figure 5.4.3-7 summarize the NFIP policies, claims and repetitive loss statistics for Delaware County. According to FEMA, using the ‘occ01’ column of their repetitive loss statistics, there 13 2-4 family residential RL properties; eight (8) assumed condominium buildings; 18 non-residential RL properties; two (2) RL property classified as ‘other residential’ and 119 single-family residential RL properties in the County. Of the 11 SRL properties in Delaware County, five (5) are residential (FEMA Region 2, 2012). This information is current as of January 31, 2012.

The location of the properties with policies, claims and repetitive and severe repetitive flooding were geocoded by FEMA with the understanding that there are varying tolerances between how closely the longitude and latitude coordinates correspond to the location of the property address, or that the indication of some locations are more accurate than others. This data is more current than the properties reported in the New York State HMP and may explain any difference in property count between the two sources.



Table 5.4.3-9. NFIP Policies, Claims and Repetitive Loss Statistics

Municipality	# Policies (1)	# Claims (Losses) (1)	Total Loss Payments (1)	# Rep. Loss Prop. (1)	# Severe Rep. Loss Prop. (1)	# Policies in 1% (100-year) Boundary (1,2)	# Policies in 0.2% (500-year) Boundary (1,2)	# Policies Outside the 0.2% (500-year) Flood Hazard (1,2)
Andes (T)	37	25	\$233,416	4	0	6	6	31
Bovina (T)	9	5	\$151,976	0	0	0	0	9
Colchester (T)	103	108	\$1,982,635	12	2	29	38	65
Davenport (T)	21	22	\$122,395	1	0	10	11	10
Delhi (T)	13	9	\$83,551	2	0	1	1	12
Delhi (V)	36	22	\$107,040	2	0	7	11	25
Deposit (T)	27	24	\$347,317	3	1	19	20	7
Deposit (V) (3)	0	0	(3)	0	0	0	0	0
Fleischmanns (V)	19	41	\$678,417	3	0	3	3	16
Franklin (T)	14	5	\$25,719	0	0	0	0	14
Franklin (V)	2	2	\$91,818	0	0	0	0	2
Hamden (T)	12	10	\$76,008	1	0	0	0	12
Hancock (T)	121	121	\$2,001,497	12	2	24	31	90
Hancock (V)	20	6	\$64,081	1	0	4	11	9
Harpersfield (T)	2	1	\$3,700	0	0	0	0	2
Hobart (V)	6	2	\$650	0	0	0	0	6
Kortright (T)	6	1	\$0	0	0	0	0	6
Margaretville (V)	71	126	\$4,801,670	15	6	30	37	34
Masonville (T)	6	3	\$7,816	0	0	0	0	6
Meredith (T)	9	5	\$42,861	0	0	0	0	9
Middletown (T)	65	62	\$1,184,752	5	0	18	18	47
Roxbury (T)	23	15	\$80,666	0	0	9	9	14
Sidney (T)	30	46	\$848,066	11	0	16	16	14
Sidney (V)	216	334	\$14,608,429	79	0	176	202	14



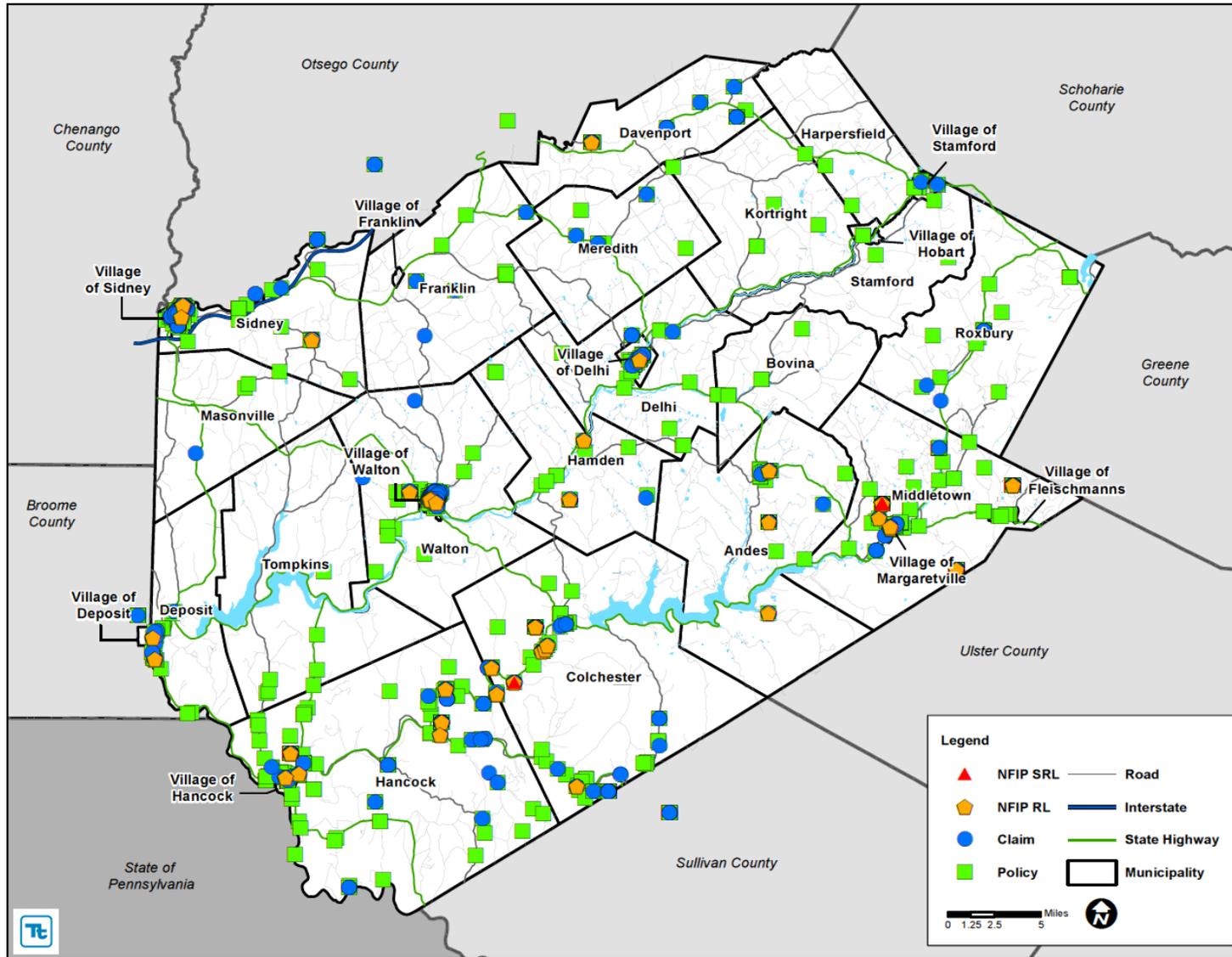
Municipality	# Policies (1)	# Claims (Losses) (1)	Total Loss Payments (1)	# Rep. Loss Prop. (1)	# Severe Rep. Loss Prop. (1)	# Policies in 1% (100-year) Boundary (1,2)	# Policies in 0.2% (500-year) Boundary (1,2)	# Policies Outside the 0.2% (500-year) Flood Hazard (1,2)
Stamford (T)	5	1	\$12,232	0	0	1	1	4
Stamford (V)	8	1	\$1,213	0	0	2	2	6
Tompkins (T)	7	7	\$38,101	0	0	0	0	7
Walton (T)	24	41	\$981,145	2	0	8	9	15
Walton (V)	160	182	\$7,283,981	7	0	120	132	28
Delaware County	1,073	1,227	\$35,861,149	160	11	483	558	515

Source: FEMA, 2012

- (1) Policies, claims, repetitive loss and severe repetitive loss properties were provided by FEMA Region 2. The total noted is a count using the "Comm_Name". According to FEMA, some properties may have more than one policy in force. The NFIP stats are current as of January 31, 2012. The repetitive loss property count includes the severe repetitive loss property count for that municipality.
- (2) FEMA preliminary DFIRMs
- (3) There were no policies, claims, repetitive loss or severe repetitive loss properties provided by FEMA Region 2 for the Village of Deposit. This is noted because a portion of the Village is located in Broome County and statistics were only requested/received for Delaware County.



Figure 5.4.3-2. NFIP Policies, Claims, Repetitive Loss and Severe Repetitive Loss Properties in Delaware County



Source: FEMA Region 2, 2012

Note: The NFIP stats are current as of January 31, 2012.



Impact on Critical Facilities

In addition to considering general building stock at risk, the risk of flood to critical facilities, utilities and user-defined facilities was evaluated. HAZUS-MH was used to estimate the flood loss potential to critical facilities exposed to the flood risk. Using depth/damage function curves, HAZUS estimates the percent of damage to the building and contents of critical facilities. Tables 5.4.4-14 and 5.4.4-15 list the critical facilities and utilities located in the FEMA preliminary DFIRM flood zones and the percent damage HAZUS-MH 2.0 estimates to the facility as a result of the 1% and 0.2% annual chance (100- and 500-year) events.

In cases where short-term functionality is impacted by a hazard, other facilities of neighboring municipalities may need to increase support response functions during a disaster event. Mitigation planning should consider means to reduce impact to critical facilities and ensure sufficient emergency and school services remain when a significant event occurs.

In terms of infrastructure, according to Delaware County DPW, all bridges that have recently been replaced are designed for 50-year storm events with two-feet of freeboard, or designed to pass 100-year storms with gravity flow (no flow against beams) (Fairbairn, 2011).

Table 5.4.3-10. Critical Facilities Located in the Preliminary DFIRM Flood Boundaries and Estimated Potential Damage from the 1% and 0.2% Annual Chance (100- and 500-year) Events

Name	Municipality	Type	Exposure		Potential Loss			
			1% (100-Year)	0.2% (500-Year)	1% (100-Year) Structure Damage %	1% (100-Year) Content Damage %	0.2% (500-Year) Structure Damage %	0.2% (500-Year) Content Damage %
Andes Central School	Andes (T)	School			12.2	71.2	12.5	71.5
Andes VFD	Andes (T)	Fire	x	x	2.6	2.9	8.5	14.0
Methodist Church	Andes (T)	Shelter	x	x	-	-	5.1	19.3
Downsville Fire Hall	Andes (T)	Shelter		x	-	-	-	-
Town of Bovina DPW	Bovina (T)	User Defined	x	x	-	-	-	-
Amato Mobile Home Park*	Colchester (T)	User Defined	x	x	-	-	-	-
DEP	Colchester (T)	Police	x	x	-	-	-	-
Cooks Falls Fire Hall	Colchester (T)	Shelter	x	x	-	-	-	-
Downsville VFD and EMS	Colchester (T)	Fire		x	-	-	-	-
Cooks Falls VFD	Colchester (T)	Fire	x	x	-	-	-	-
Alcott Chase Mobile Home Park*	Colchester (T)	User Defined	x	x	83.5	82.0	83.1	81.2



Name	Municipality	Type	Exposure		Potential Loss			
			1% (100-Year)	0.2% (500-Year)	1% (100-Year) Structure Damage %	1% (100-Year) Content Damage %	0.2% (500-Year) Structure Damage %	0.2% (500-Year) Content Damage %
Board of Elections - 1 Page Ave	Delhi (V)	County	x	x	-	-	-	-
Cabinet Shop - 1 Page Ave	Delhi (V)	County	x	x	-	-	22%	35%
Salt Shed - 1 Page Ave	Delhi (V)	County	x	x	47%	59%	50%	66%
Pole Barn - 1 Page Ave	Delhi (V)	County	x	x	-	-	-	-
County Garage Wickham Office - 1 Page Ave	Delhi (V)	County	x	x	-	-	-	-
DPW Garages/DPW/DCPD	Delhi (V)	County	x	x	-	-	-	-
99 Main Street – County Building	Delhi (V)	County		x	-	-	-	-
Deposit Village PD	Deposit (V)	Police		x	-	-	-	-
Bryces Trailer Park*	Deposit (V)	User Defined	x	x	79.8	76.8	81.9	78.9
Deposit VFD and EMS	Deposit (V)	Fire	x	x	10.0	20.6	11.1	40.0
EOC	Deposit (V)	EOC	x	x	10.0	20.6	11.1	40.0
Meadow Park Apartments	Deposit (V)	Senior			9.4	55.6	9.4	55.63
Town of Deposit Town Hall	Deposit (V)	User Defined	x	x	11.9	70.7	13.8	81.2
Deposit Central School	Deposit (V)	School/Shelter	x	x	-	-	-	-
DPW Garage	Deposit (V)	User Defined	x	x	12	-	13	-
Bus Garage	Deposit (V)	User Defined	x	x	19	-	19	-
Fleischmanns VFD	Fleischmanns (V)	Fire	x	x	12.3	56.4	16.5	78.0
School Building	Fleischmanns (V)	School			5.6	30.2	8.6	50.1
Delaware Opportunities Inc.	Hamden (T)	School			0.3	1.7	0.5	2.4
East Branch VFD	Hancock (T)	Fire	x	x	10.1	21.4	14.3	66.2
Patrol Garage	Hancock (T)	User Defined	x	x	16.1	79.1	85.0	98.0
New Highway Garage	Hancock (V)	User Defined	x	x	18.1	83.2	13.1	67.3
Torche's Trailer Park*	Hancock (V)	User Defined	x	x	90.8	83.0	94.6	83.0
Dollar General	Margaretville (V)	User Defined	x	x	13.4	40.0	16.7	60.0
Margaretville Central School	Margaretville (V)	School		x	20.8	84.0	28.3	94.3



Name	Municipality	Type	Exposure		Potential Loss			
			1% (100-Year)	0.2% (500-Year)	1% (100-Year) Structure Damage %	1% (100-Year) Content Damage %	0.2% (500-Year) Structure Damage %	0.2% (500-Year) Content Damage %
Mountainside Residential Care Center	Margaretville (V)	User Defined	x	x	9.8	58.8	11.8	65.8
Post 216 Legion Hall	Margaretville (V)	User Defined		x	0.0	0.0	13.8	72.1
Masonville School	Masonville (T)	School			12.3	71.3	12.2	71.2
Head Start	Middletown (T)	User Defined	x	x	6.7	27.8	8.0	31.6
Delaware Cty American Red Cross	Middletown (T)	Shelter	x	x	-	-	-	-
Mountainside Cream	Roxbury (T)	User Defined	x	x	0.0	0.0	1.8	4.5
Roxbury Central School	Roxbury (T)	School			0.0	0.0	3.8	20.5
Sidney Civic Center	Sidney (V)	User Defined	x	x	-	-	-	-
Sidney PD	Sidney (V)	Police	x	x	-	-	-	-
Sidney Training Center	Sidney (V)	Fire	x	x	6.7	7.6	10.4	27.2
Sidney VFD	Sidney (V)	Fire			43.4	100.0	44.4	100.0
Sidney VFD and EMS	Sidney (V)	Fire	x	x	9.2	16.9	11.2	41.3
Tri-Town Regional Hospital	Sidney (V)	Medical			22.0	14.0	41.9	75.7
Head Start School	Sidney (V)	School	x	x	-	-	-	-
Connelly Development Corp.	Stamford (V)	Medical			23.2	16.4	4.3	2.2
DEP (Beerston)	Walton (T)	Police	x	x	0.0	0.0	16.7	79.2
Patrol Garage	Walton (V)	User Defined	x	x	85.0	98.0	15.1	75.3
Townsend Senior Apt	Walton (V)	User Defined			8.1	46.1	7.2	39.5
Village Clerk Office	Walton (V)	User Defined	x	x	11.0	67.9	10.3	66.0
Walton (Townsend) Central School	Walton (V)	School			11.2	70.2	11.5	70.5
Walton Shop	Walton (V)	User Defined	x	x	-	-	-	-
7 Water Street - Walton Shop County Bldg	Walton (V)	User Defined	x	x	-	-	-	-

Source: FEMA, 2011; HAZUS-MH 2.0

Notes:

(1) 'X' indicates the facility location as provided by Delaware County is located in the preliminary DFIRM flood zone.



- (2) *HAZUS did not calculate potential loss estimates for some facilities located in the preliminary DFIRM flood zone. This is because these facilities are located outside of the flood depth grid generated by HAZUS. The difference between the flood depth grid generated by HAZUS and the preliminary DFIRM flood zones is most likely due to the resolution of the elevation model used (1/3 Arc Second or 10 meters) which differed from the elevation data used to generate the DFIRM itself.*
- (3) *In some cases, HAZUS calculated potential flood loss to structures outside the preliminary FEMA DFIRM. These facilities are located inside the HAZUS flood depth grid.*
- (4) ** Please note the mobile home park was evaluated as a single structure and the results are reported as such.*



Table 5.4.3-11. Utilities Located in the Preliminary DFIRM Flood Boundaries and Estimated Potential Damage from the 1% and 0.2% Annual Chance (100- and 500-year) Flood Events

Name	Municipality	Type	Exposure		Potential Loss	
			1% (100-Year)	0.2% (500-Year)	1% (100-Year) Damage %	0.2% (500-Year) Damage %
Andes Library Well Treatment System	Andes (T)	Potable Water Facility			1.1	1.1
Andes (V) Library Wastewater Treatment System	Andes (T)	WWTF			9.4	9.4
Corbett Water Company	Colchester (T)	Potable Water Facility			3.4	3.4
Cook Falls Pump House	Colchester (T)	Potable Pump Station	x	x	-	0.6
Drinking Water Treatment Plant	Delhi (V)	Potable Water Facility	x	x	-	35.3
NYSEG	Deposit (V)	Electric Substation	x	x	7.5	10
Pump House #1 Borden Street	Deposit (V)	WW Pump	x	x	40	40
Pump House #2 Borden Street	Deposit (V)	WW Pump	x	x	40	40
Waste Water Pump Station	Deposit (V)	WW Pump	x	x	40	40
Pump House #4 Elm Street	Deposit (V)	WW Pump	x	x	0	40
Waste Water Pump Station	Deposit (V)	WWTF	x	x	40	40
Park Wells	Fleischmanns (V)	Potable Water Well	x	x	35.7	3.4
Religious School and Children's Camp	Fleischmanns (V)	WWTF			9.2	9.2
Town of Hamden WWTF	Hamden (T)	WWTF	x	x	-	-
Johnston & Rhodes Stonemill	Hancock (T)	WWTF	x	x	30.0	40.0
Becton Dickinson	Hancock (T)	WWTF	x	x	40.0	40.0
Beaver-Del Campsites	Hancock (T)	WWTF	x	x	40.0	40.0
Pump station	Hancock (V)	Potable Pump Station	x	x	40.0	40.0
Potable wells	Hancock (V)	Potable Water Well	x	x	40.0	1.1
Hancock (V) Sewage Treatment Plant	Hancock (V)	WWTF		x	30.0	37.9
Lift Station - Firemans Park	Hancock (V)	WW Pump	x	x	40.0	40.0
Water Plant	Kortright (T)	Potable Water Facility	x	x	-	23.0
New BV WWTF	Kortright (T)	WWTF	x	x	-	-



Telephone and Cable	Margaretville (V)	Communication	x	x	NA	NA
Well House	Margaretville (V)	Potable Water Well	x	x	40.0	40.0
Well House	Margaretville (V)	Potable Water Well	x	x	40.0	40.0
Hanah Country Resort	Middletown (T)	WWTF	x	x	-	-
Roxbury Water PH#1	Roxbury (T)	Potable Pump Station	x	x	1.7	40.0
NYC DEP Grand Gorge (H) STP	Roxbury (T)	WWTF	x	x	-	4.9
Roxbury Central School	Roxbury (T)	WWTF			1.0	5.1
Water Treatment Plant	Sidney (V)	Potable Water Facility	x	x	20.8	40.0
Meade Substation	Sidney (V)	Electric Substation		x	NA	NA
NYSEG – Oak Ave	Sidney (V)	Electric Substation	x	x	>30	>30
Radio WCDO	Sidney (V)	Communication		x	NA	NA
Sidney Fire Communication	Sidney (V)	Communication	x	x	NA	NA
Well 2-88	Sidney (V)	Potable Water Well	x	x	37.0	40.0
Well 1-46	Sidney (V)	Potable Water Well	x	x	5.8	3.1
Aerospace Operations	Sidney (V)	WWTF	x	x	40.0	40.0
Sidney (V) Water Pollution Control Plant	Sidney (V)	WWTF	x	x	17.1	21.9
Gilbert WW Pump Station	Sidney (V)	WW Pump	x	x	40.0	40.0
Maple Ave Pump Station	Sidney (V)	WW Pump	x	x	-	-
Industrial Park WW Pump Station	Sidney (V)	WW Pump		x	-	-
County Meadow Park	Walton (T)	WWTF	x	x	-	-
Kraft Foods, Inc.	Walton (V)	WWTF	x	x	-	-
Walton (V) Sewage Treatment Plant	Walton (V)	WWTF			-	6.1

Source: FEMA, 2011; HAZUS-MH 2.0

Notes:

- (1) 'X' indicates the facility location as provided by Delaware County is located in the preliminary DFIRM flood zone.
- (2) Loss estimate calculations for electric and communication facilities are not supported in HAZUS-MH 2.0.
- (3) HAZUS did not calculate potential loss estimates for some facilities located in the preliminary DFIRM flood zone. This is because these facilities are located outside of the flood depth grid generated by HAZUS. The difference between the flood depth grid generated by HAZUS and the preliminary DFIRM flood zones is most likely due to the resolution of the elevation model used (1/3 Arc Second or 10 meters) which differed from the elevation data used to generate the DFIRM itself.
- (4) In some cases, HAZUS calculated potential flood loss to structures outside the preliminary FEMA DFIRM. These facilities are located inside the HAZUS flood depth grid.



Impact on Economy

For impact on economy, estimated losses from a flood event are considered. Losses include but are not limited to general building stock damages, agricultural losses, business interruption, impacts to tourism and tax base to Delaware County. Damages to general building stock can be quantified using HAZUS-MH as discussed above. Other economic components such as loss of facility use, functional downtime and social economic factors are less measurable with a high degree of certainty. For the purposes of this analysis, general building stock damages are discussed further.

Flooding can cause extensive damage to public utilities and disruptions to the delivery of services. Loss of power and communications may occur; and drinking water and wastewater treatment facilities may be temporarily out of operation. Flooded streets and road blocks make it difficult for emergency vehicles to respond to calls for service. Floodwaters can washout sections of roadway and bridges (Foster, Date Unknown).

Direct building losses are the estimated costs to repair or replace the damage caused to the building. The potential damage estimated to the general building stock inventory associated with the 1% (100-year) flood is approximately \$317 million. This estimated building damage represents approximately 4.8-percent of the County's overall total general building stock inventory exposed to this hazard. For the 0.2% (500-year) event, the potential damage estimate is approximately \$377 million (structure and contents), or 5.8-percent of the total exposed building value. These dollar value losses to the County's total building inventory replacement value, in addition to damages to roadways and infrastructure, would greatly impact Delaware's tax base and the local economy.

When a flood occurs, the agricultural industry is at risk in terms of economic impact and damage (i.e., damaged crop, financial loss to the farmer). In 2007, according to the Census of Agriculture, the market value of all agricultural products sold from Delaware County was greater than \$55 million with a majority of the value (86-percent) in livestock, poultry and their products. Although the number of farms and the amount of farmland has decreased in Delaware County from 2002 to 2007, agriculture and agricultural products remains a large portion of the local economy (USDA NASS, 2007). As noted in Table 5.4.3-16, approximately six-percent of the farmland in Delaware County is located in the floodplain.

Specific agricultural loss information (monetary losses per agricultural product) was not available at the time this plan was drafted. However, given professional knowledge and historic loss information available, 40-percent and 60-percent loss estimates for crops as a result of major flood events is considered conservative estimates of potential losses for this hazard.

HAZUS-MH estimates the amount of debris generated from the flood events as a result of 1% and 0.2% Annual Chance (100- and 500-year) events. The model breaks down debris into three categories: 1) finishes (dry wall, insulation, etc.); 2) structural (wood, brick, etc.) and 3) foundations (concrete slab and block, rebar, etc.). The distinction is made because of the different types of equipment needed to handle the debris. Table 5.4.3-16 summarizes the debris HAZUS-MH 2.0 estimates for each participating municipality.



Table 5.4.3-12. Estimated Delaware County Debris Generated from the 1% and 0.2% Annual Chance (100- and 500-year) Flood Events

Municipality	1% Annual Chance Event (100-Year)				0.2% Annual Chance Event (500-Year)			
	Total	Finish	Structure	Foundation	Total	Finish	Structure	Foundation
Andes (T)	367	249	57	61	422	278	70	73
Bovina (T)	61	31	16	14	70	36	19	16
Colchester (T)	5,315	1,285	2,150	1,881	6,653	1,583	2,706	2,365
Davenport (T)	3,006	797	1,168	1,042	3,617	927	1,430	1,260
Delhi (T)	1,732	554	629	548	2,147	665	789	693
Delhi (V)	5,458	832	2,603	2,023	5,841	918	2,763	2,160
Deposit (T)	1,131	349	316	466	1,476	433	427	616
Deposit (V)	3,582	1,764	786	1,032	4,595	2,196	1,042	1,358
Fleischmanns (V)	688	465	114	109	839	559	144	136
Franklin (T)	789	396	204	188	965	461	265	238
Franklin (V)	529	146	208	175	655	175	259	222
Hamden (T)	935	280	355	300	1,197	351	456	389
Hancock (T)	9,331	2,305	3,242	3,784	12,196	2,866	4,407	4,923
Hancock (V)	12,442	2,155	4,862	5,425	14,219	2,471	5,541	6,208
Harpersfield (T)	131	82	21	28	158	97	27	34
Hobart (V)	309	110	104	95	373	133	126	114
Kortright (T)	625	249	190	186	773	295	244	234
Margaretville (V)	4,965	1,422	2,049	1,493	6,875	1,692	2,992	2,190
Masonville (T)	155	87	30	38	207	110	45	52
Meredith (T)	152	91	29	33	186	103	40	43
Middletown (T)	1,698	973	379	346	2,330	1,182	617	531
Roxbury (T)	1,140	800	149	191	1,396	958	198	240
Sidney (T)	3,837	851	1,339	1,646	4,732	1,017	1,696	2,018
Sidney (V)	66,188	12,596	30,035	23,557	81,465	15,163	36,606	29,697
Stamford (T)	398	249	73	77	549	311	120	118
Stamford (V)	123	105	8	9	157	135	11	11
Tompkins (T)	83	55	13	15	158	73	43	42
Walton (T)	2,056	525	805	726	1,951	523	749	680



Municipality	1% Annual Chance Event (100-Year)				0.2% Annual Chance Event (500-Year)			
	Total	Finish	Structure	Foundation	Total	Finish	Structure	Foundation
Walton (V)	3,846	2,563	693	589	4,043	2,696	734	613
Delaware County	131,072	32,367	52,627	46,077	160,246	38,408	64,565	57,273

Source: HAZUS-MH 2.0



Effect of Climate Change on Vulnerability

The potential effects of climate change on Delaware County's vulnerability to flooding shall need to be considered as a greater understanding of regional climate change impacts develop.

Future Growth and Development

As discussed in Section 4, areas targeted for future growth and development have been identified across the County. Any areas of growth could be potentially impacted by the flood hazard if located within the identified hazard areas. Specific areas of development vulnerable to the flood hazard are also indicated on hazard maps included in the jurisdictional annexes in Volume II, Section 9 of this plan. Figure 5.4.3-7 illustrates the identified areas of potential new development in relation to the preliminary DFIRM flood boundaries.

Additional Data Needs and Next Steps

A modified Level 1 HAZUS-MH flood analysis was conducted for Delaware County using the default model data, with the exception of the updated critical facility inventory which included user-defined data. For future plan updates, a Level 2 HAZUS analysis can be conducted. A Level 2 analysis provides more accurate exposure and loss estimates by replacing the national default inventories with more accurate local inventories. Updated demographic and general building stock data would be needed to conduct a Level 2 HAZUS-MH analysis. In the future, FEMA's Risk Mapping, Assessment, and Planning (Risk MAP) will be providing the flood depth and analysis grids as part of the DFIRM deliverable. These depth grids can be incorporated into HAZUS and used to calculate the potential losses to the County inventory. The utilization of the RiskMAP depth grids and the updated general building stock inventory on a structural level will provide more accurate flood loss estimates. To estimate exposure and potential loss due to dam breaks, dam break inundation areas can be digitized for future analysis.

Overall Vulnerability Assessment

The flood hazard is evaluated as a significant threat, which was ranked overall as a "high" risk by the Planning Committee with a "frequent" probability of occurrence (see Tables 5.3-3 and 5.3-6 in Section 5.3). This hazard can be managed and planned for through the mitigation strategy and specific activities outlined in Volume II Section 9, which build on efforts already undertaken by these communities.



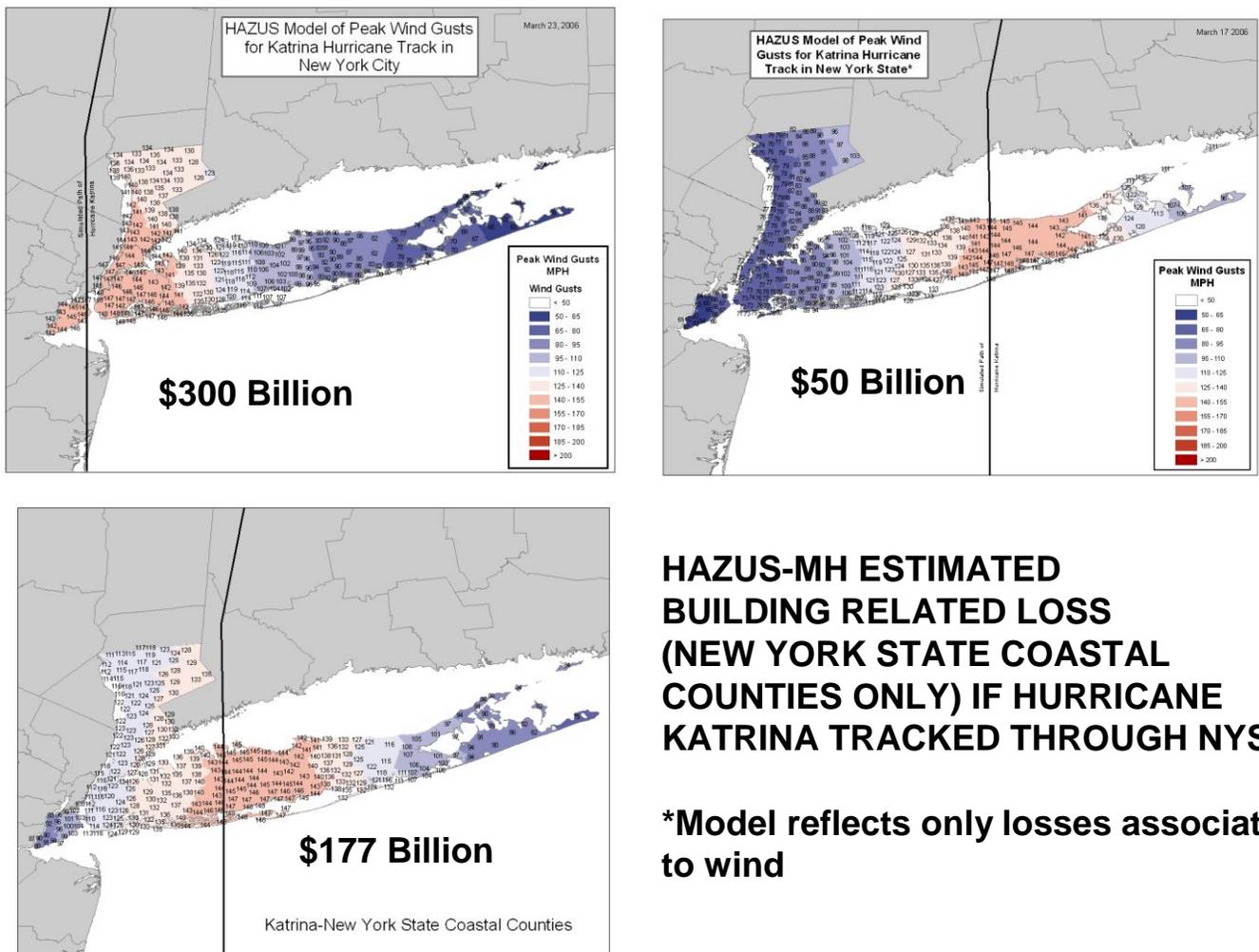
HURRICANE DATA

Figure A.3-52 The following Hazus scenario was extracted from the 2011 Hazard Mitigation Plan to demonstrate another modeling method that is capable in Hazus. For the 2014 Hazard Mitigation Plan, this was not repeated because default data is still the same. Rather, another method was demonstrated by selecting annualized loss runs. The inclusion of the data here serves as a resource and to demonstrate the type of analysis that can be done at the local level.

Hurricane Katrina Scenario Tracking Through NYS

The following three figures represent the total building-related loss based on wind loss estimates generated through HAZUS if Hurricane Katrina tracked through New York State. These maps were created by NYSOEM for use as a case study.

Figure A.3-52: Hurricane Katrina Scenario Tracking Through NYS

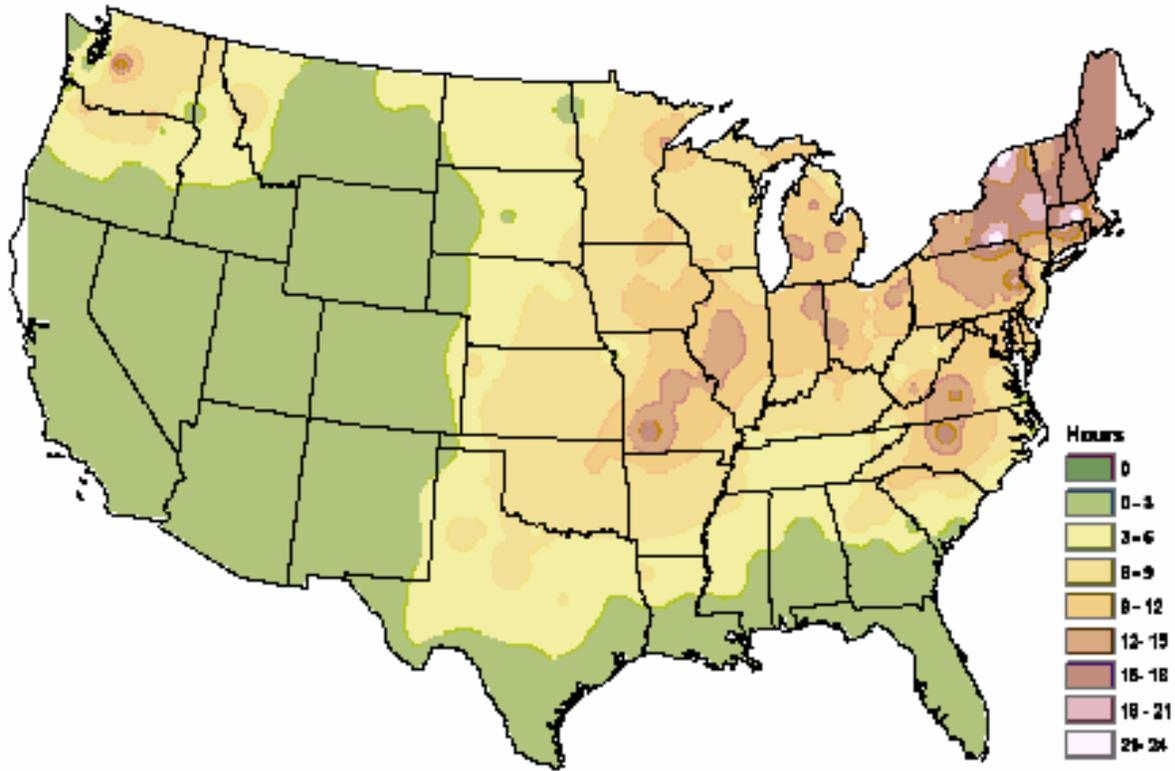


*Model reflects only losses associated to wind



SEVERE WINTER STORM DATA

Figure A.3-53: Average number of hours per year with freezing rain in the United States



Source: "FREEZING RAIN EVENTS IN THE UNITED STATES", National Climatic Data Center, Asheville, North Carolina

EARTHQUAKE DATA

Case Study 1: New York State Earthquake Probability That Factors the Effect of Local Soil

Conditions: Adjusted USGS 0.2 Second Spectral Acceleration (SA) with 2% Probability of Exceedance in 50 Years. (Note: Analysis performed in 2007 and based on USGS 2002 Seismic Hazard Map)

The USGS Seismic Hazard Maps (<http://earthquake.usgs.gov/research/hazmaps/>) provide the USGS's best estimate of the probability of earthquakes expressed in terms of "Peak Ground Acceleration" and "Spectral Acceleration" (spectral acceleration is used as a better indicator of damage to specific buildings types and heights). As these maps cover the entire United States, it has not been possible for the USGS to tailor these maps to reflect the affect of local soil conditions in amplifying seismic waves on a national scale. Consequently, the USGS uses an average (NEHRP B-C) soil condition that is applied throughout.

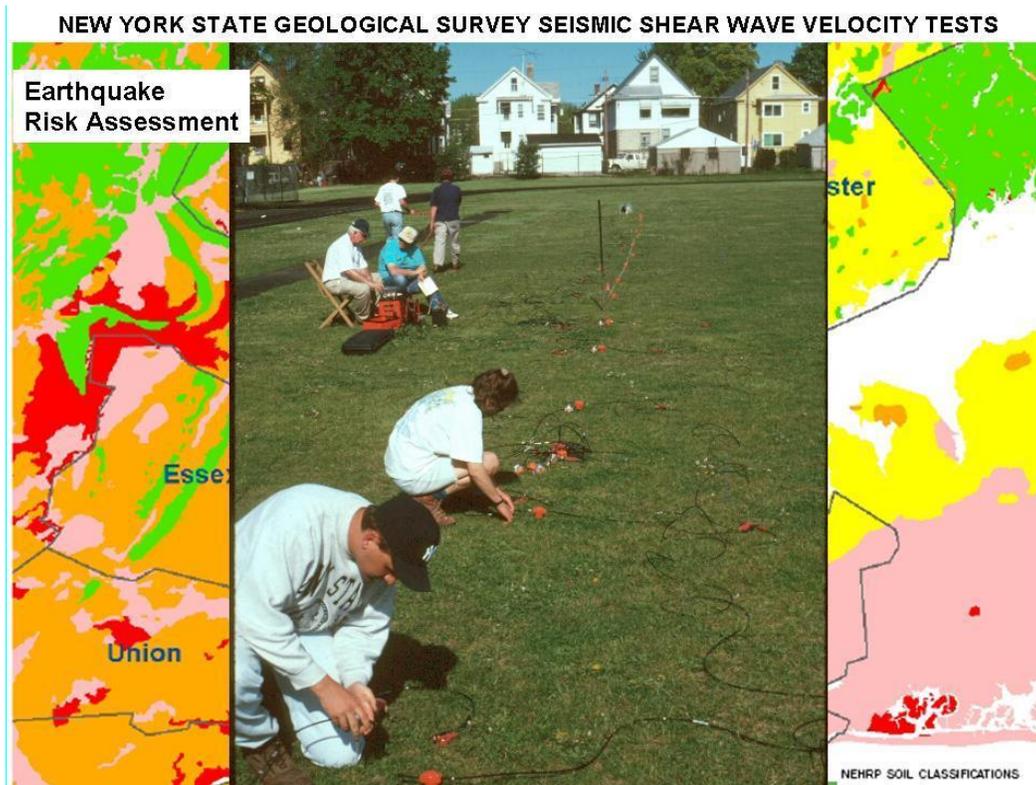
The affect of local soil conditions on seismic waves and the resulting level of damage can be significant. In certain cases, it can more than double accelerations due to wave amplifications than shown on the baseline USGS maps. As a result, a first inspection of the USGS maps used to determine the earthquake hazard in one's locale can be misleading if this is not understood.

Seismic waves propagate out from the earthquake epicenter and travel outward through the bedrock up into the soil layers. As the waves move into the soils, the speed or velocity of the waves is affected by how stiff or soft the soil is. Generally, in a stiff or "hard" soil, the wave will travel at a higher velocity. In the case of "soft" soils, the wave will slow, traveling at lower velocities. When the wave is slowed, the seismic energy is modified, resulting into a wave with greater amplitude. This amplification results in greater earthquake damage.

While the USGS has not conducted seismic micro hazard zonation studies throughout the U.S. enabling it to provide locally specific hazard maps, the New York State Geological Survey has conducted seismic shear-wave tests of the State's surficial geology (glacial deposits). These studies measure the velocity of a wave through representative surficial geologic materials. Tests were run in various parts of the State to provide an understanding of how the various glacial materials varied from one region to another. In each region, a variety of glacial materials were measured, such as till, glacial lake sands and clays, outwash, etc. The velocity measurements are obtained by a recorder connected to sensors placed at set intervals along the ground. A small blast is generated and the arrival times of the wave are recorded at each sensor. From this information, the velocity of the wave through a particular soil type is determined. See **Figure A.3-54**.



Figure A.3-54: New York State Survey Seismic Shear Wave Velocity Tests



Based on the results of these tests it has been possible to classify the surficial geologic materials according to the National Earthquake Hazard Reduction Program’s Soil Site Classifications. See Figure A.3-55.

Figure A.3-55: National Earthquake Hazard Reduction Program (NEHRP) Soil Site Classifications Assigned to New York State Surficial Geologic Units

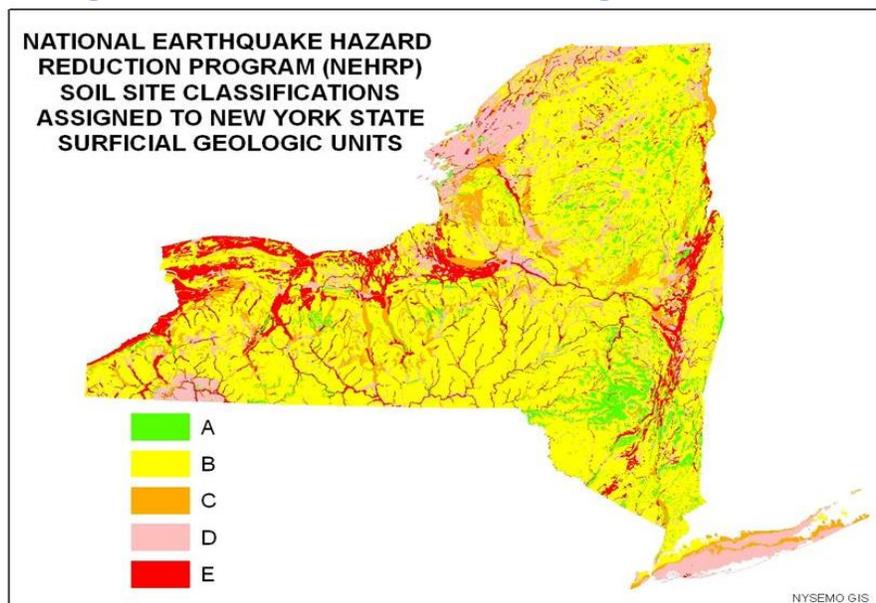


Figure A.3-56: NEHRP Site Class

NEHRP Site Class

Site Classifications taken from Table 1615 1.1 Site Class Definitions published in 2000 International Building code, International Code Council, Inc. on page 350.

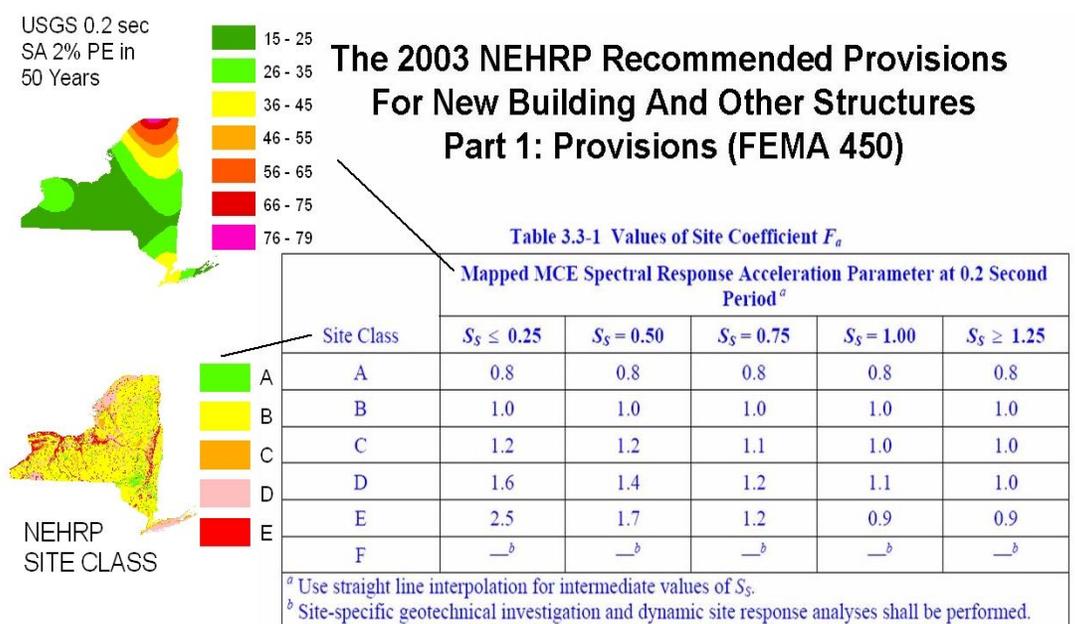
Table 1615 1.1 Site Class Definitions partially reproduced below

Site Class	Soil Profile Name	Average Properties in Top 100 feet (as per 2000 IBC section 1615.1.5) Soil Shear Wave Velocity, V_s	
		Feet/second	Meters/second
A	Hard Rock	$V_s > 5000$	$V_s > 1524$
B	Rock	$2500 < V_s \leq 5000$	$762 < V_s \leq 1524$
C	Very dense soil and soft rock	$1200 < V_s \leq 2500$	$366 < V_s \leq 762$
D	Stiff soil profile	$600 < V_s \leq 1200$	$183 < V_s \leq 366$
E	Soft soil profile	$V_s < 600$	$V_s < 183$

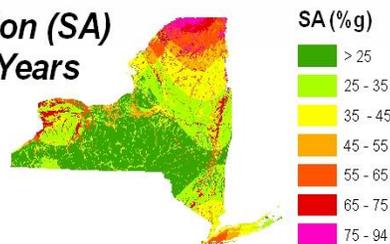
This classification of the State's surficial geologic materials by NEHRP soil site class has enabled the effect of soils to be factored with the USGS seismic hazard maps to give an adjusted, more regionally refined picture, of the State's earthquake hazard based. The level of adjustment to USGS map is based on use of the NEHRP's soil site coefficients for each soil class, which varies according to the USGS mapped accelerations. The reference for the appropriate coefficient is found in "The 2003 NEHRP Recommended Provisions for New Building and Other Structures – Part: Provisions (FEMA 450). These coefficients provide the level of increase or decrease to the USGS's seismic hazard map spectral accelerations. See **Figure A.3-57**.



Figure A.3-57: The 2003 NEHRP Recommended Provisions For New Building and Other Structures



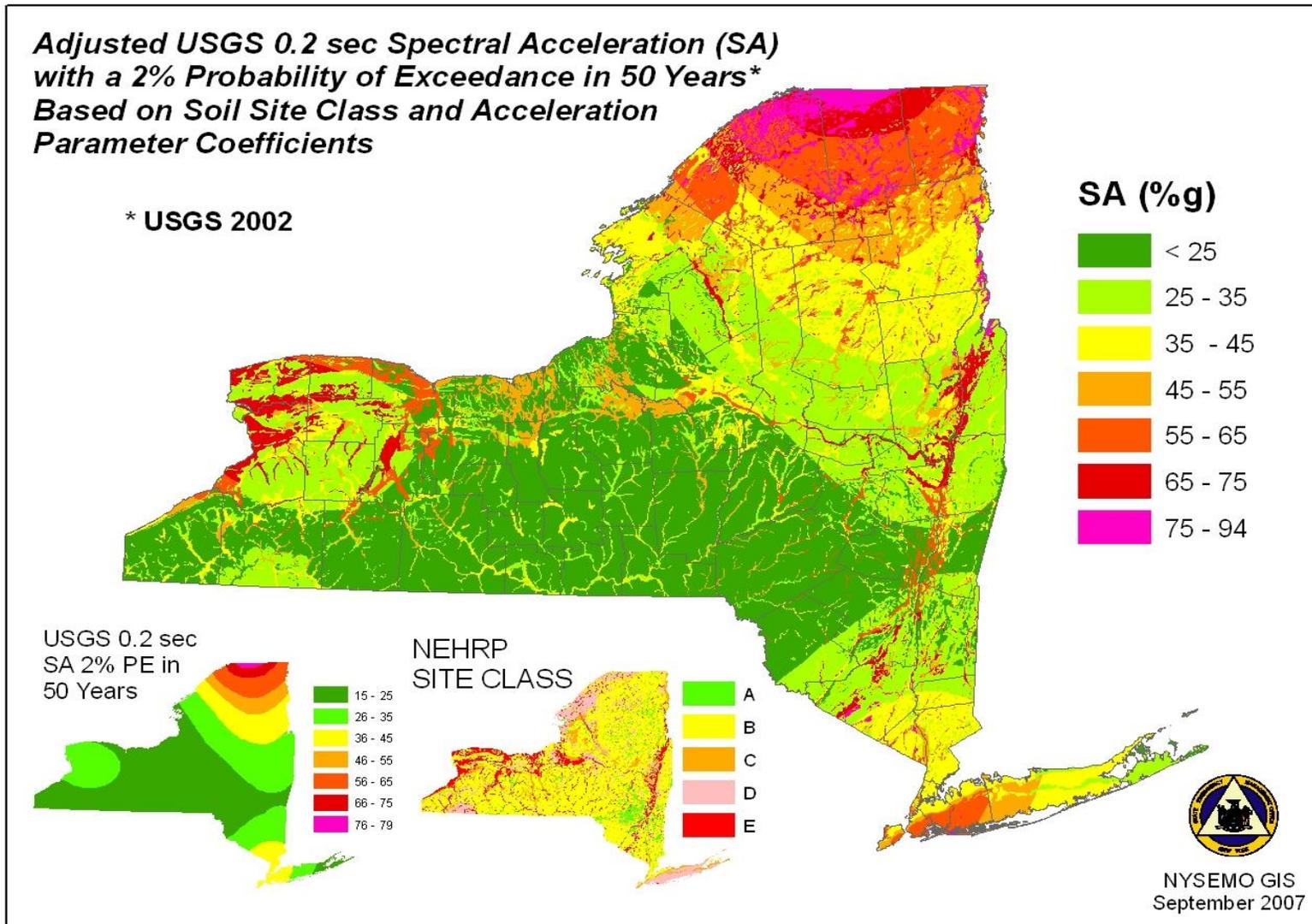
Adjusted USGS 0.2 sec Spectral Acceleration (SA) with a 2% Probability of Exceedance in 50 Years Based on Soil Site Class and Acceleration Parameter Coefficients



A review of the adjusted maps that factor soil conditions will show some areas of the state with a significantly higher hazard than is shown on the USGS map. A special note for building officials, this analysis is to be used for hazard modeling not construction design.



Figure A.3-58: Spectral Acceleration with a 2% Probability of Exceedance in 50-Yrs



The following series of maps were extracted from the 2011 Hazard Mitigation Plan to show county level earthquake hazard adjusted maps that factor soil conditions. For the 2014 Hazard Mitigation Plan, individual county maps were not completed but were updated and aggregated to the state level. The inclusion of the data here serves as a resource for local planning, and to demonstrate the type of analysis that can be done at the local level.

Figure A.3-59: Albany County, NY Adjusted Spectral Acceleration with a 2% Probability of Exceedance in 50-Yrs

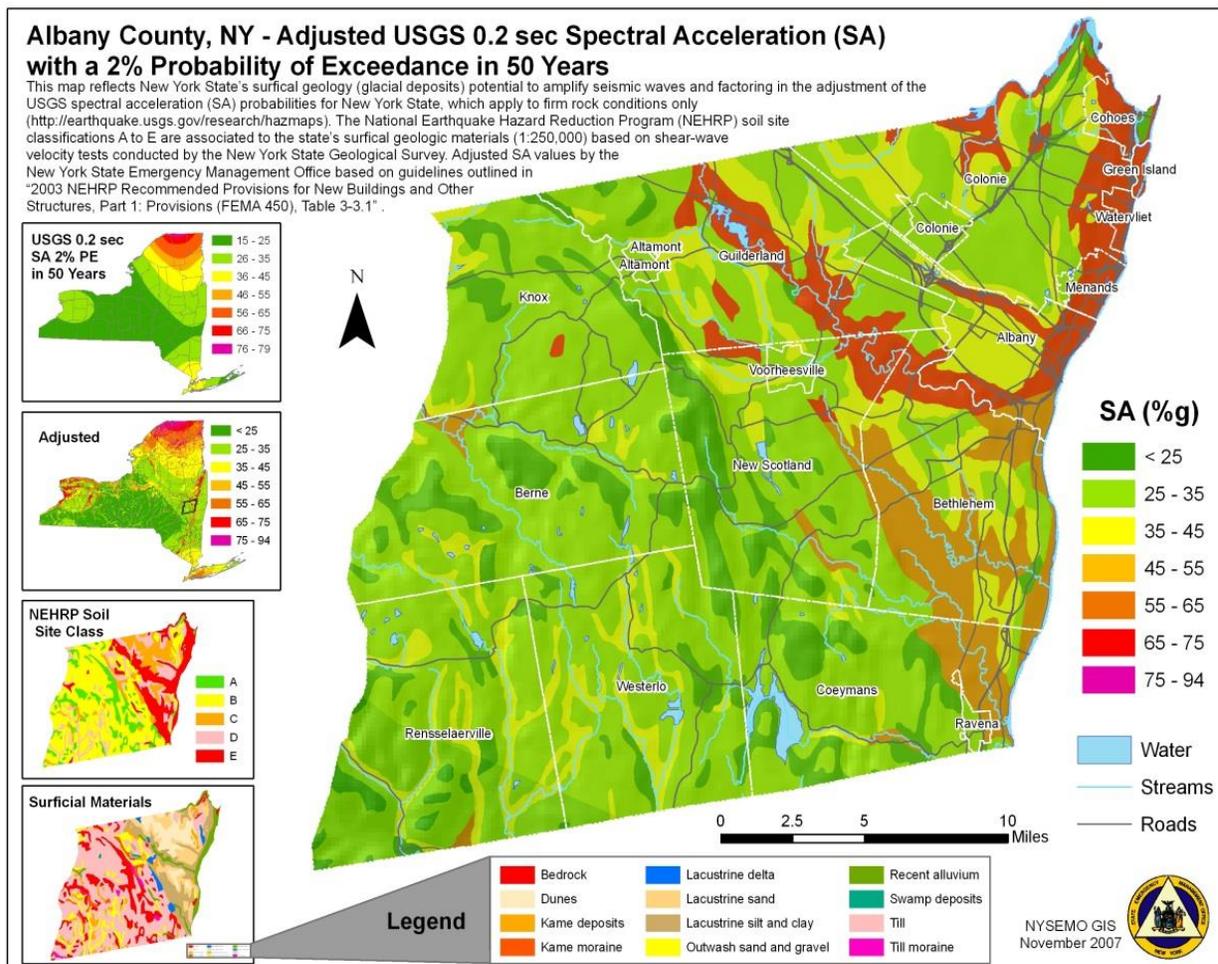


Figure A.3-60: Allegany County, NY Adjusted Spectral Acceleration with a 2% Probability of Exceedance in 50-Yrs

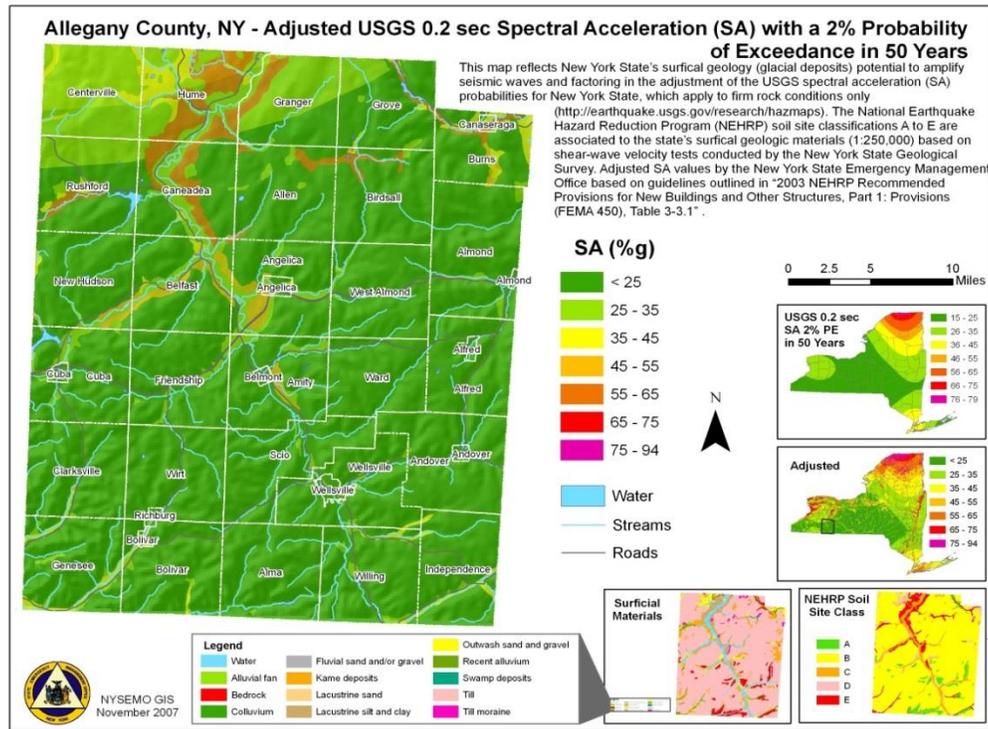


Figure A.3-61: Broome County, NY Adjusted Spectral Acceleration with a 2% Probability of Exceedance in 50-Yrs

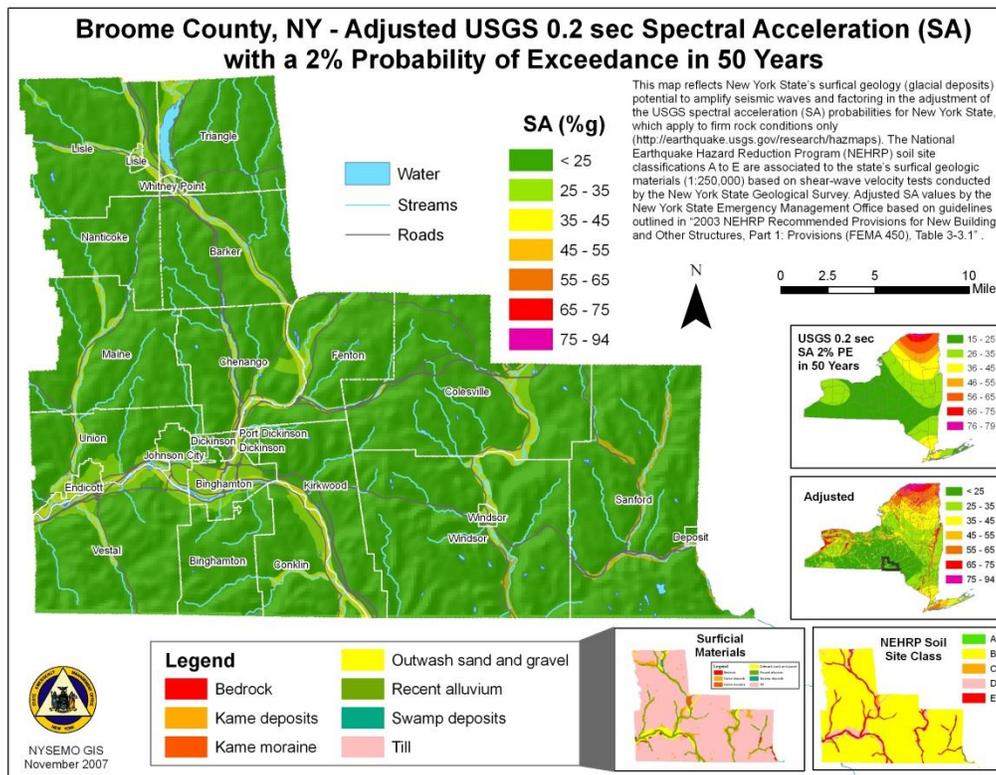


Figure A.3-62: Cattaraugus County, NY Adjusted Spectral Acceleration with a 2% Probability of Exceedance in 50-Yrs

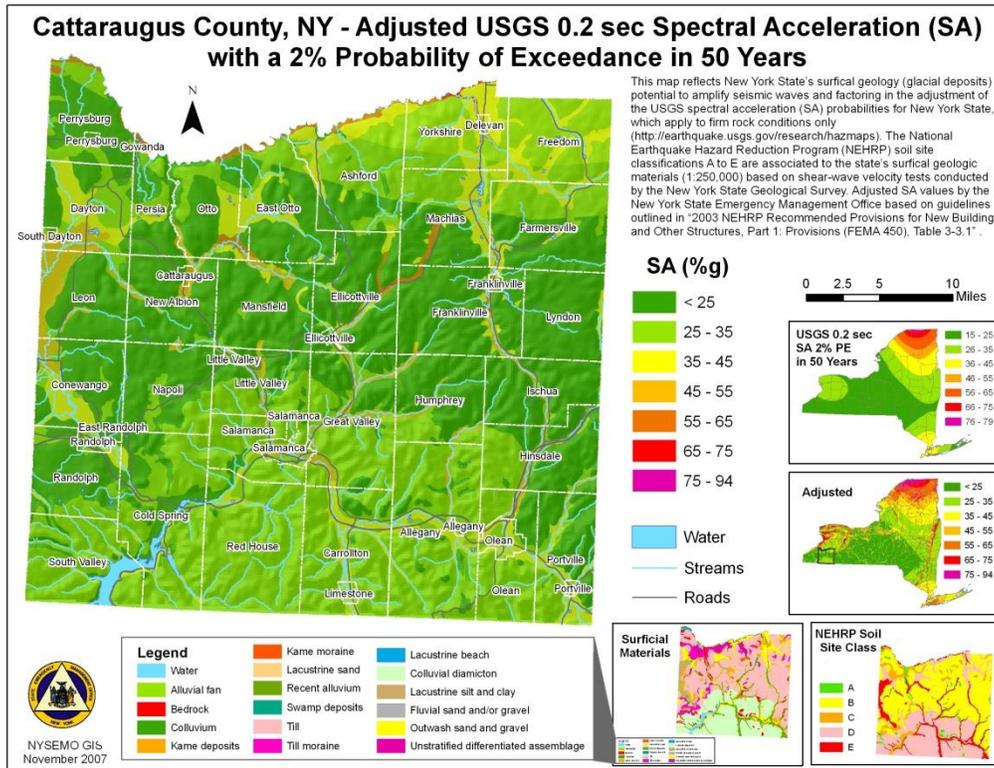


Figure A.3-63: Cayuga County, NY Adjusted Spectral Acceleration with a 2% Probability of Exceedance in 50-Yrs

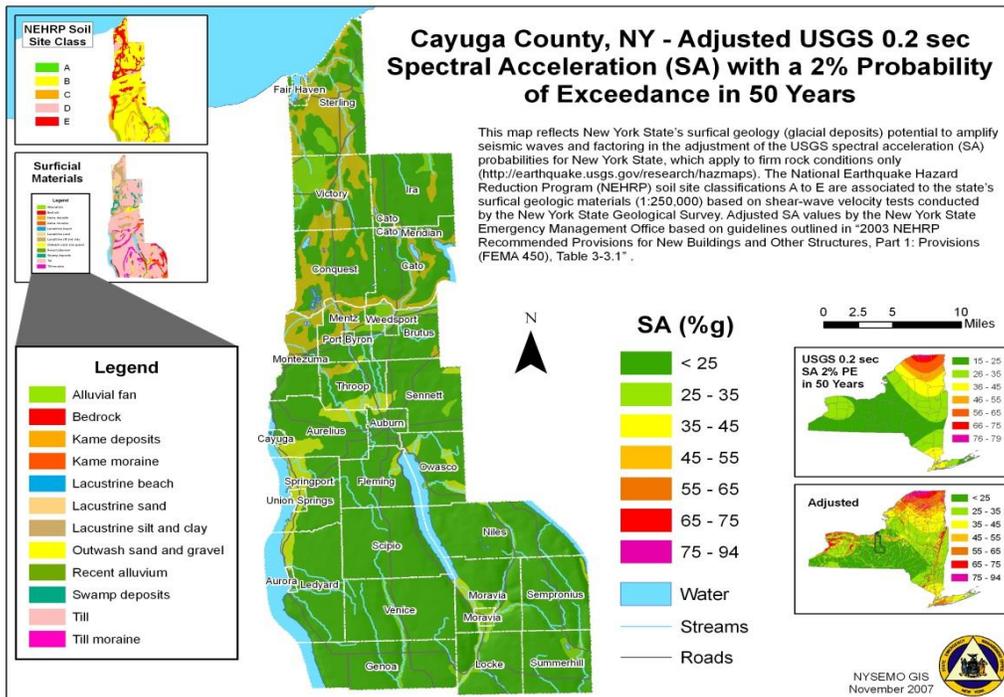


Figure A.3-64: Chautauqua County, NY Adjusted Spectral Acceleration with a 2% Probability of Exceedance in 50-Yrs

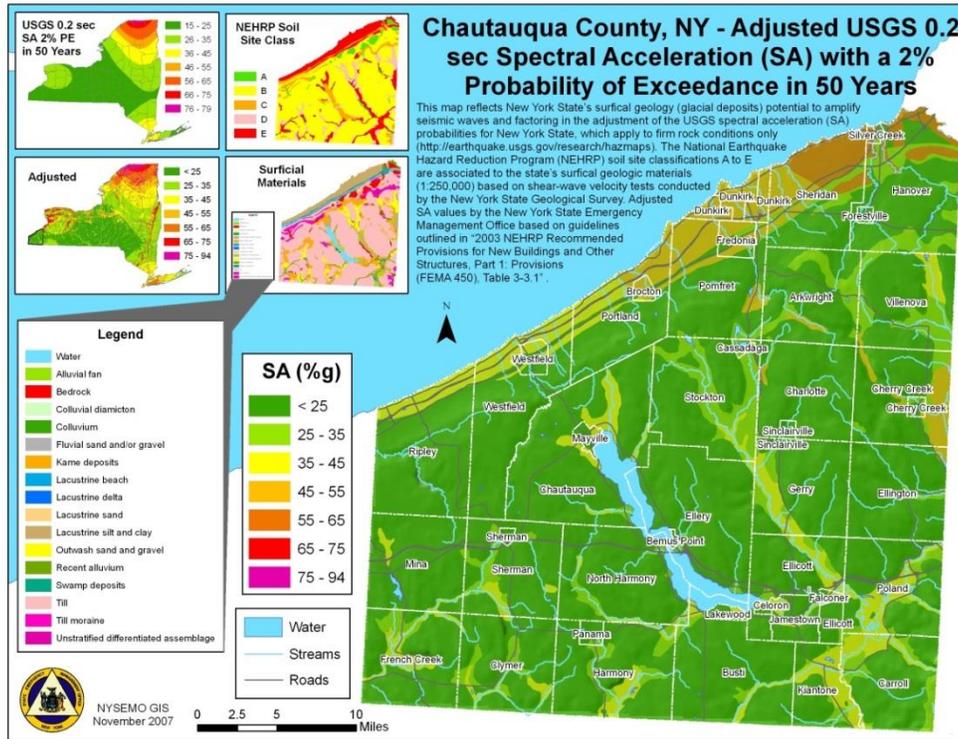


Figure A.3-65: Chemung County, NY Adjusted Spectral Acceleration with a 2% Probability of Exceedance in 50-Yrs

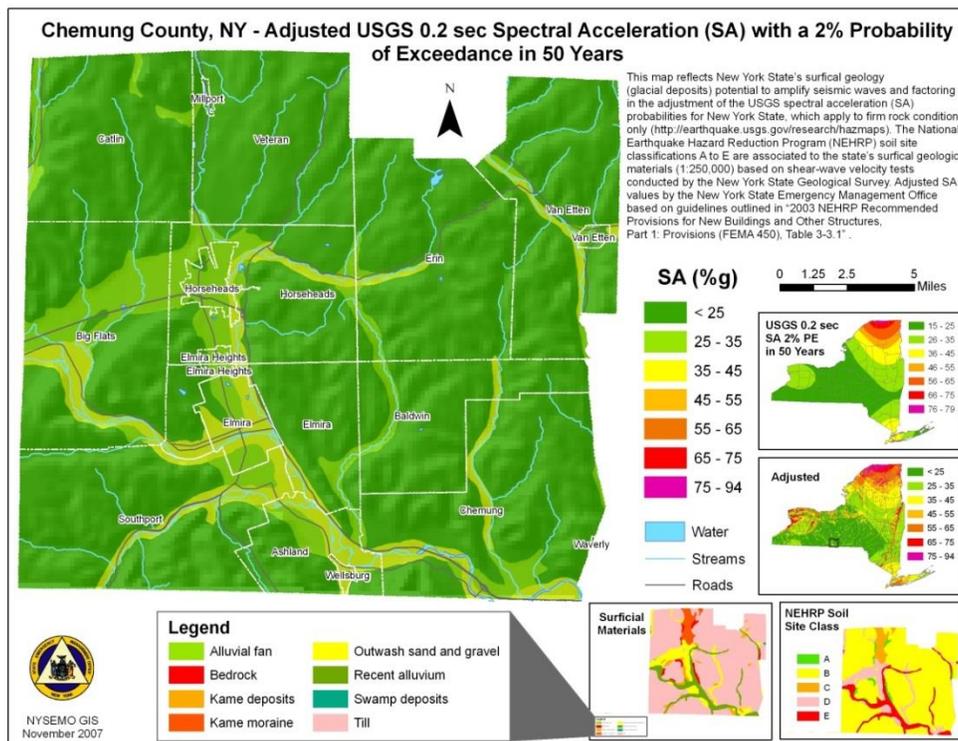


Figure A.3-66: Chenango County, NY Adjusted Spectral Acceleration with a 2% Probability of Exceedance in 50-Yrs

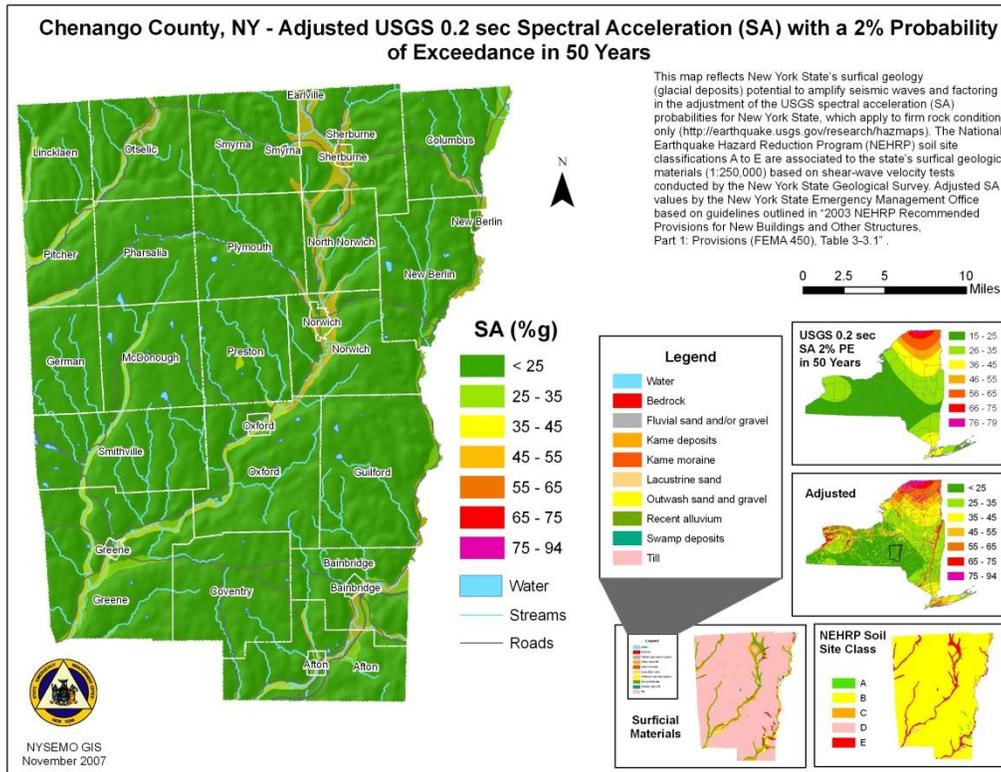


Figure A.3-67: Clinton County, NY Adjusted Spectral Acceleration with a 2% Probability of Exceedance in 50-Yrs

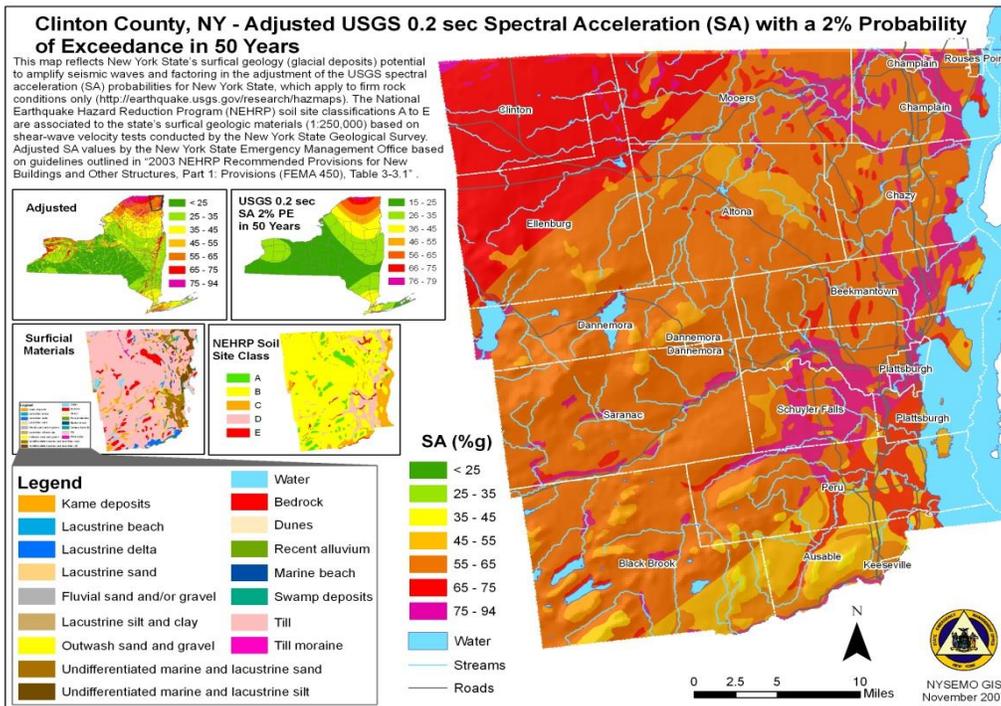


Figure A.3-68: Columbia County, NY Adjusted Spectral Acceleration with a 2% Probability of Exceedance in 50-Yrs

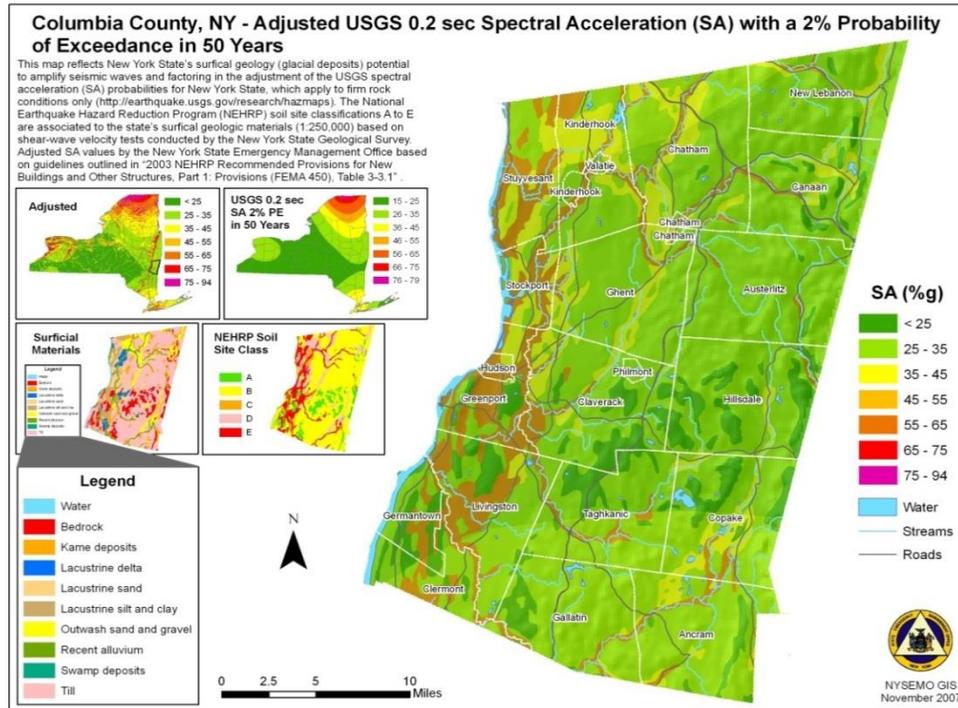


Figure A.3-69: Cortland County, NY Adjusted Spectral Acceleration with a 2% Probability of Exceedance in 50-Yrs

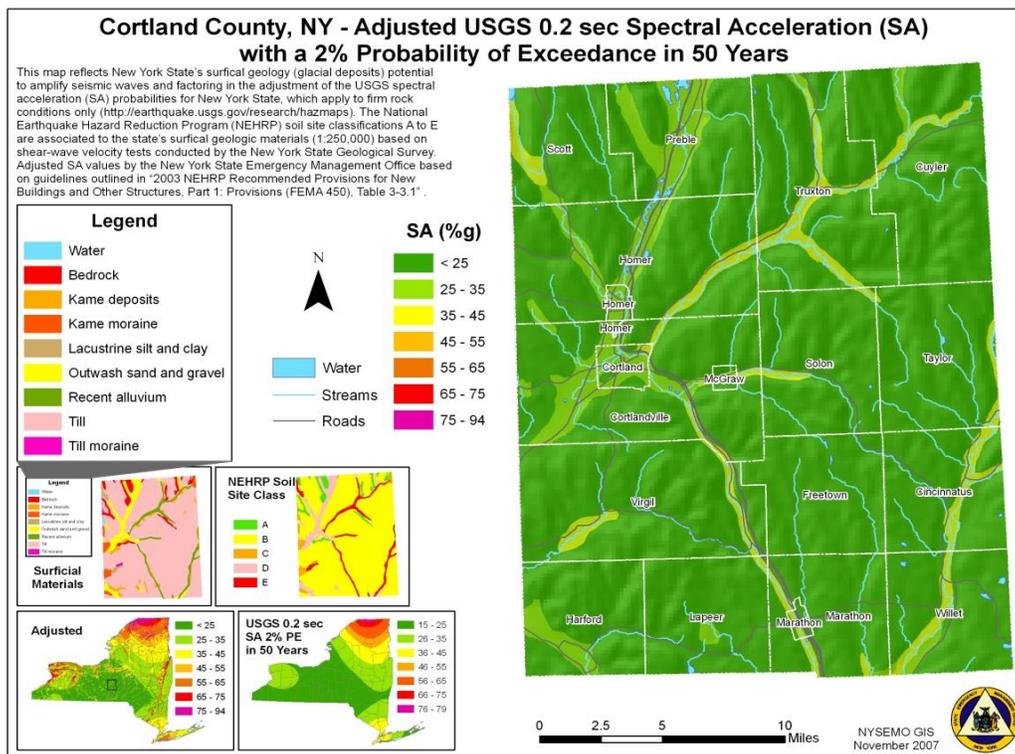


Figure A.3-70: Delaware County, NY Adjusted Spectral Acceleration with a 2% Probability of Exceedance in 50-Yrs

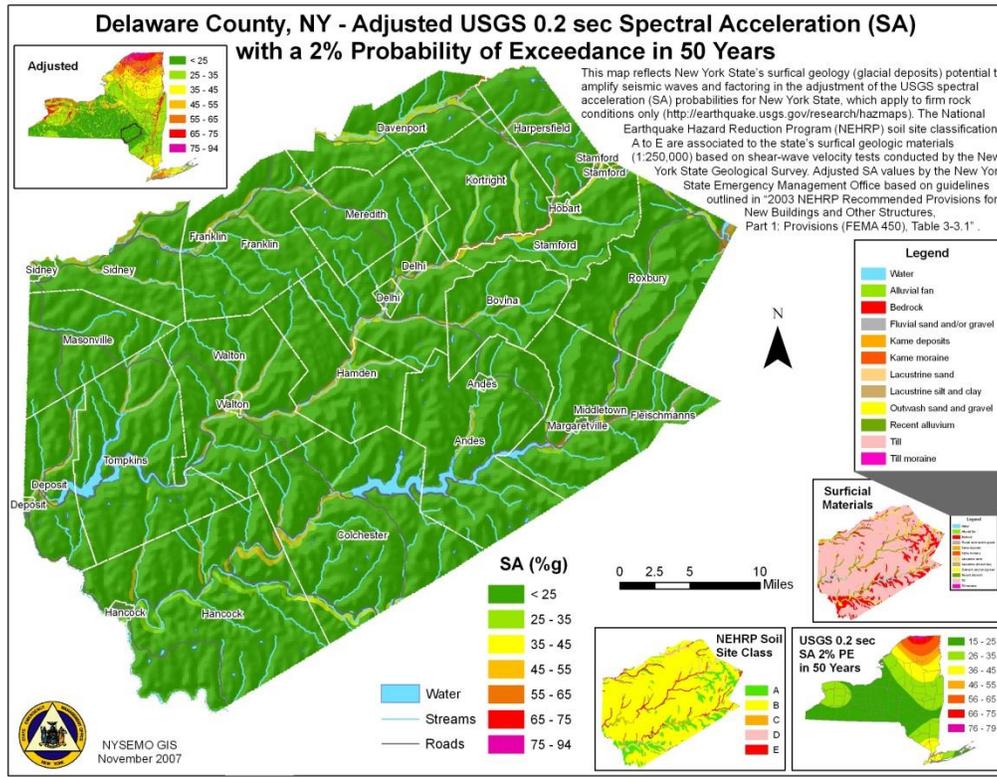


Figure A.3-71: Dutchess County, NY Adjusted Spectral Acceleration with a 2% Probability of Exceedance in 50-Yrs

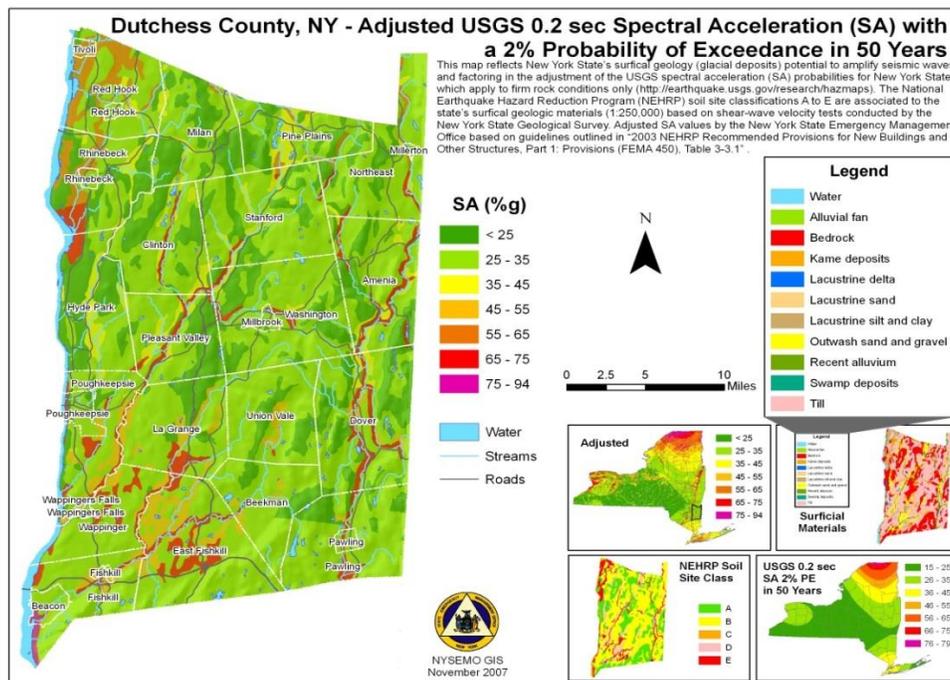


Figure A.3-72: Erie County, NY Adjusted Spectral Acceleration with a 2% Probability of Exceedance in 50-Yrs

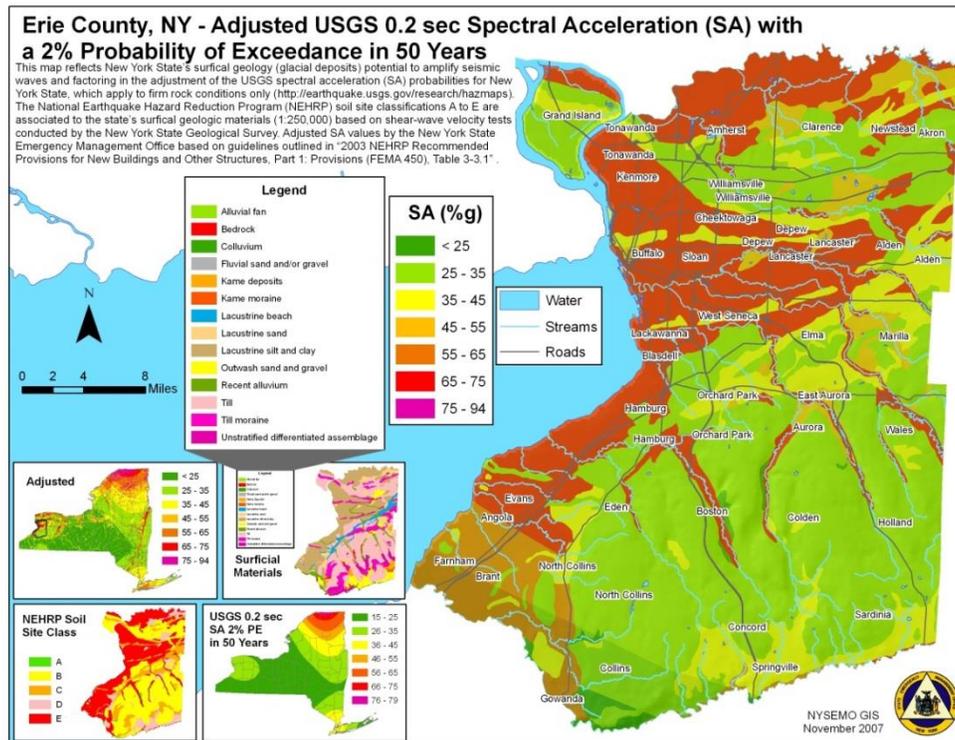


Figure A.3-73: Essex County, NY Adjusted Spectral Acceleration with a 2% Probability of Exceedance in 50-Yrs

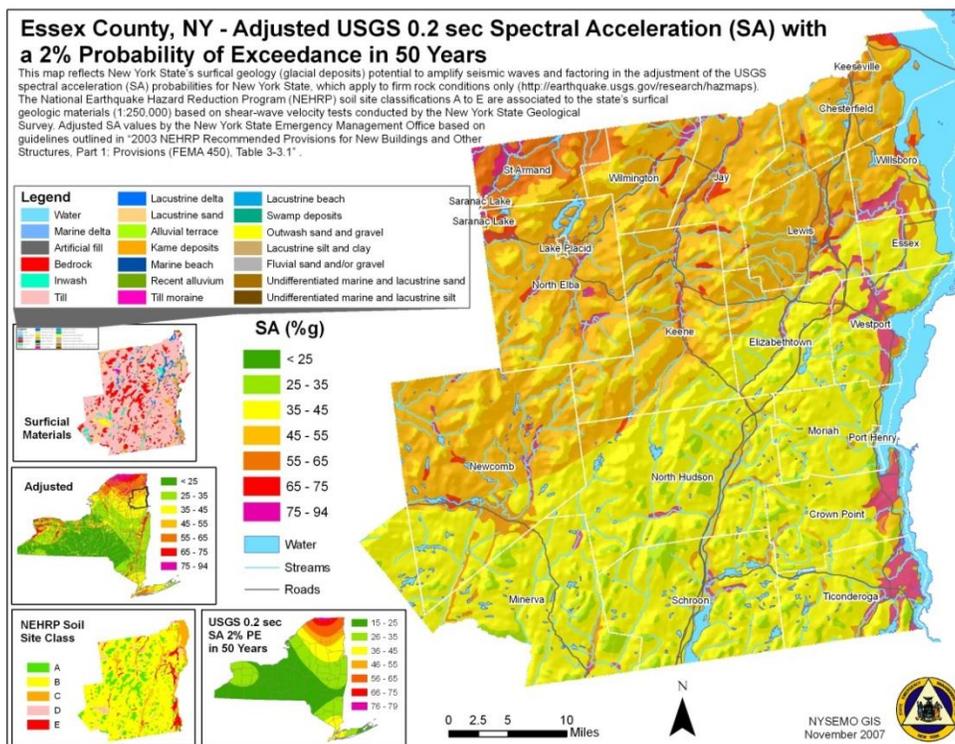


Figure A.3-74: Franklin County, NY Adjusted Spectral Acceleration with a 2% Probability of Exceedance in 50-Yrs

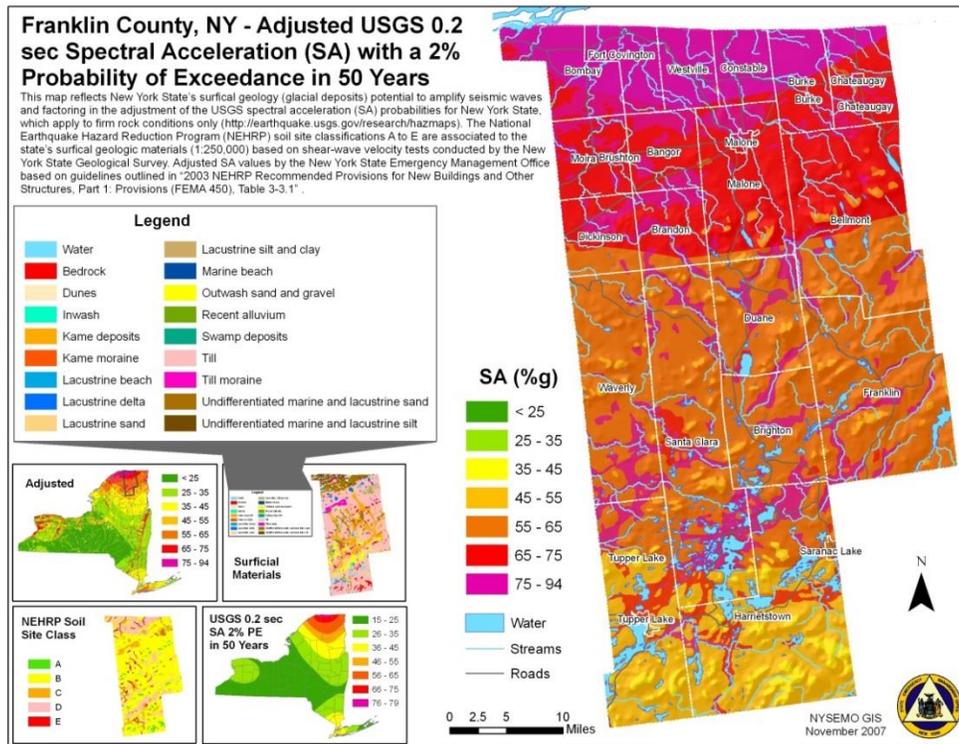


Figure A.3-75: Fulton County, NY Adjusted Spectral Acceleration with a 2% Probability of Exceedance in 50-Yrs

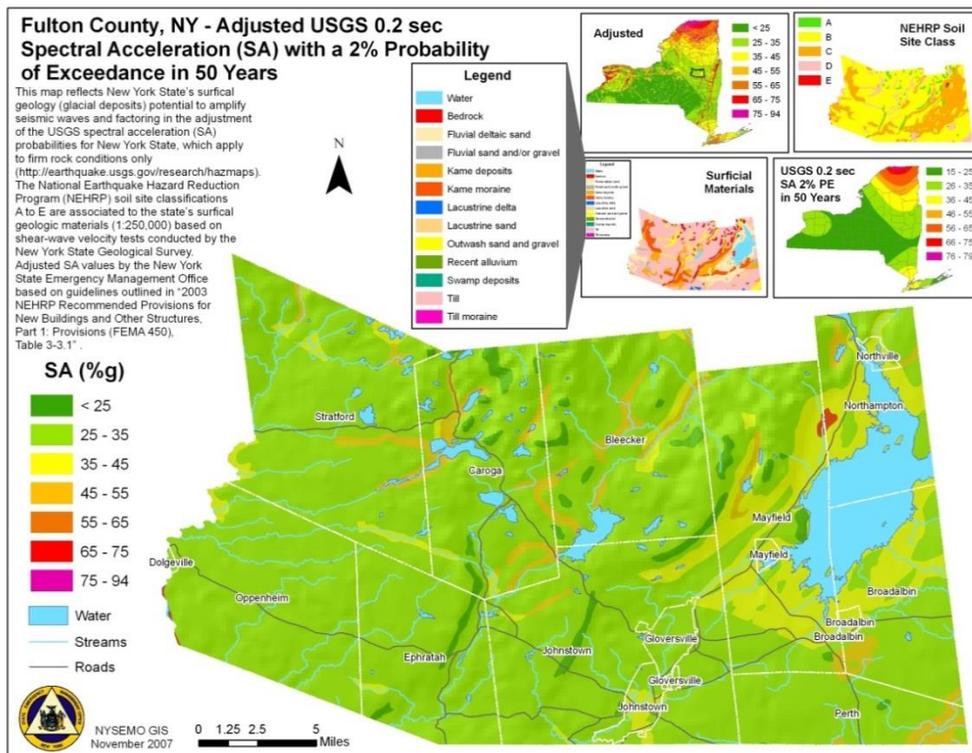


Figure A.3-76: Genesee County, NY Adjusted Spectral Acceleration with a 2% Probability of Exceedance in 50-Yrs

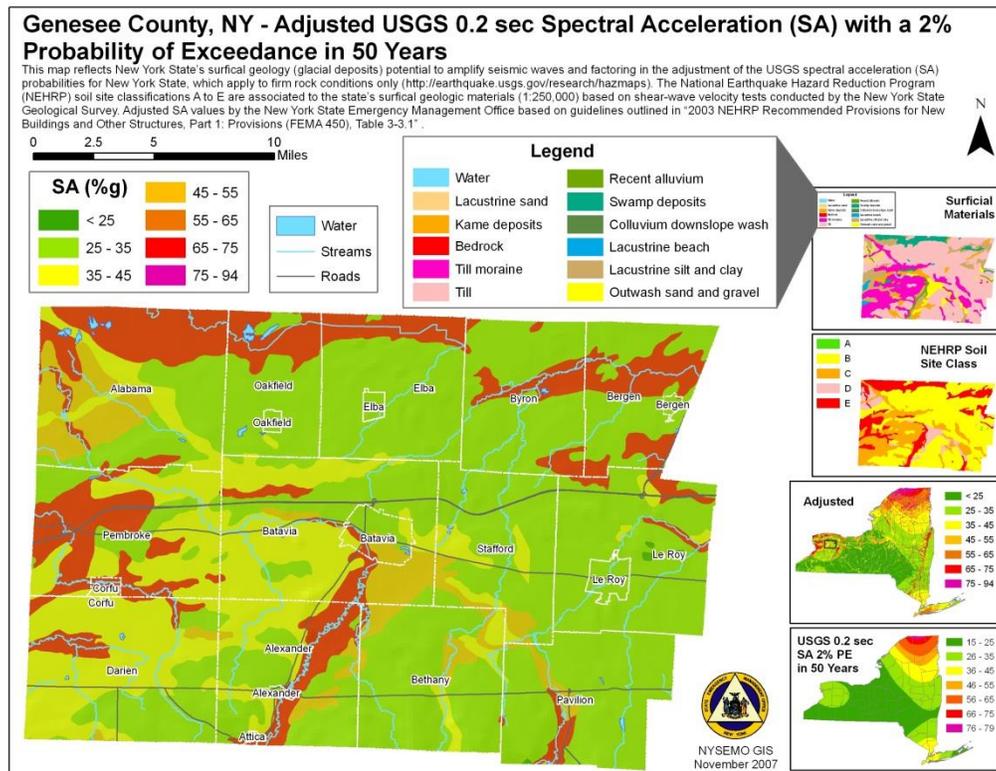


Figure A.3-77: Greene County, NY Adjusted Spectral Acceleration with a 2% Probability of Exceedance in 50-Yrs

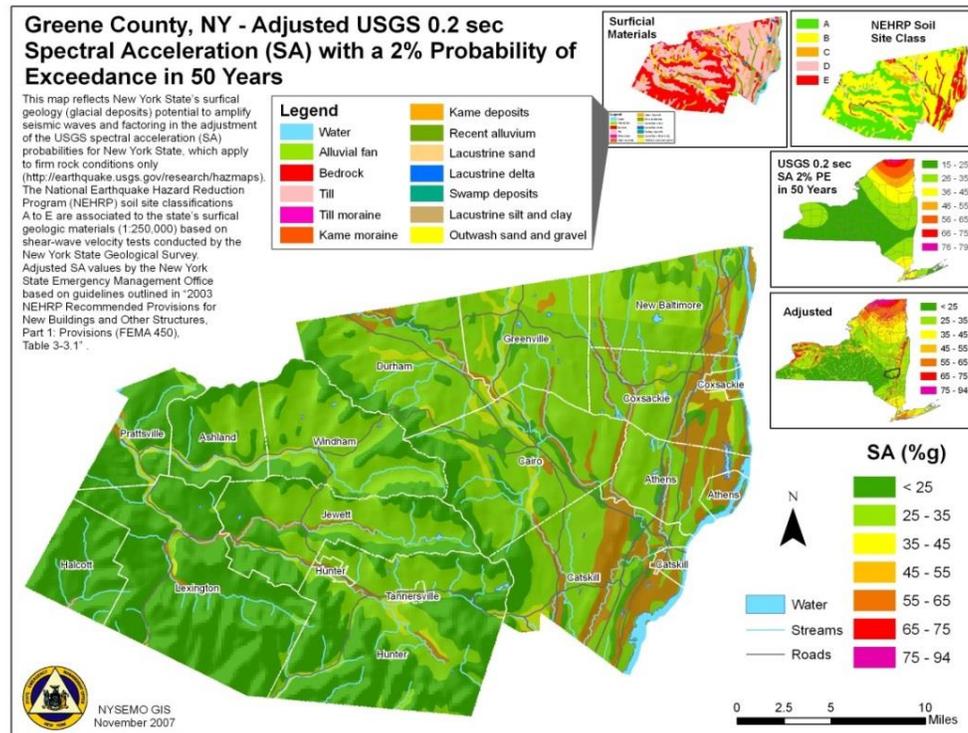


Figure A.3-78: Hamilton County, NY Adjusted Spectral Acceleration with a 2% Probability of Exceedance in 50-Yrs

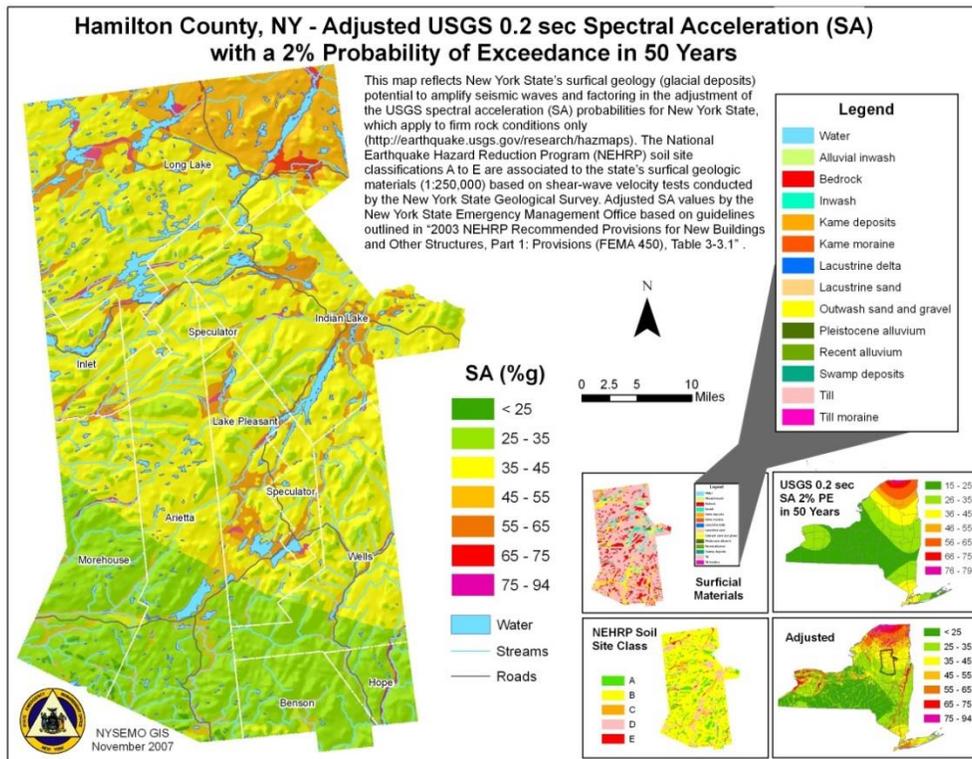


Figure A.3-79: Herkimer County, NY Adjusted Spectral Acceleration with a 2% Probability of Exceedance in 50-Yrs

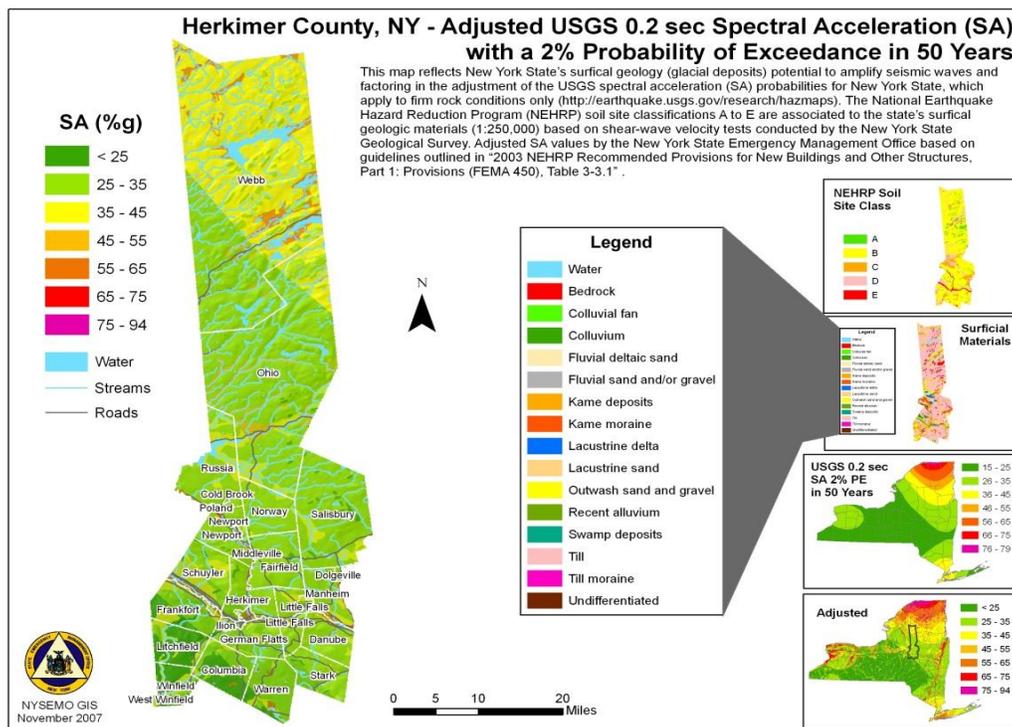


Figure A.3-80: Jefferson County, NY Adjusted Spectral Acceleration with a 2% Probability of Exceedance in 50-Yrs

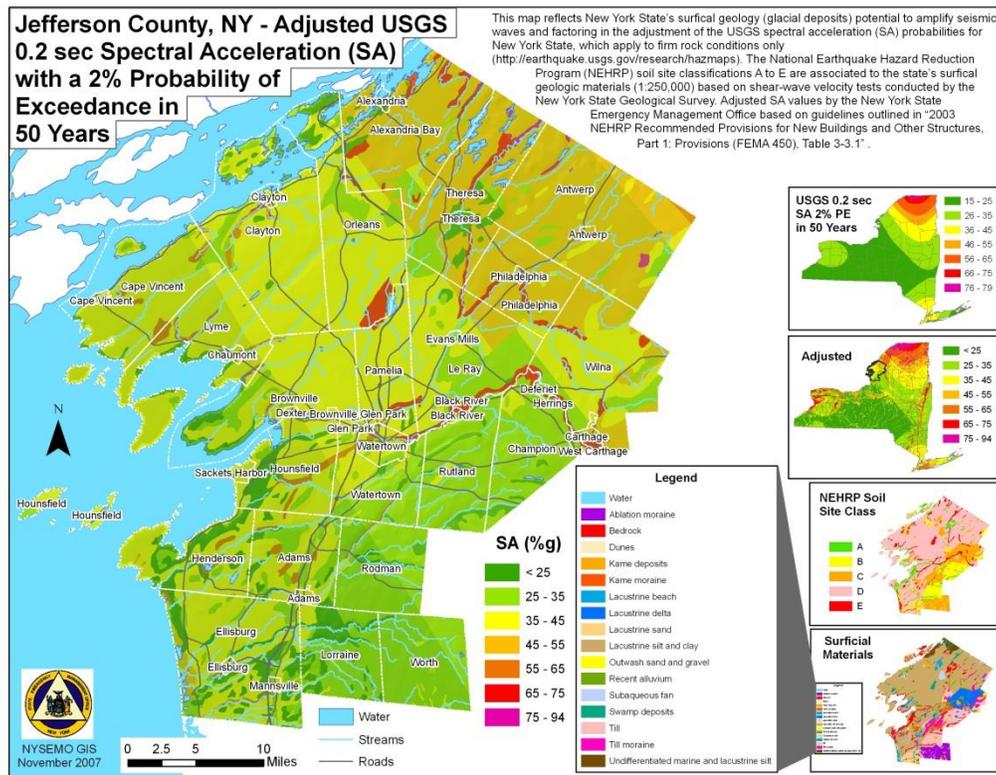


Figure A.3-81: Lewis County, NY Adjusted Spectral Acceleration with a 2% Probability of Exceedance in 50-Yrs

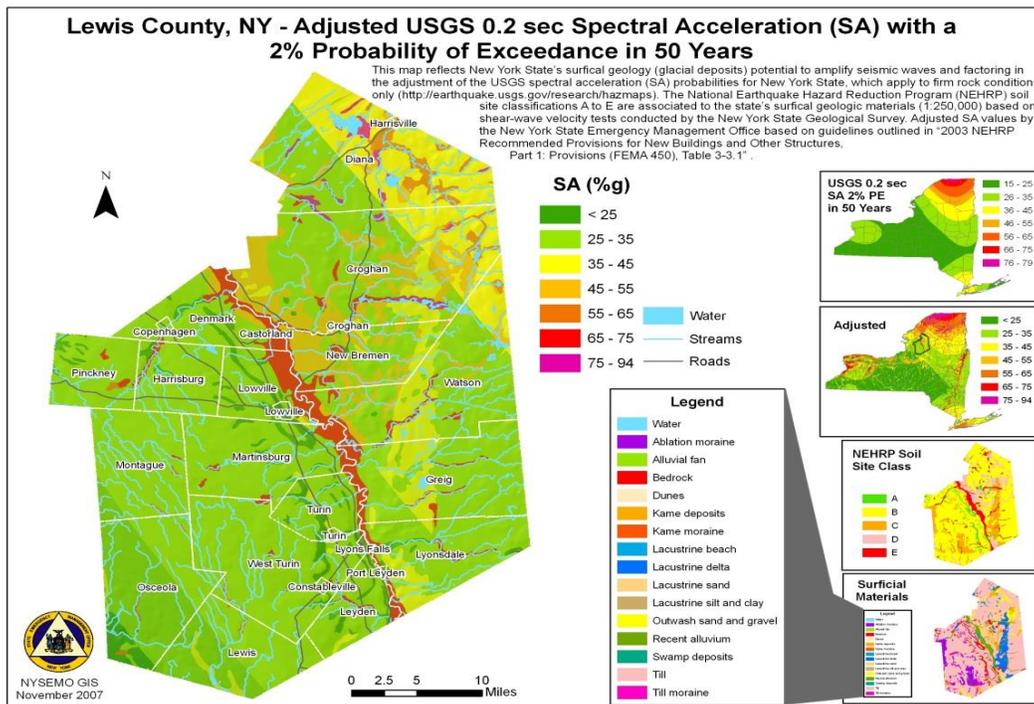


Figure A.3-82: Livingston County, NY Adjusted Spectral Acceleration with a 2% Probability of Exceedance in 50-Yrs

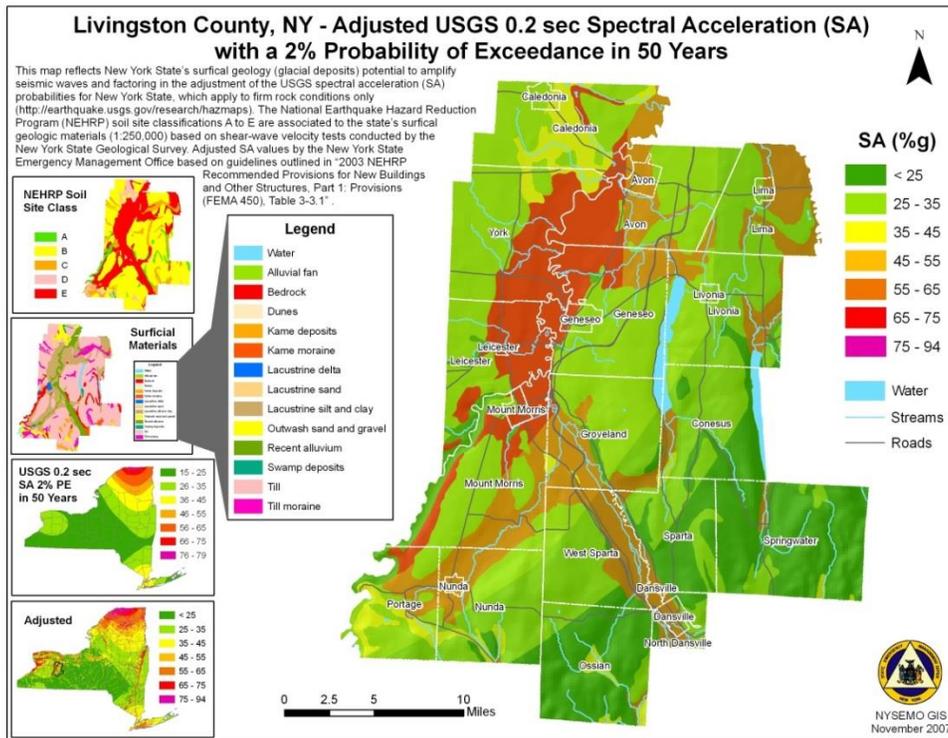


Figure A.3-83: Madison County, NY Adjusted Spectral Acceleration with a 2% Probability of Exceedance in 50-Yrs

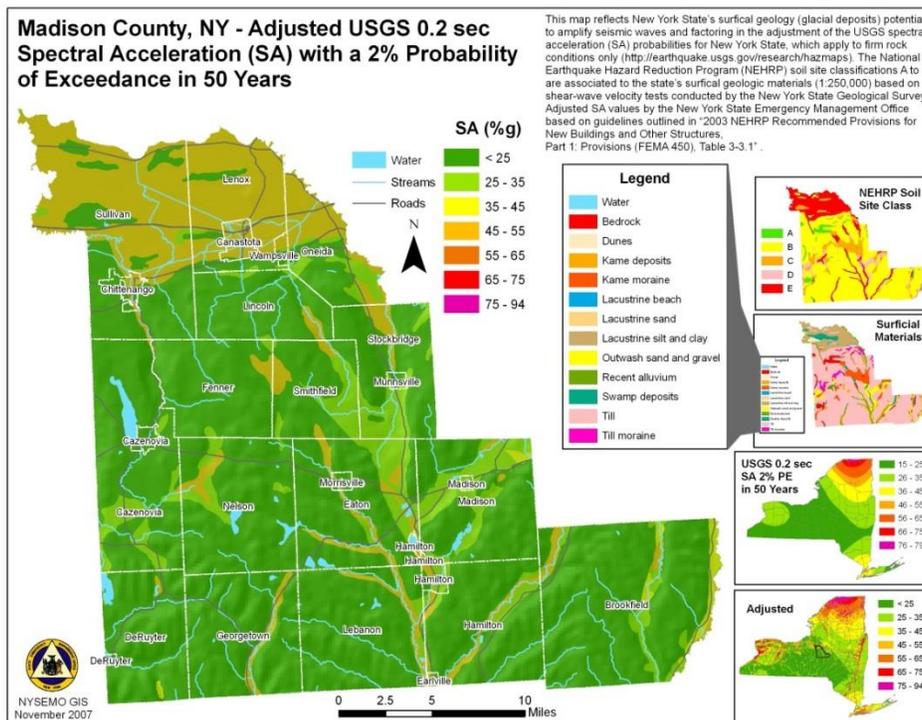


Figure A.3-84: Monroe County, NY Adjusted Spectral Acceleration with a 2% Probability of Exceedance in 50-Yrs

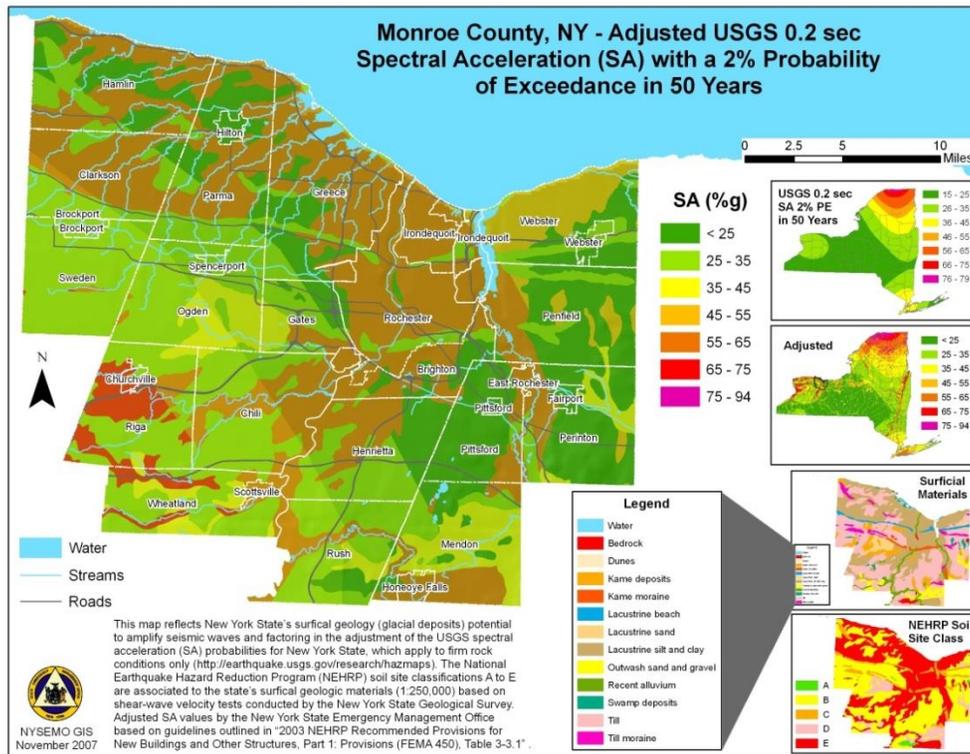


Figure A.3-85: Montgomery County, NY Adjusted Spectral Acceleration with a 2% Probability of Exceedance in 50-Yrs

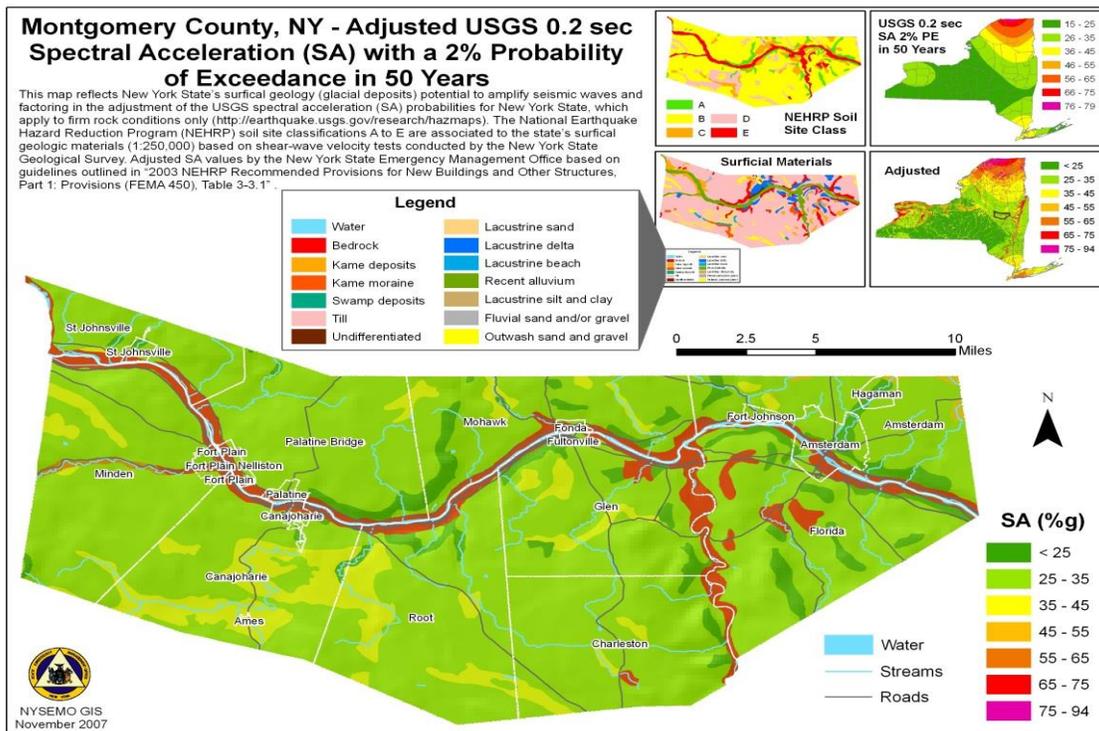


Figure A.3-86: Nassau County, NY Adjusted Spectral Acceleration with a 2% Probability of Exceedance in 50-Yrs

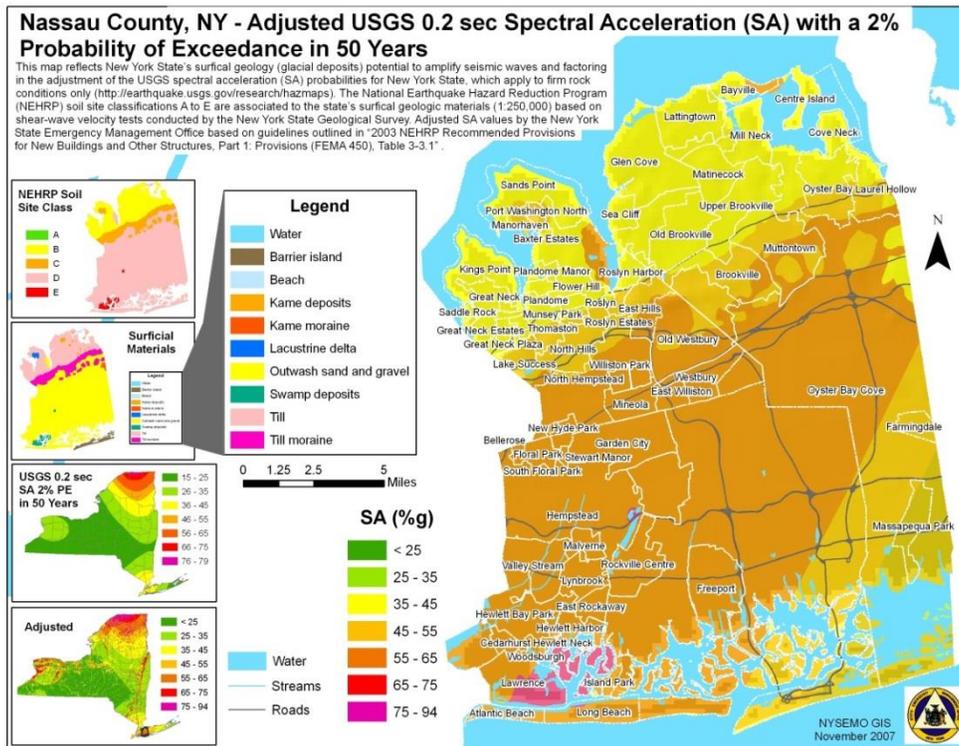


Figure A.3-87: New York City, NY Adjusted Spectral Acceleration with a 2% Probability of Exceedance in 50-Yrs

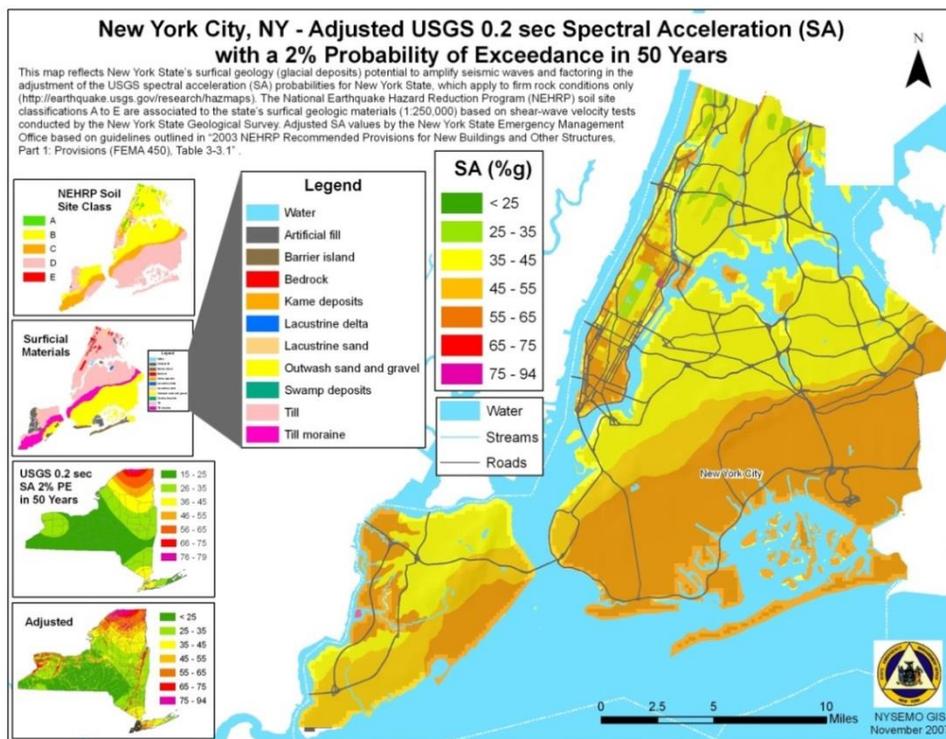


Figure A.3-88: Niagara County, NY Adjusted Spectral Acceleration with a 2% Probability of Exceedance in 50-Yrs

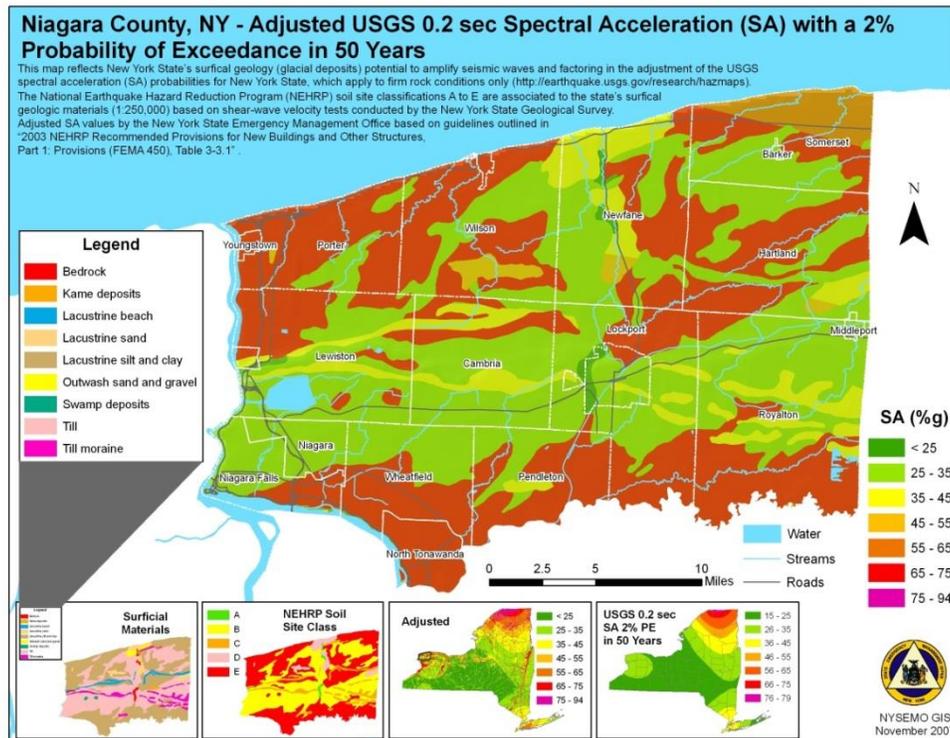


Figure A.3-89: Oneida County, NY Adjusted Spectral Acceleration with a 2% Probability of Exceedance in 50-Yrs

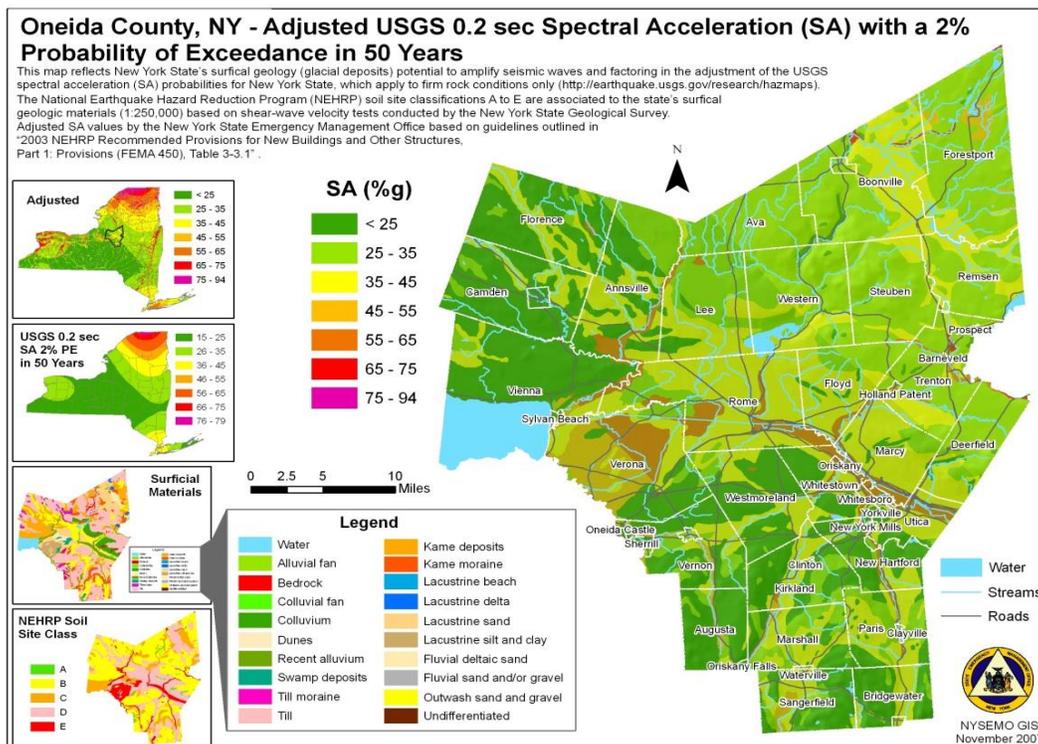


Figure A.3-90: Onondaga County, NY Adjusted Spectral Acceleration with a 2% Probability of Exceedance in 50-Yrs

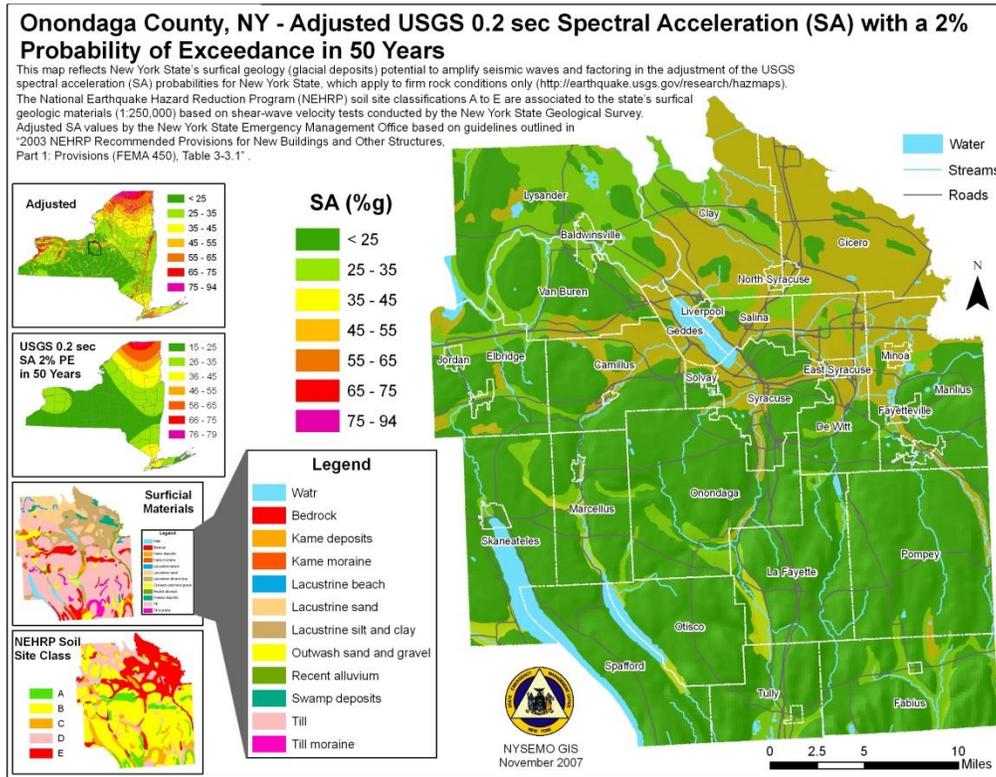


Figure A.3-91: Ontario County, NY Adjusted Spectral Acceleration with a 2% Probability of Exceedance in 50-Yrs

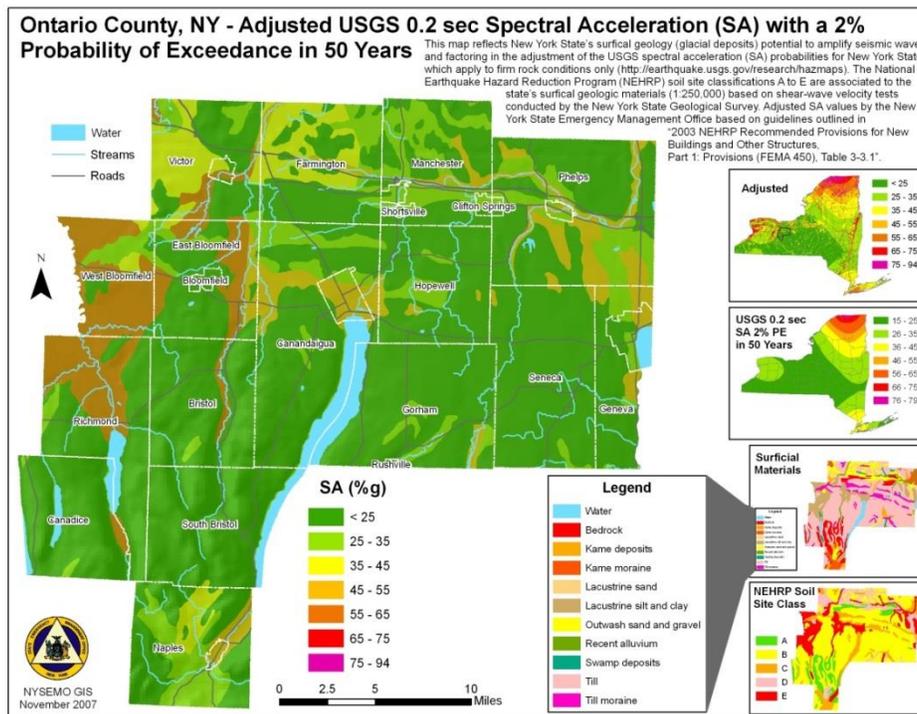


Figure A.3-92: Orange County, NY Adjusted Spectral Acceleration with a 2% Probability of Exceedance in 50-Yrs

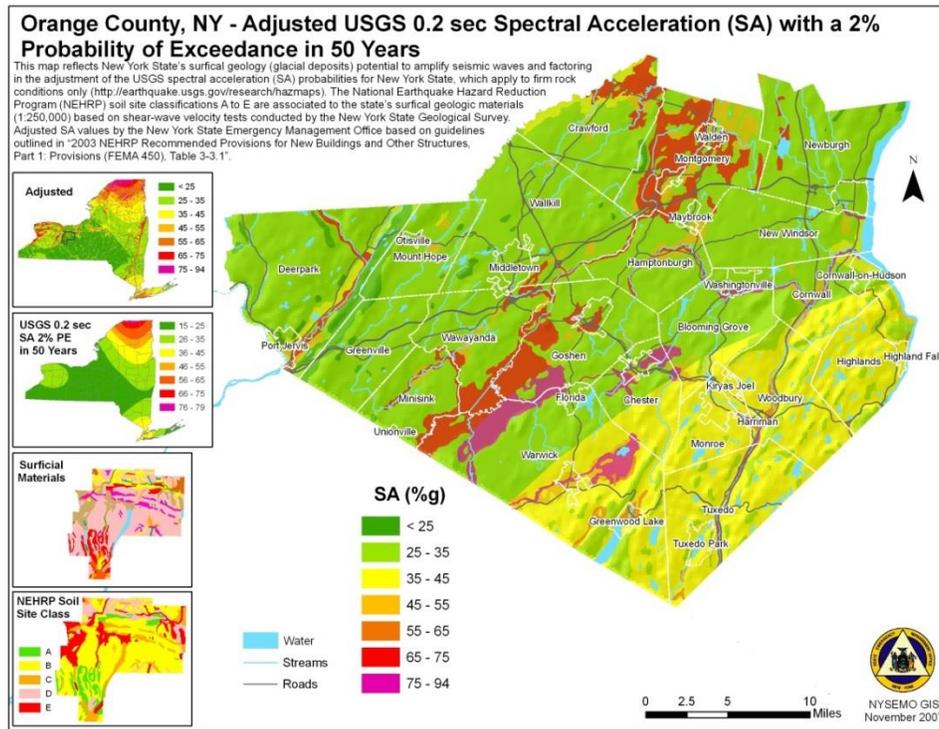


Figure A.3-93: Orleans County, NY Adjusted Spectral Acceleration with a 2% Probability of Exceedance in 50-Yrs

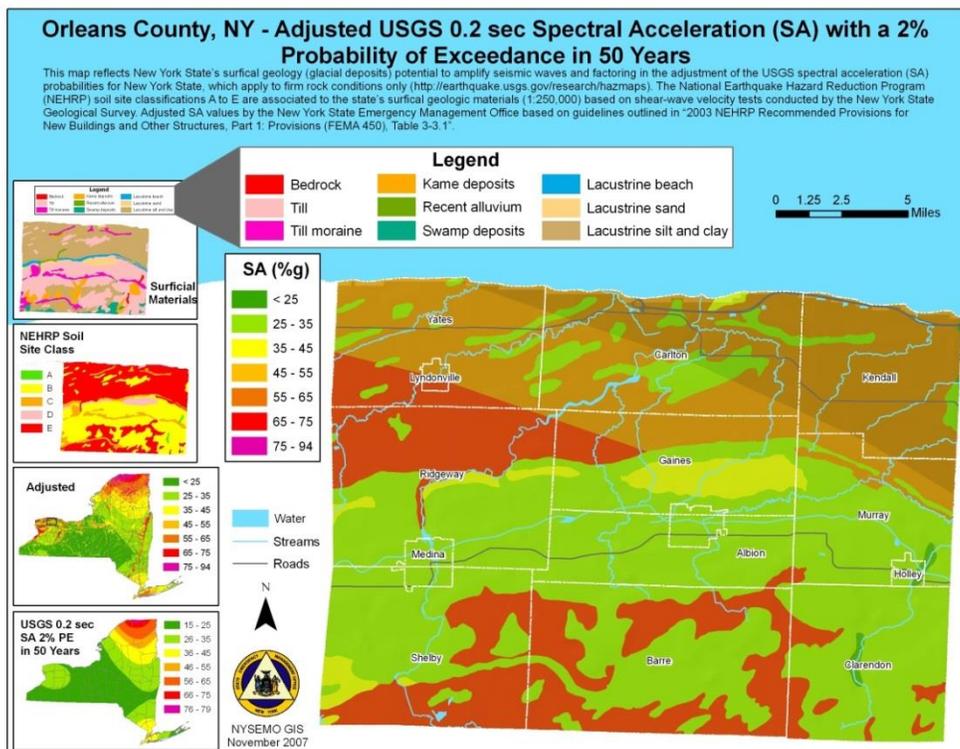


Figure A.3-94: Oswego County, NY Adjusted Spectral Acceleration with a 2% Probability of Exceedance in 50-Yrs

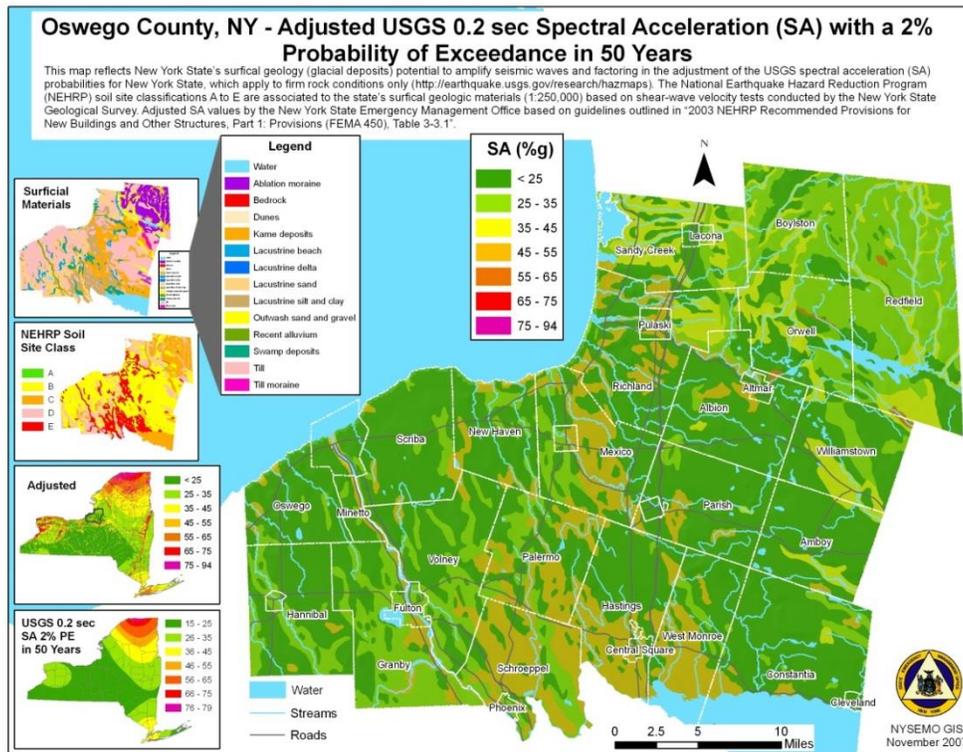


Figure A.3-95: Otsego County, NY Adjusted Spectral Acceleration with a 2% Probability of Exceedance in 50-Yrs

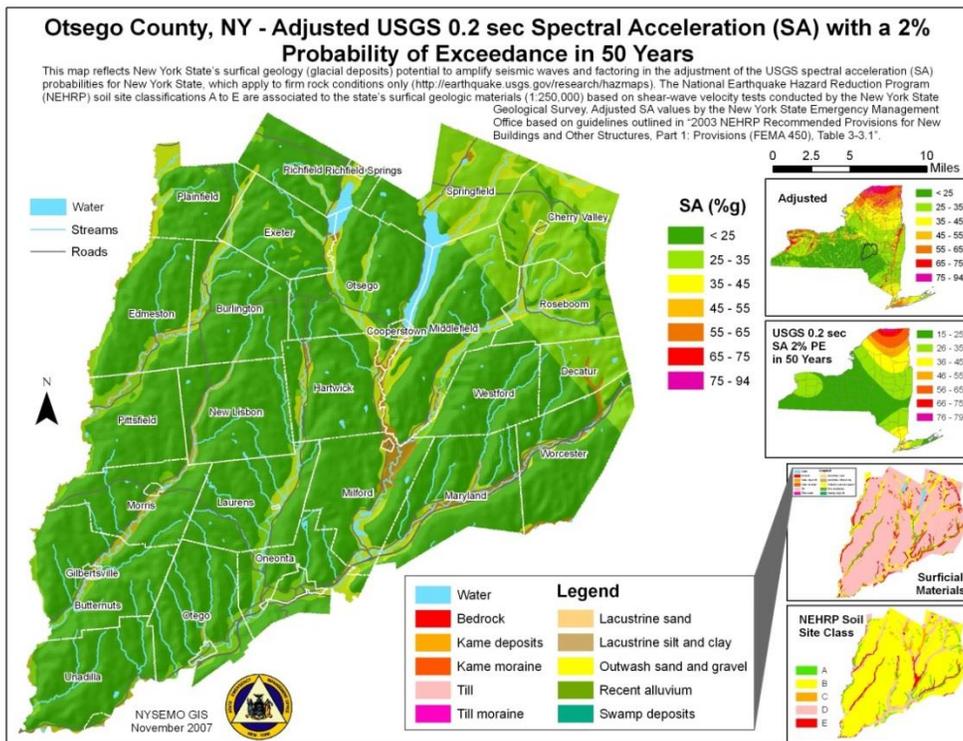


Figure A.3-96: Putnam County, NY Adjusted Spectral Acceleration with a 2% Probability of Figure Exceedance in 50-Yrs

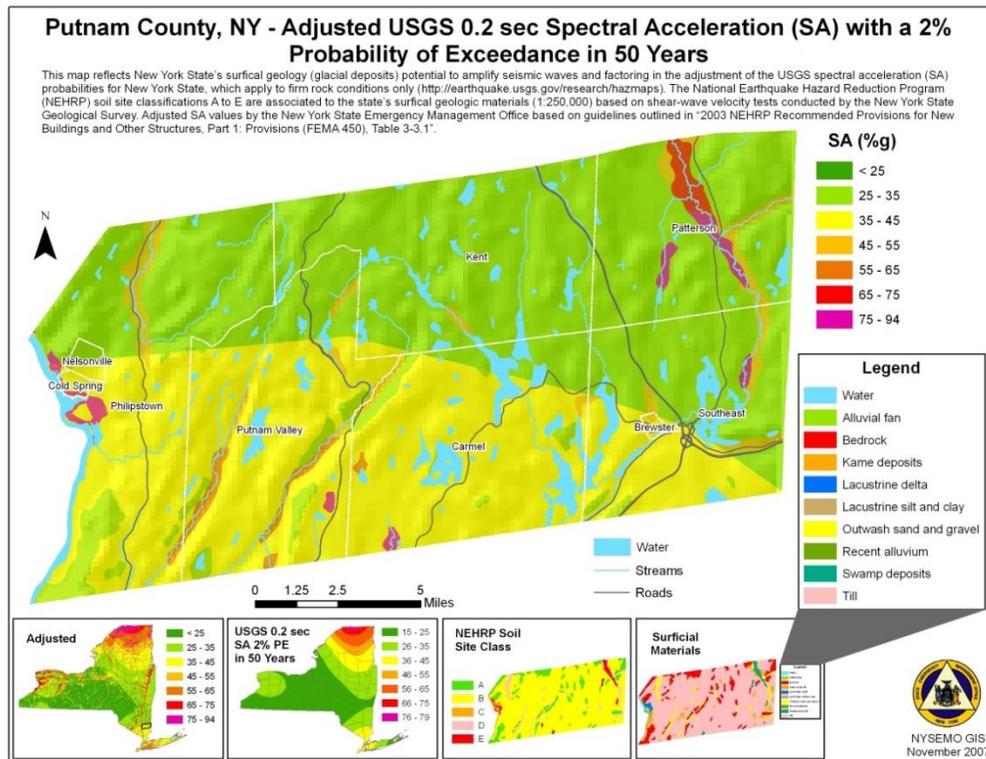


Figure A.3-97: Rensselaer County, NY Adjusted Spectral Acceleration with a 2% Probability of Exceedance in 50-Yrs

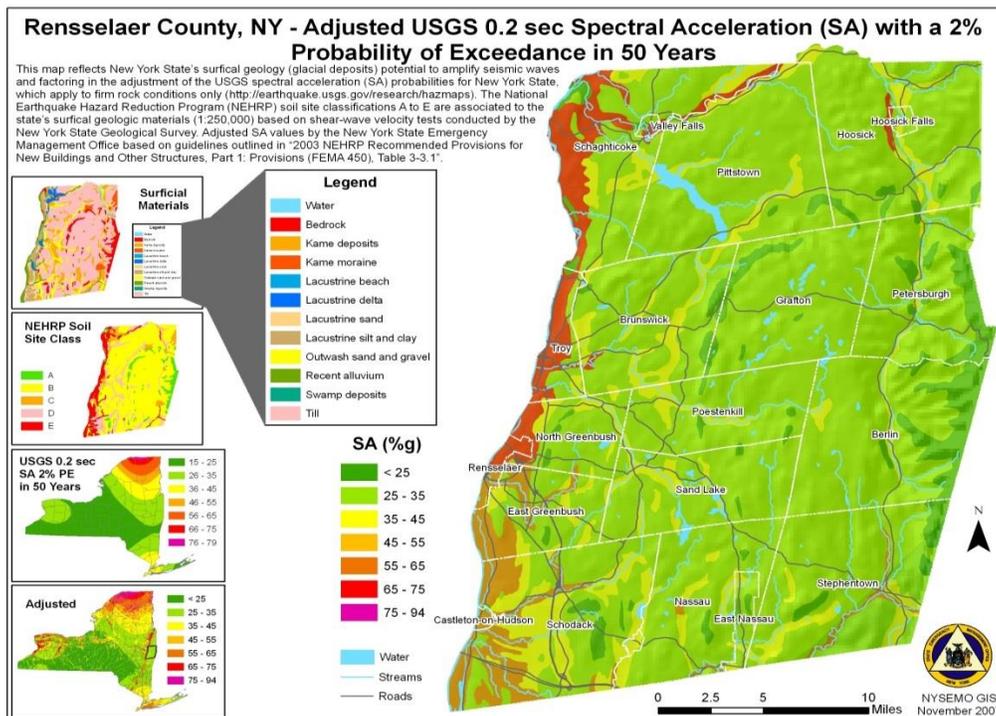


Figure A.3-98: Rockland County, NY Adjusted Spectral Acceleration with a 2% Probability of Exceedance in 50-Yrs

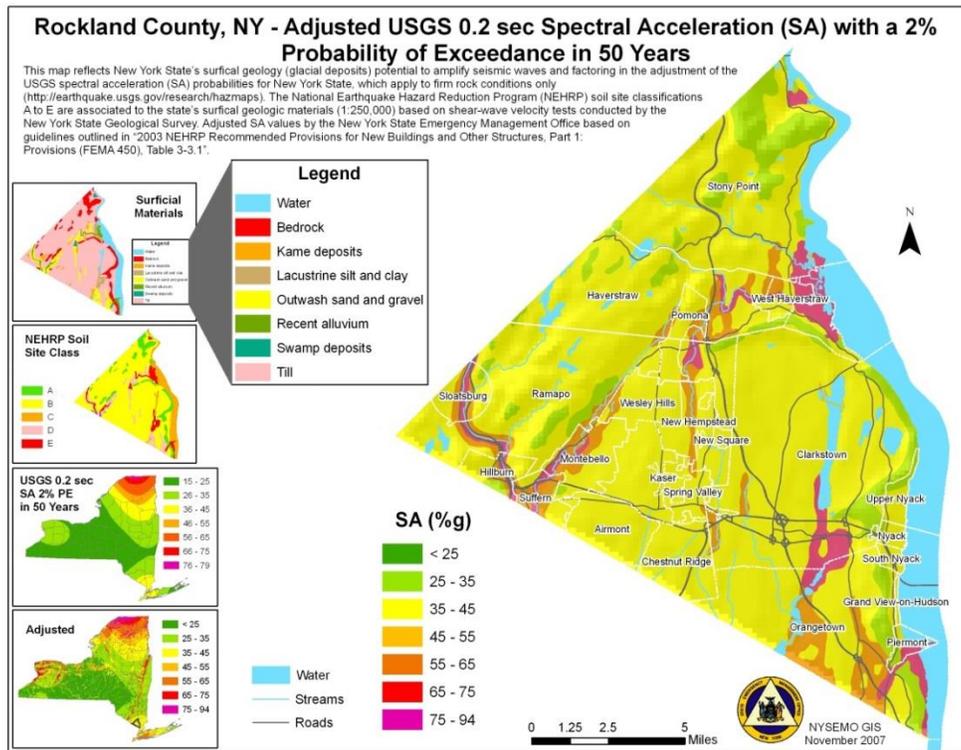


Figure A.3-99: Saratoga County, NY Adjusted Spectral Acceleration with a 2% Probability of Exceedance in 50-Yrs

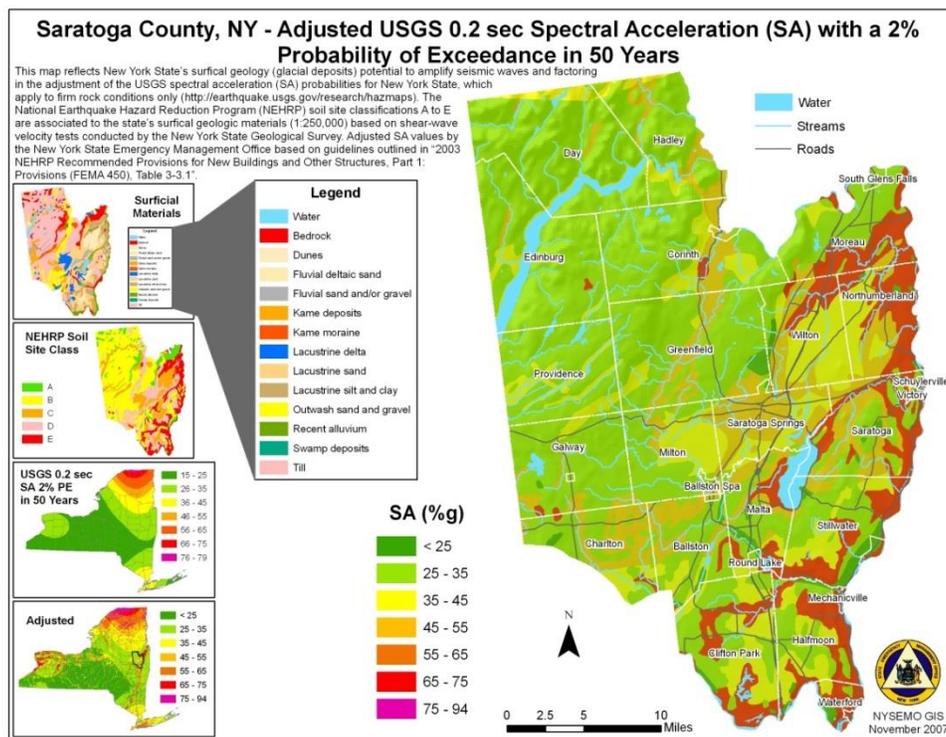


Figure A.3-100: Schenectady County, NY Adjusted Spectral Acceleration with a 2% Probability of Exceedance in 50-Yrs

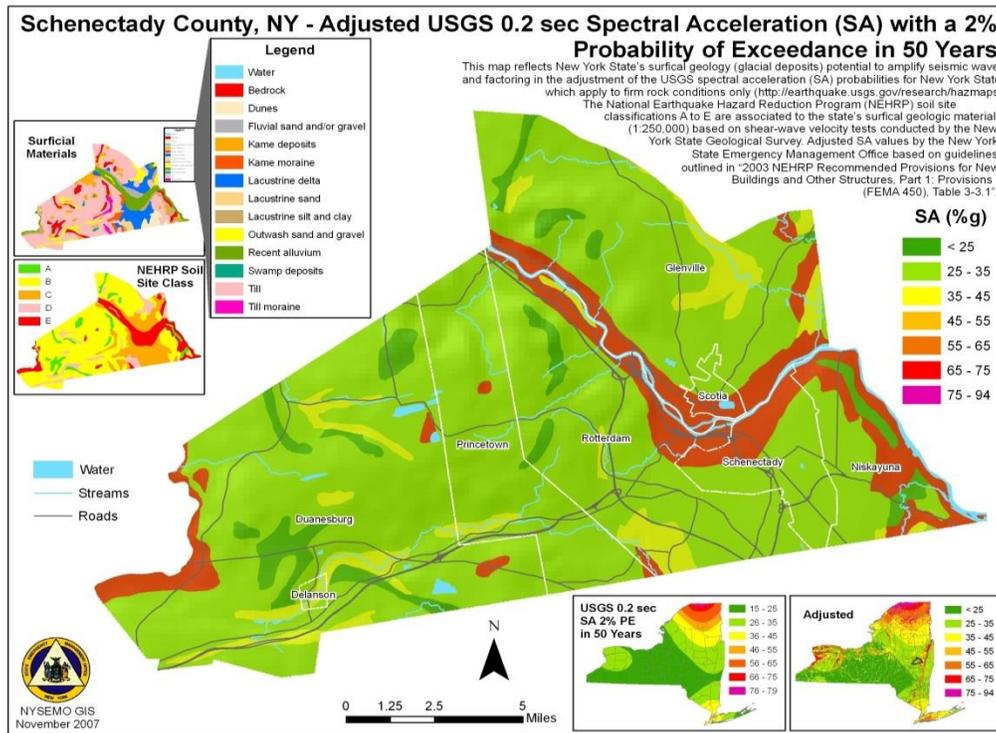


Figure A.3-101: Schoharie County, NY Adjusted Spectral Acceleration with a 2% Probability of Exceedance in 50-Yrs

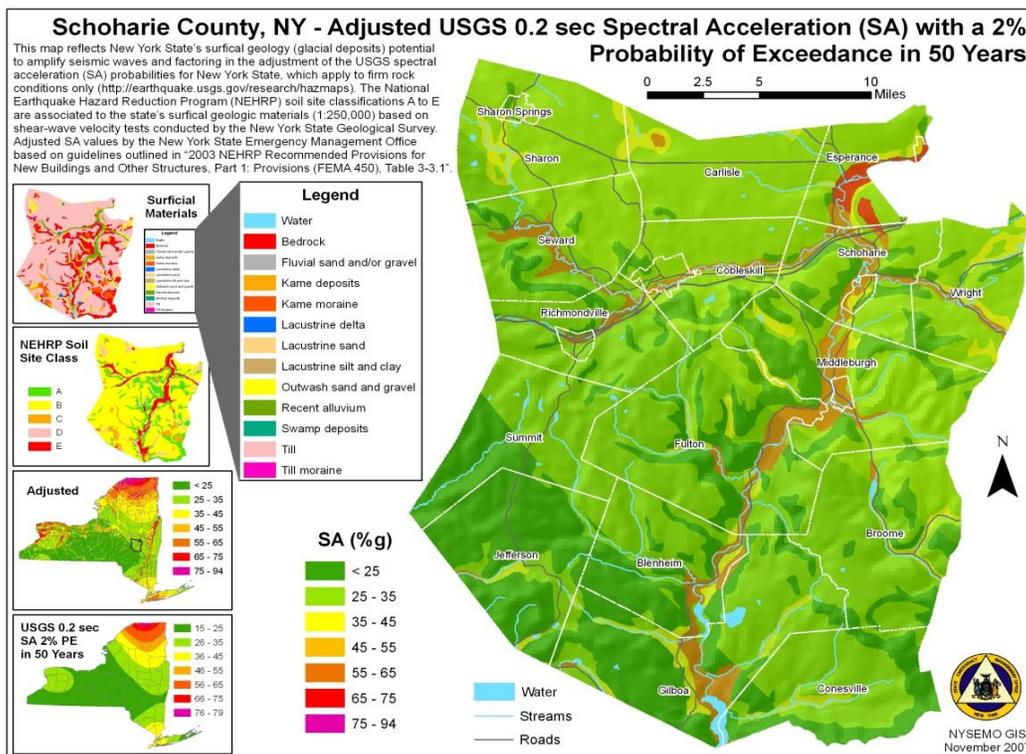


Figure A.3-102: Schuyler County, NY Adjusted Spectral Acceleration with a 2% Probability of Exceedance in 50-Yrs

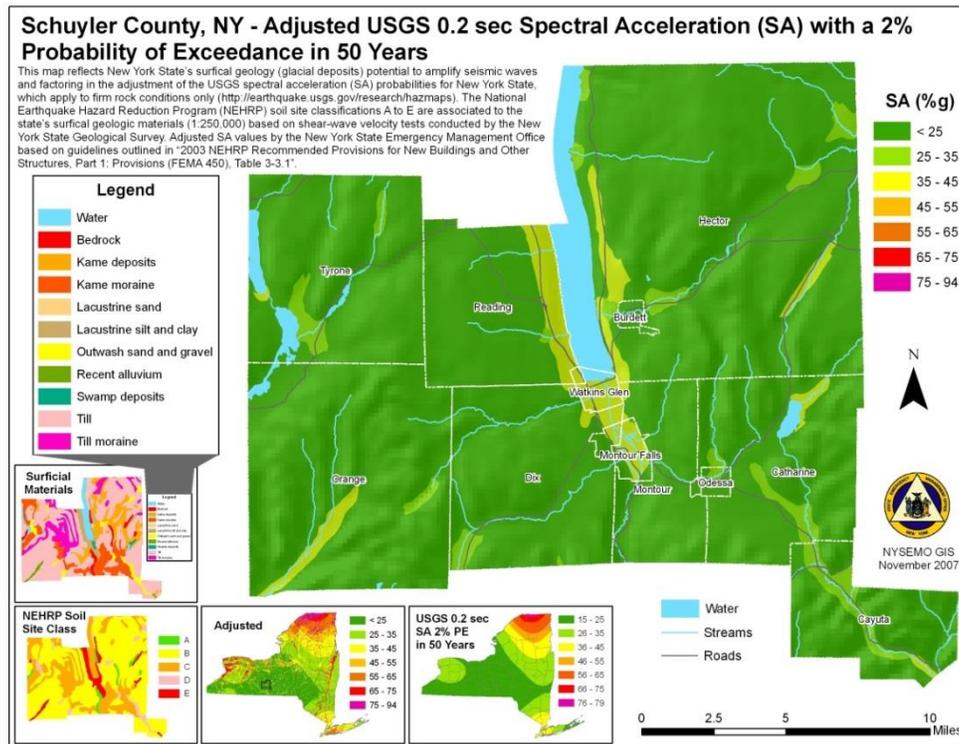


Figure A.3-103: Seneca County, NY Adjusted Spectral Acceleration with a 2% Probability of Exceedance in 50-Yrs

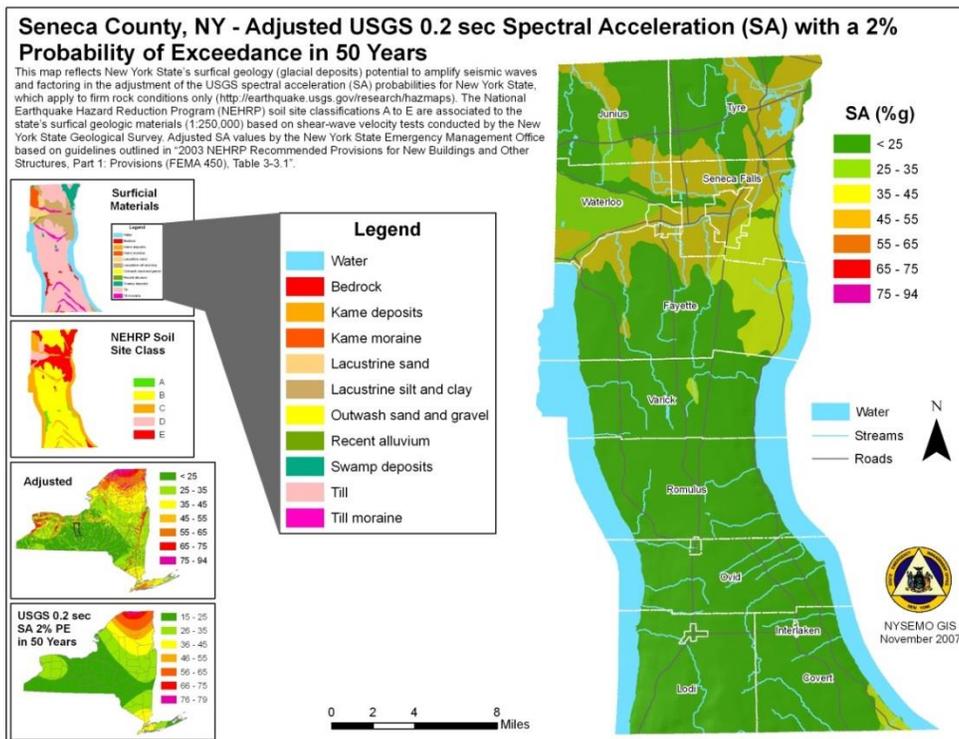


Figure A.3-104: Saint Lawrence County, NY Adjusted Spectral Acceleration with a 2% Probability of Exceedance in 50-Yrs

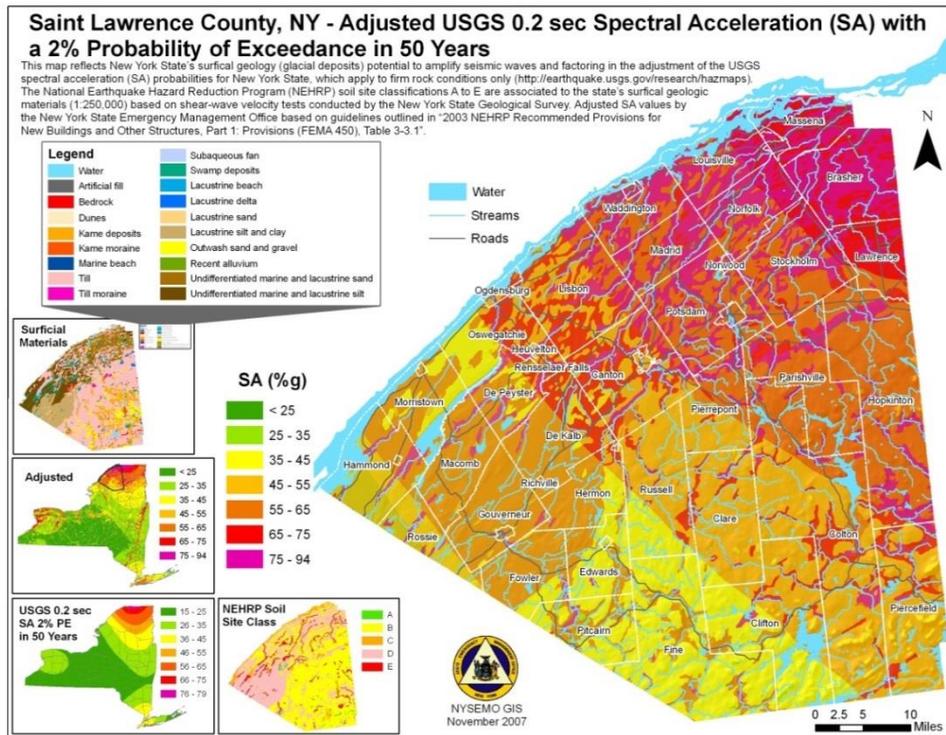


Figure A.3-105: Steuben County, NY Adjusted Spectral Acceleration with a 2% Probability of Exceedance in 50-Yrs

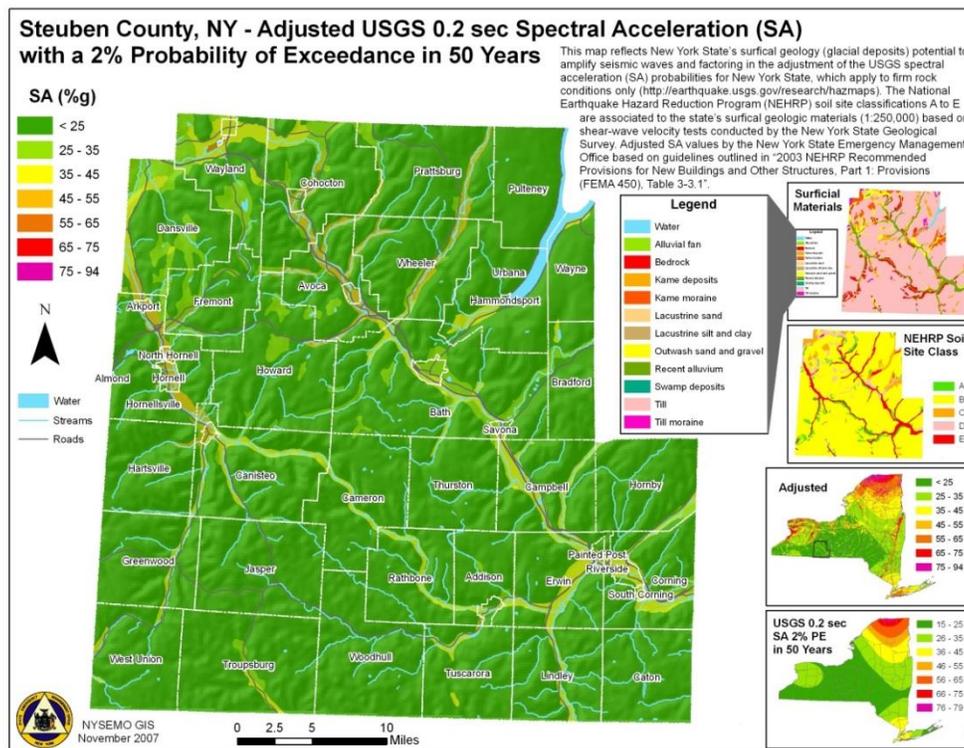


Figure A.3-106: Suffolk County, NY Adjusted Spectral Acceleration with a 2% Probability of Exceedance in 50-Yrs

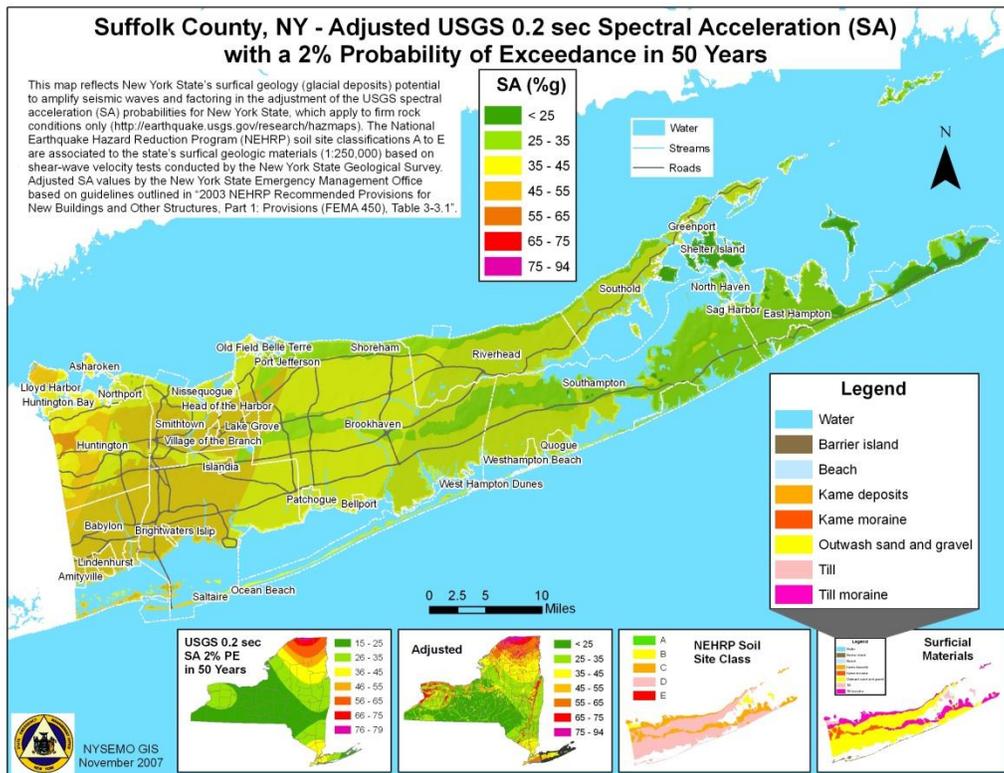


Figure A.3-107: Sullivan County, NY Adjusted Spectral Acceleration with a 2% Probability of Exceedance in 50-Yrs

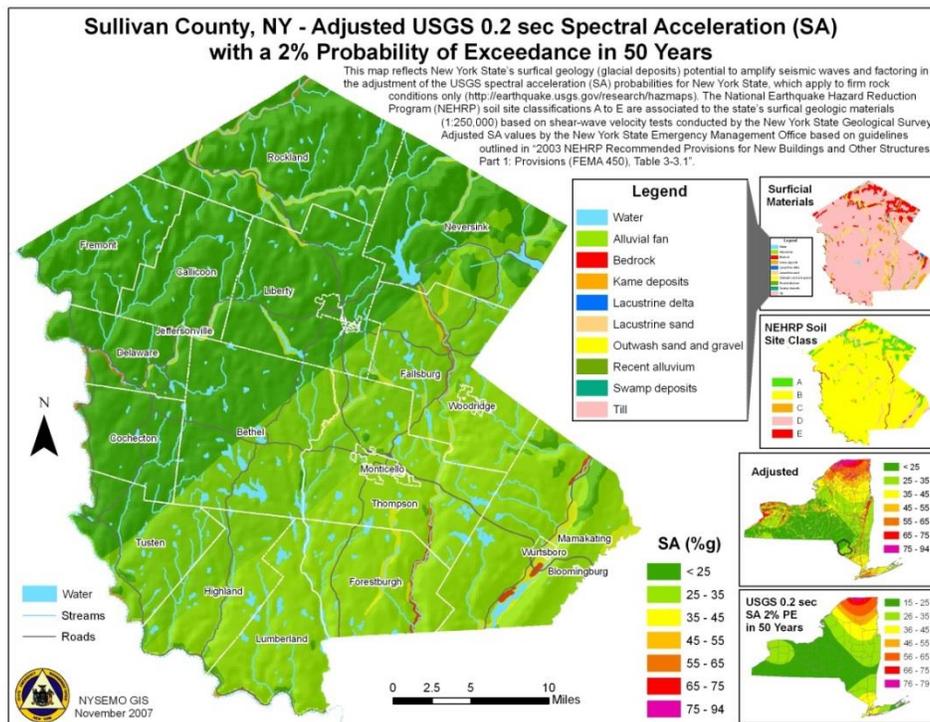


Figure A.3-108: Tioga County, NY Adjusted Spectral Acceleration with a 2% Probability of Exceedance in 50-Yrs

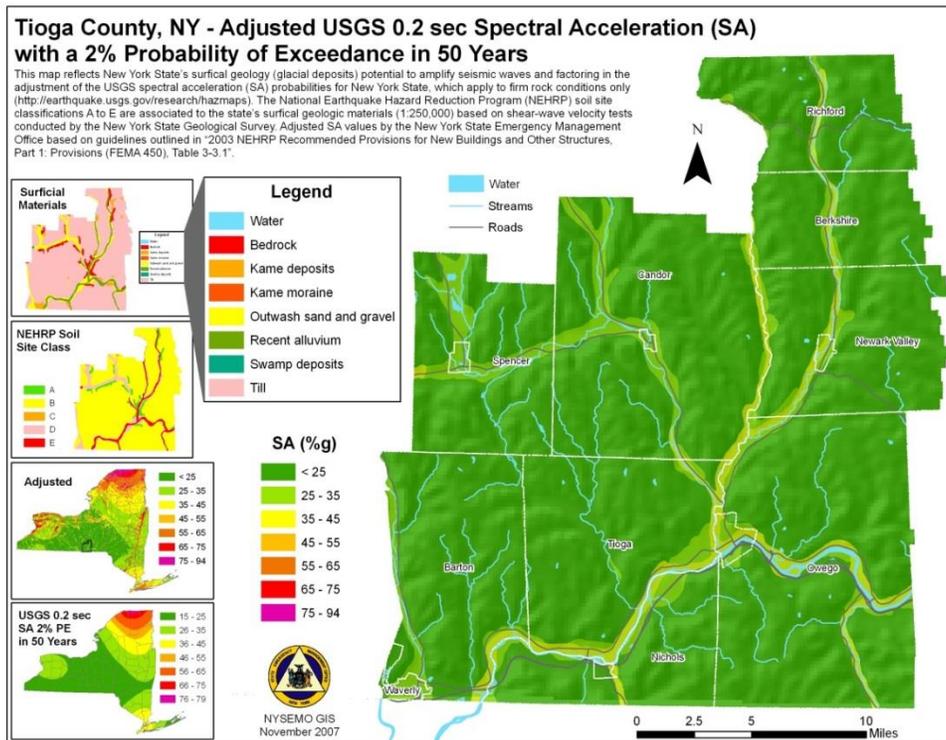


Figure A.3-109: Tompkins County, NY Adjusted Spectral Acceleration with a 2% Probability of Exceedance in 50-Yrs

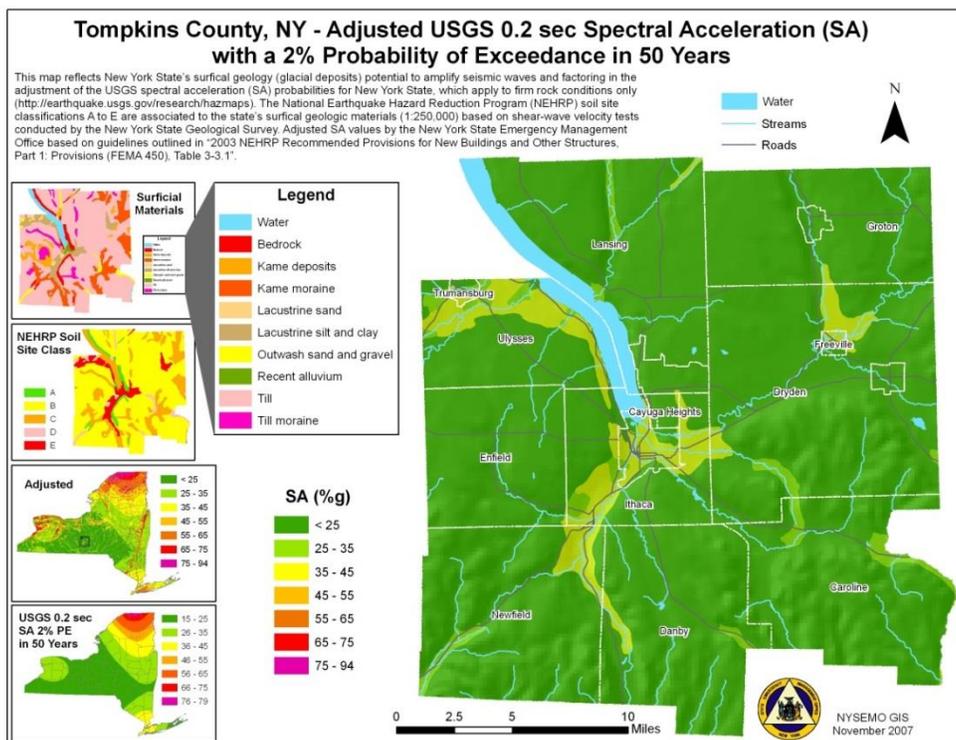


Figure A.3-110: Ulster County, NY Adjusted Spectral Acceleration with a 2% Probability of Exceedance in 50-Yrs

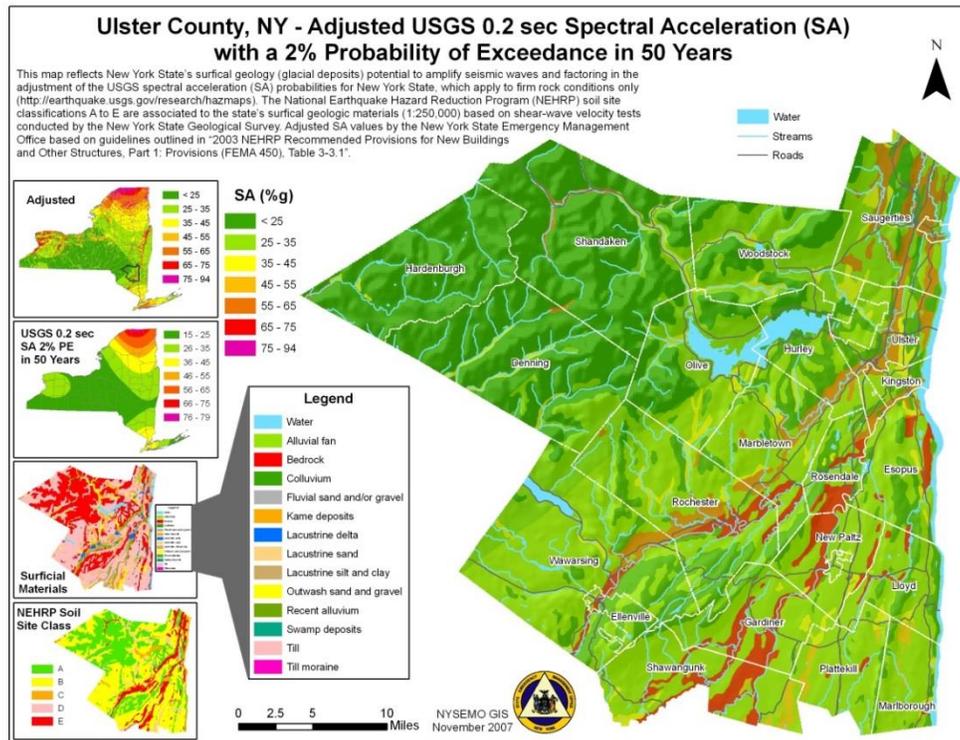


Figure A.3-111: Warren County, NY Adjusted Spectral Acceleration with a 2% Probability of Exceedance in 50-Yrs

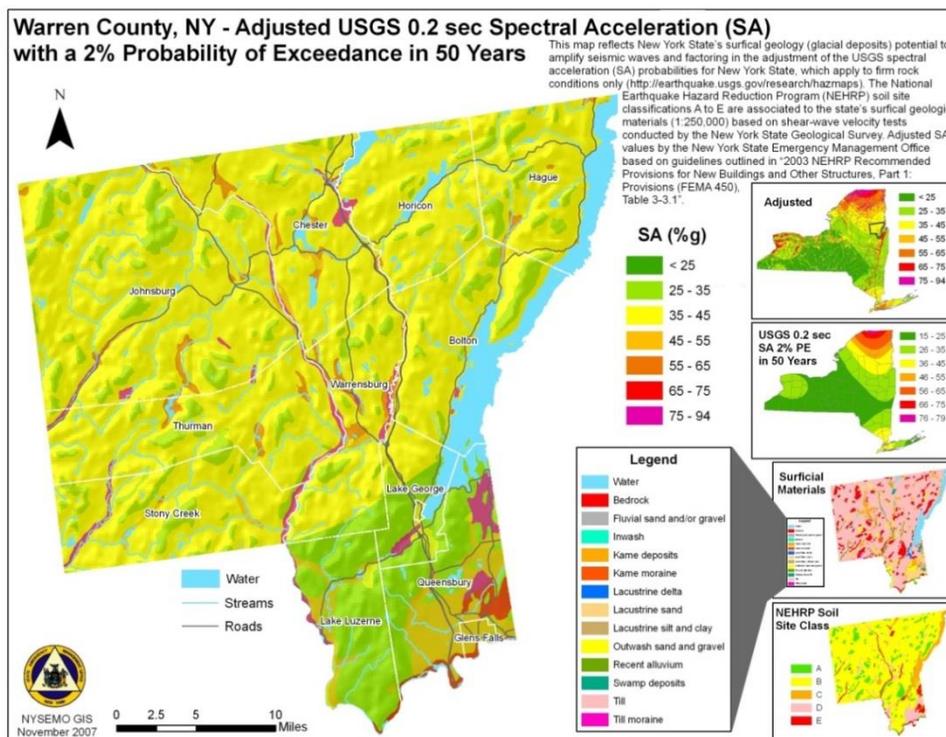


Figure A.3-112: Washington County, NY Adjusted Spectral Acceleration with a 2% Probability of Exceedance in 50-Yrs

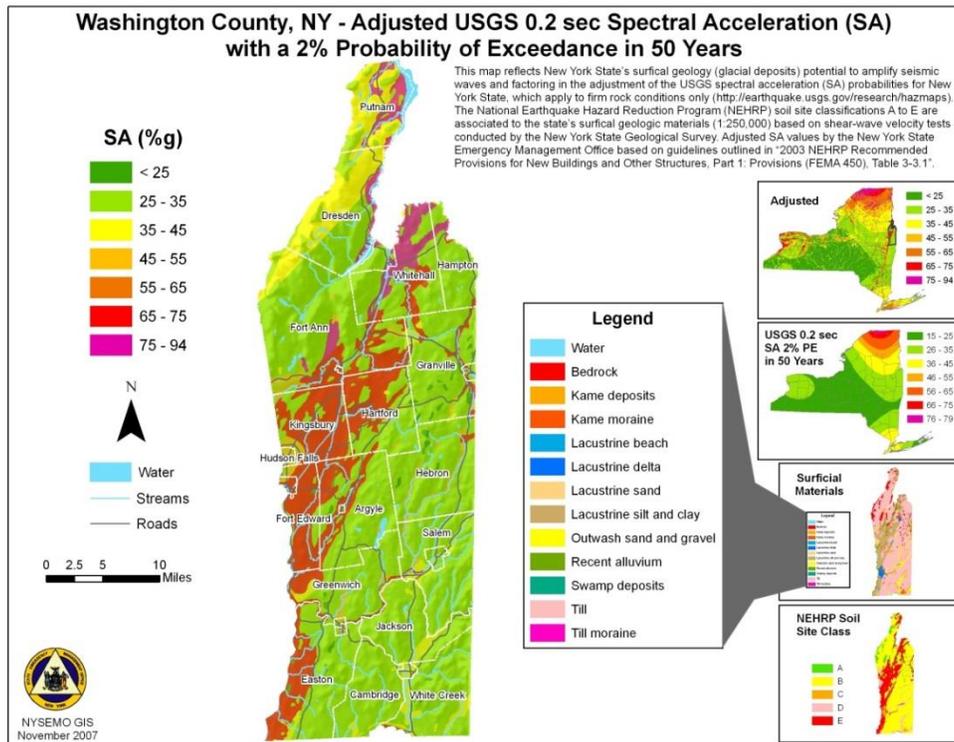


Figure A.3-113: Westchester County, NY Adjusted Spectral Acceleration with a 2% Probability of Exceedance in 50-Yrs

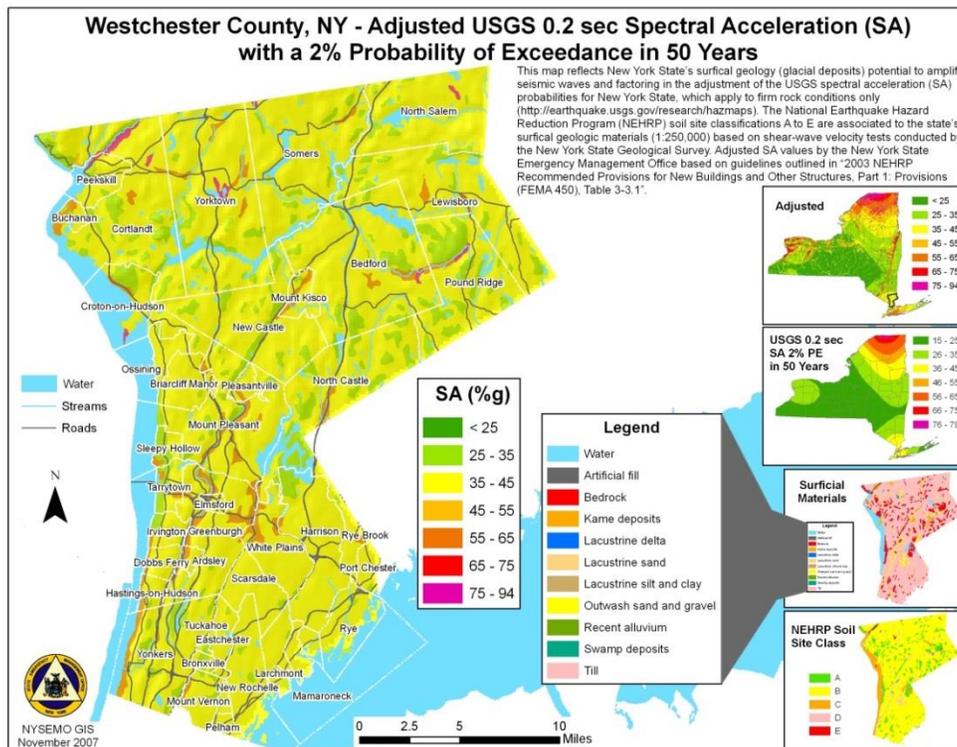


Figure A.3-114: Wyoming County, NY Adjusted Spectral Acceleration with a 2% Probability of Exceedance in 50-Yrs

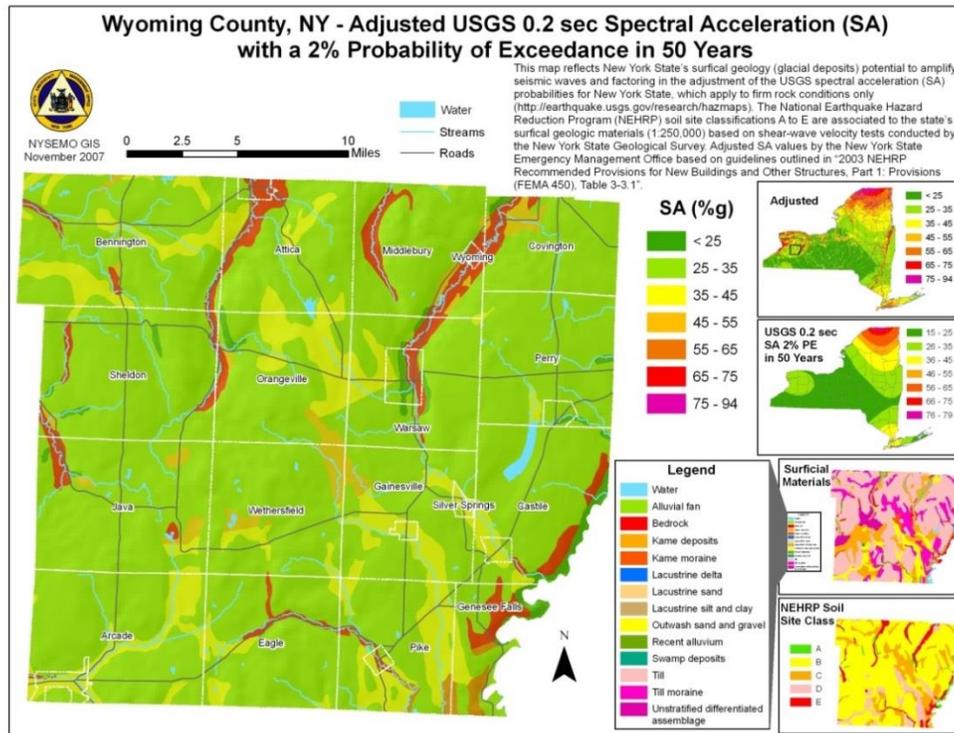


Figure A.3-115: Yates County, NY Adjusted Spectral Acceleration with a 2% Probability of Exceedance in 50-Yrs

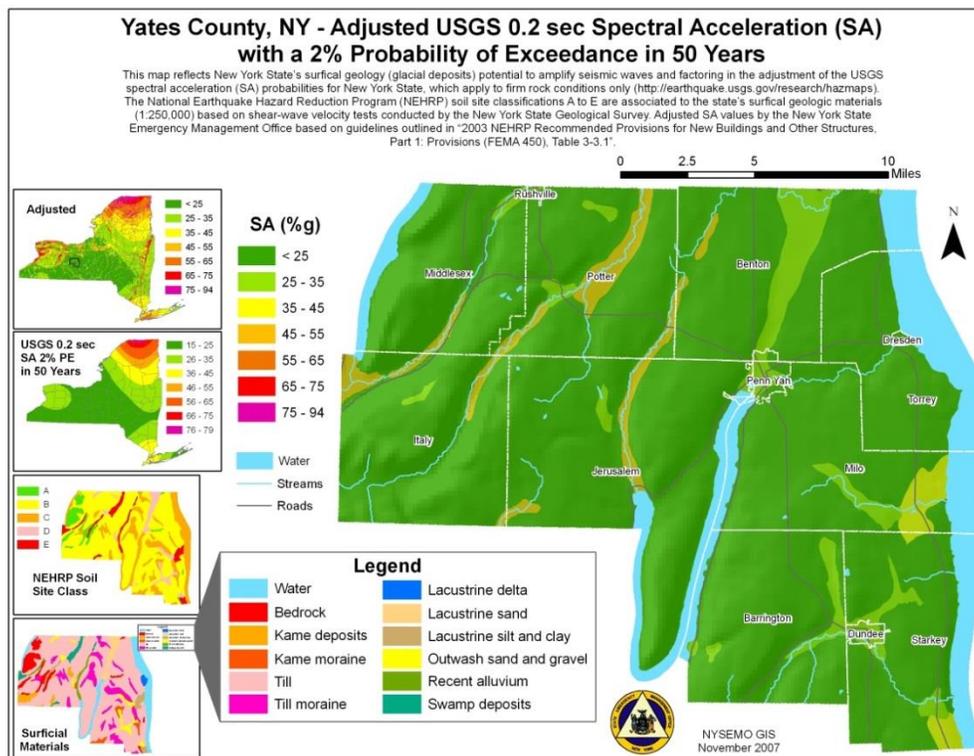


Figure A.3-116: Annualized Earthquake Loss per Capita

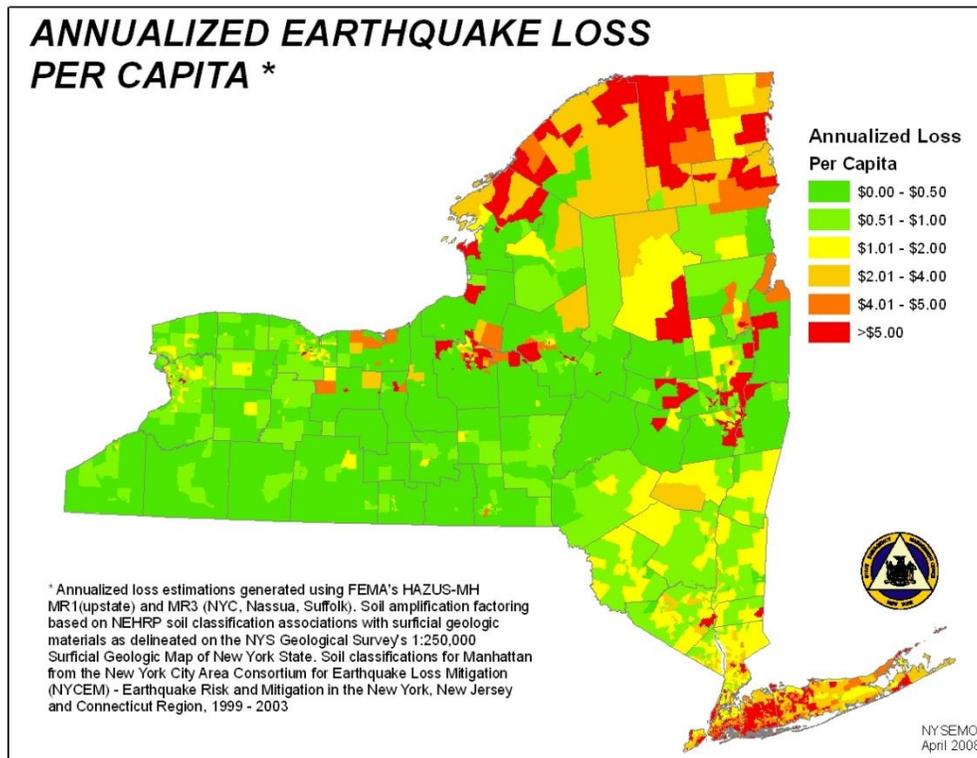
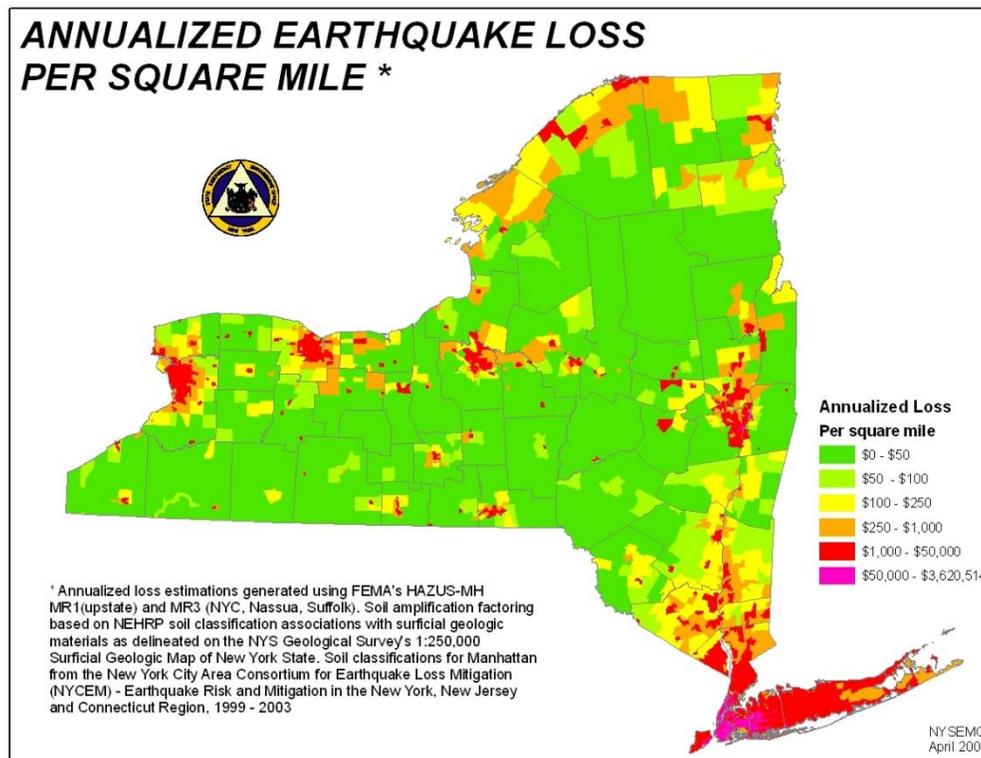


Figure A.3-117: Annualized Earthquake Loss per Square Mile



New York City Area Consortium for Earthquake Loss Mitigation

In 2005 the New York City Area Consortium for Earthquake Loss Mitigation (NYCEM) published a report known as the NYCEM report. This study began in 1999 and was concluded in 2003. The report combines the New York, New Jersey, and Connecticut metro region. This group was created in 1998 with the intent to create public awareness of seismic risk. The group consists of interested organizations and major public and private stakeholders from Federal and State emergency management, public service, engineering, architecture, financial and insurances companies, and academia.

The following excerpt is from the NYCEM report on why they did this study.

Why This Study?

Our specific objectives for this study were to:

- Develop and implement a risk and loss estimation for the metropolitan NY-NJ-CT region using HAZUS, which is FEMA's methodology for performing loss estimations;
- Assemble soil information for the entire Tri-State region to quantify details of the seismic hazard;
- Compile a complete building inventory for Manhattan to estimate local impact, and a less detailed building inventory for the surrounding metropolitan areas to realistically quantify regional risk;
- Identify and model a variety of earthquake scenarios and their probable consequences;
- Assess the performance of individual, essential facilities relative to the probable demands placed on them;
- Present results and recommendations for developing and implementing cost-effective risk management plans to reduce potential damage and losses.



Table A.3-3: A Summary of the Findings of the NYCEM Report

Study Results for the Tri-State Region for different Scenarios									
Scenario	Building Damage	Income Losses	Total	Hospitalization	Deaths	Shelter Needs	Fires	Buildings Complete Damage	Debris
M5	\$4.4 b	\$0.4 b	\$4.8 b	24	13	2,800	500	45	1.6 m tons
M6	\$28.5 b	\$10.8 b	\$39.3 b	2,296	1,170	197,705	900	2,600	31.9m tons
M7	\$139.8b	\$57.1b	\$196.8 b	13,171	6,705	766,746	1,200	12,800	132.1m tons
100-yr	\$0.1 b	\$0.1 b	\$0.2 b	0	0	0	0	0	0.2 m tons
500-yr	\$6.1 b	\$2.0 b	\$8.1 b	28	14	575	50	100	3.1 m tons
2500-yr	\$64.3 b	\$20.4b	\$84.8 b	1,430	727	84,626	900	2,200	34.0 m tons
9/11/01	\$13.0 b	\$52-64b	\$98.0 b	6,000		300	10	20	1.6 m tons

Source: NYCEM Report

NOTE: For this report the events of September 11th 2001 are used as a real life benchmark to be able to make a comparison for the listed earthquake scenarios.

One of the key findings to take from **Table 3-61** is that in the case of an **M6** Earthquake which is considered a moderate event. The total devastation for the area is quite high, in all a total economic loss of almost \$40 billion (**does not include critical infrastructure**) with an estimated loss of life at 1,170. The loss of life is almost on par with that of Hurricane Katrina. Another key issue to point out is that Earthquakes are not seasonal they can happen at any time of the year. For example imagine the varying differences in need and response if an M6 Earthquake were to occur in July compared to January. A winter scenario could dramatically alter the needs of affected people and response to the event.

This following excerpt from the NYCEM report summarizes critical data regarding Population, Buildings and Real estate, and Infrastructure and Essential Facilities.



Population

In the event of a damaging earthquake in the NY-NJ-CT region, about 18.5 million people in 7 million households would be at risk. The number of human fatalities is the ultimate measure of severity in any disaster.

Buildings and Real Estate

The large population lives and works in about 3.5 million buildings with a combined 13 billion square feet and a total replacement value of \$1 trillion, excluding contents. About 95% of the buildings are residential. The region occupies nearly 12,000 square miles, has 28 counties, and contains about 5,000 census tracts.

Infrastructure and Essential Facilities

The region has a very valuable infrastructure that would be severely at risk in the event of a damaging earthquake. Replacing transportation and utility systems alone is estimated to cost \$200 billion. Add to this the damage to essential facilities, and the value at risk increases significantly:

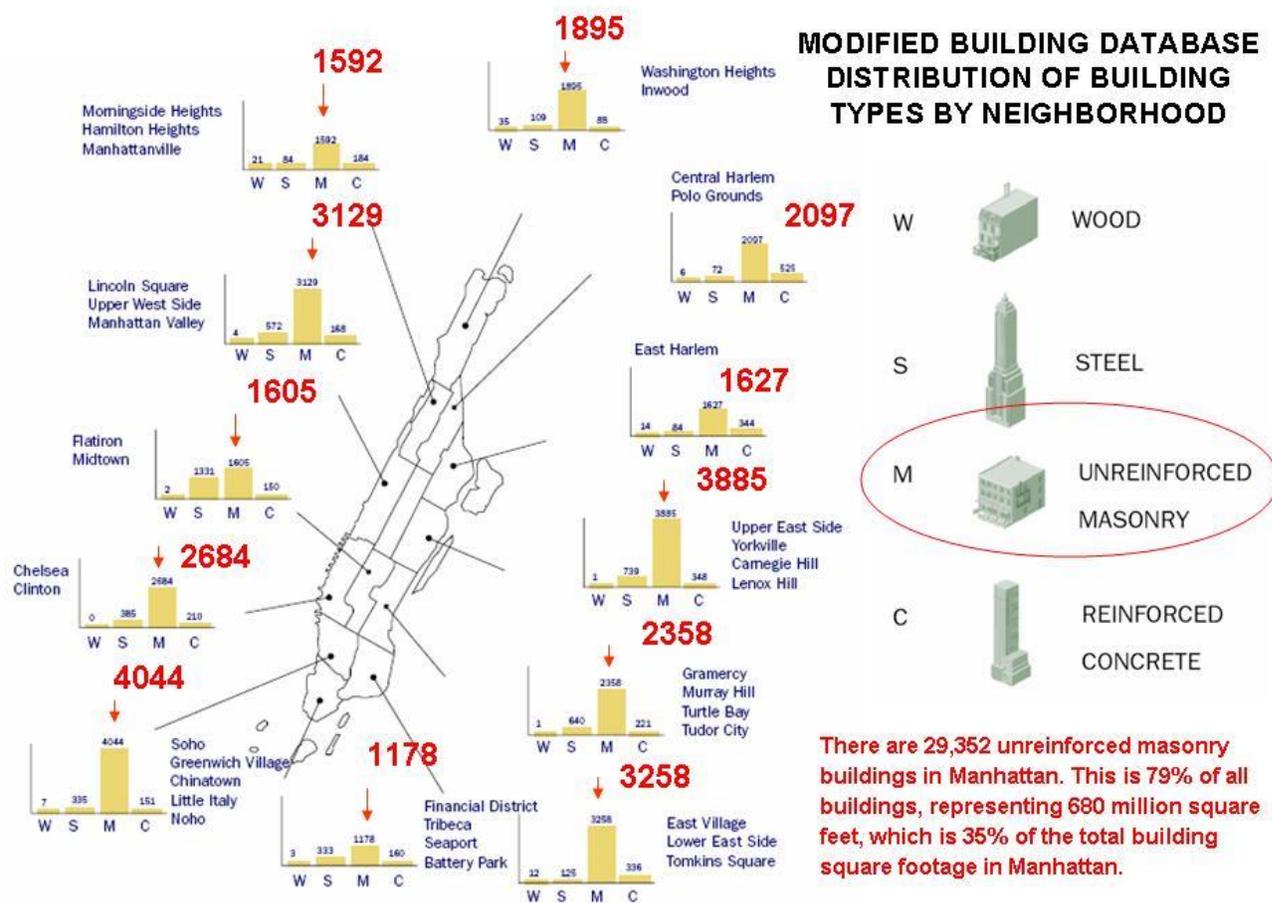
- 246 hospitals
- 123 emergency operation facilities
- 878 fire stations
- 1,348 dams (402 considered “high hazard”)
- 744 police stations
- 53,095 hazardous material sites
- 2 nuclear power plants

(Excerpt from the NYCEM Report)

An extremely alarming and valuable conclusion of this report is that, the greatest damage and concentration of affected population would be in and around the New York City Metro Area.



Figure A.3-118: Building Types in Manhattan Neighborhoods



“Determining what level of damage buildings experience is the essential component and heart of the loss estimation process.” (NYCEM Report)

The alarming situation with Unreinforced Masonry is that buildings made of this material are highly susceptible to damage in an Earthquake event and they constitute 79% of all buildings in Manhattan. They are the most vulnerable to damage out of any building type evaluated. The reason is that they are brittle and do not absorb the motion, as well, as the other structure types do (Wood, Steel, and Reinforced Concrete). For more information regarding the NYCEM report please visit their website at www.nycem.org.

Mitigation Actions

One of the crucial factors in prevention and mitigation requires that jurisdictions adhere to the building codes that NYS has adopted. New York State follows the International Building and Residential Codes and each jurisdiction within NYS is required to meet these standards. Local jurisdictions can have their own codes and variances as well, but the



International Building and Residential Codes must be met. These codes have specific requirements for construction (typically new construction) that take into account wind load and seismic activity. For further information regarding New York State's building codes please visit the Department of States website at <http://www.dos.state.ny.us/>, as well please reference any local codes or variances that may apply to your specific area.



LANDSLIDE DATA

Landslide Susceptibility – A Pilot Study of Schenectady County, NY

William Kappel, USGS; William Kelly and Andrew Kozlowski, NYSGS; Daniel O'Brien, Jason McWhirter and Ran Zhang, NYSOEM; James Kalohn, and Mark Storti, Schenectady County Economic Development and Planning Department; Tony Minnitti, NYSDOT; Steve Emerick, NYSOCC.

Background

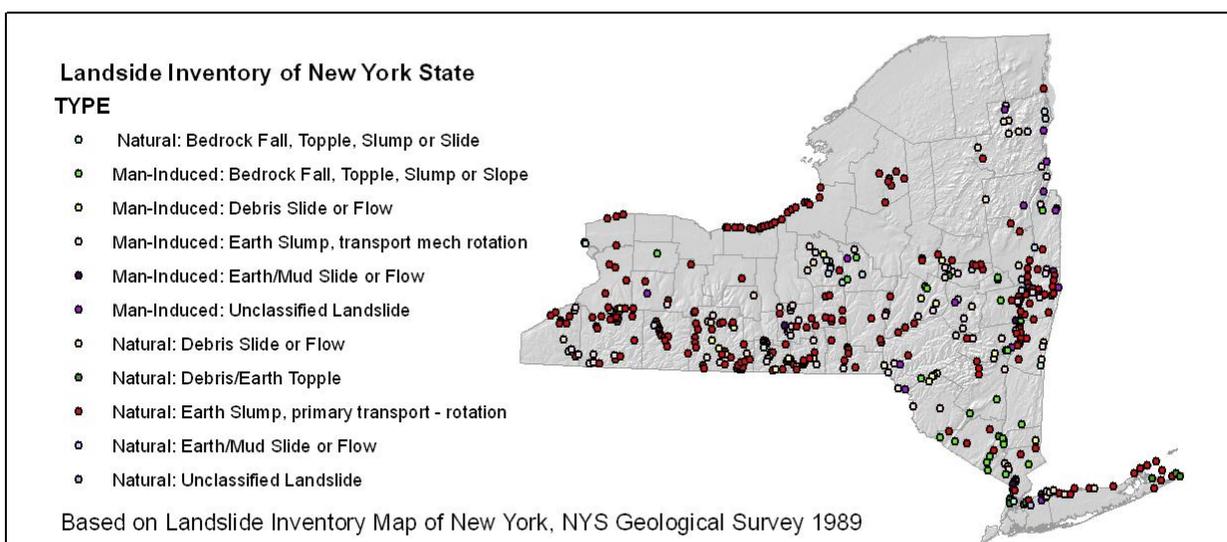
A major impediment in developing an effective mitigation strategy for landslides has been the lack of mapping that delineates, with the necessary degree of geographic specificity, the slopes that are most susceptible to landslide. Consequently, there is a great deal of uncertainty about this hazard in respect to where to target mitigation actions and how to factor this hazard into local land use planning. A contrasting analogy can be made with flood hazard where extensive floodplain mapping has been undertaken through the National Flood Insurance Program (NFIP) and based on those delineations, mitigation measures and policies have been adopted and more informed decisions about the need for insurance can be made. In the case of landslides, no such map products exist.

With only a limited understanding of the areas that are most susceptible to landslides, communities often make land use decisions and approve site plans that do not factor this hazard. Opportunities to take mitigative action such as slope stabilization are missed as hazardous areas go unidentified. Exacerbating conditions such as leaking water lines that drain into vulnerable slopes fail to get the appropriate maintenance priority or drainage discharges that need to be rerouted go unchecked. Best practices, such as avoiding additional loading on vulnerable slopes with debris or other materials or excavating from the bottom of these slopes, are rarely presented in clear and consistent messages to the public. Property owners are often taken by surprise and find themselves uninsured when damaging events occur.

The reasons for limited areas where landslide studies and hazard maps are available has much to do with an analysis that has been manually intensive, time consuming, and cost prohibitive. This situation is further magnified by the number and widespread areas in New York State that have experienced landslides (see **Figure 3-203**). The studies that have been focused primarily on a manual comparison of slope and the presence of soils prone to sliding, such as the 1982 NYS Geological Survey's "Geologic Hazards and Thickness of Overburden of the Albany, New York 15 Minute Quadrangle" by Robert H. Fickies and Peter T. Regan, New York State Museum and Science Service Map and Chart Series 36.



Figure A.3-119: NYS Landslide Inventory



Since this 1982 study there have been key developments in the area of GIS that have provided an opportunity to use the power of the computer to analyze and map what was previously done by hand. In addition, key datasets critical to landslide analysis have been converted into digital formats – particularly slope and soils. These datasets can be overlaid on a GIS with the ability to map locations of areas that have the coinciding soil properties and slope conditions that are most susceptible to sliding.

The recognition that significant progress in the area of landslide hazard mapping may be within reach given both GIS technology and the expanding availability of key digital datasets was previously noted in the 2004 New York State Hazard Mitigation Plan. This was also the agenda topic of a June 2006 meeting of Federal and State scientists and emergency management officials hosted by the USGS New York Water Science Center, Troy, NY. At this meeting a proposal entitled “Evaluation of Landslide Potential in New York State” drafted by the USGS, New York Water Science Center, Ithaca, NY was circulated. The proposal outlined an approach to generating a “Landslide Susceptibility Map for New York State” and the development of a landslide “Fact Sheet” targeted at local government officials. While the USGS proposal was well received, funding for the proposal remained elusive during the following year.

Pilot Study Purpose

While the June 2006 USGS proposal was supported in concept by the attending officials, there was no example product available that could be used to help convey what was being proposed that could be used to educate and generate additional support from a wider audience. In efforts to move the proposal forward, a “proof of concept” pilot study was discussed in July 2007 between the NYSOEM, USGS and the NYSGS. At this time, the updating of the New York State Multi-Hazard Mitigation Plan was underway. This plan lays out a strategic direction to mitigating the impacts of natural disasters, including identifying specific activities that are needed to advance our understanding of risk – the framework of mitigation. The plan update provided an important opportunity to highlight the potentials to advance the landslide hazard risk assessment.



Pilot Study Organized

With a consensus between SOEM, USGS, and NYSGS that a pilot study would be useful and timely, the SOEM Planning Section suggested Schenectady County as a candidate for participating in a pilot study. This recommendation was based on the county's landslide history, the landslides focus within their Local Hazard Mitigation Plan, and the County's obvious interest in mitigating landslides as expressed in applications to SOEM's Hazard Mitigation Grant Program (HMGP).

Based on an initial inquiry to Schenectady County and their expressed interest to learn more about what a pilot study would entail, a preliminary meeting was held with the county on August 13, 2007. In addition to representatives from SEMO, NYSGS, USGS and Schenectady County, representatives from the New York State Department of Transportation (NYSDOT) and the Office of Cyber Security (OCC) also attended.

At this August 2007 meeting Schenectady County expressed tentative interest in participating in the pilot study with their final approval requiring further review by the County's legal staff. There was a concern that the study not enhance the County's liability, which is understandable given the uncertainty with a project with no precedence. The liability concern was heightened by the initial pilot scope, including the risk to water, sewer and storm water infrastructure as well as these systems potential contribution to the landslide hazard due to potential leaking or run-off onto vulnerable slopes.

The County's need to conduct a more thorough legal assessment with regard to its participation would require time that was not available given the State Hazard Mitigation Plan's final submission date was December 31, 2007. With a potential delay that threatened the ability to complete the project on time, a decision was made by the core pilot study agencies NYSEMO, NYSGS, and USGS to proceed irrespective of the County's decision to participate. The pilot would focus only on the natural factors contributing to landslide susceptibility, a Phase I of sorts, leaving the integration of infrastructure as a potential "Phase II" effort. This decision was based on an opinion from SOEM management that the proper role of government is to do its best to understand the hazards it faces, even if the knowledge gained exposes previously unseen risks that call for remedies not previously considered or factored in budgets.

This Phase I with an optional Phase II follow-up approach allowed the group to move quickly and promised a future model to allow State and Federal agencies to deliver initial useful products to Local government that in turn could be advanced to a Phase II as more time, data and funding becomes available.

Fortunately, Schenectady County ultimately decided to participate in the study. Given time constraints it was agreed that the project would focus on the geologic factors – a Phase I study, with the County's role focusing primarily on developing a GIS database of past landslide events. This information would be critical for model validation.

While a Phase I study does not necessarily require participation from Local government, it is most advantageous if a collaborative effort can be established. This is most evident by the contributions Schenectady County has made to this pilot study. The knowledge that Local officials have of their geography and history of events, much of which is first hand, is of great value to understanding the landslide hazard. It is also important to recognize that Local government is in the best position to mitigate the landslide hazard through land use regulation, education and other practices.



Pilot Study Methodology

An important aspect of the methodology used in this pilot study is that 5 of the 6 variables used to determine landslide susceptibility are derived from one source - the U.S. Department of Agriculture Natural Resource Conservation Service's SSURGO Digital Soil Survey, accessible for download at: <http://soildatamart.nrcs.usda.gov>.

Figure A.3-120: NYS Available Soil Data

Available Soil Survey Data in New York State As of December 19, 2007

Source: U.S. Department of Agriculture
Natural Resources Conservation Service

- Spatial and Tabular
- Tabular Only
- No Data



Soil Data Mart at <http://soildatamart.nrcs.usda.gov>

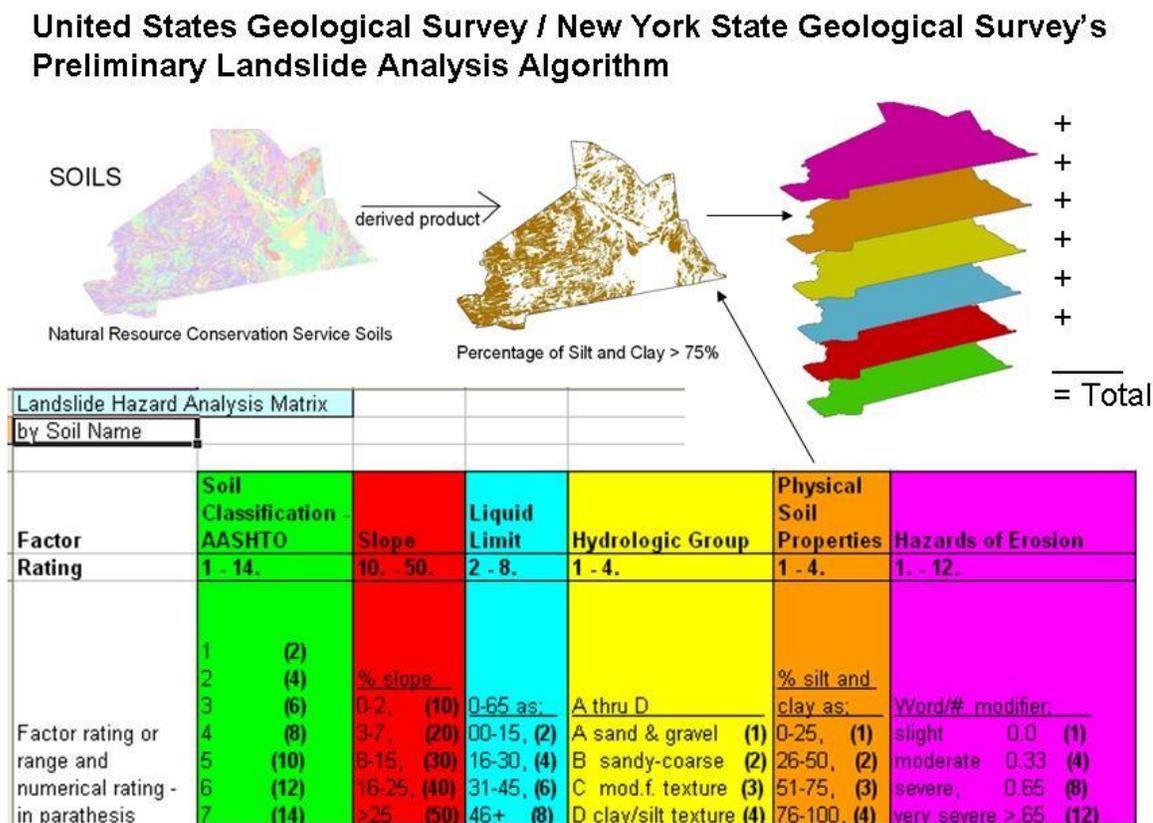
The NRCS web site provides for the ability to select a county of one's choosing and download the SSURGO soil survey database, including information in tabular and spatial (GIS) format. The spatial GIS data includes a GIS shapefile (polygon) of soil units attributed with the soil unit's letter key (field named "MUSYM"), while the tabular data includes a Microsoft Office Access Application with the ability to generate soil reports that provide a great number of data on each soil unit.

Included in the tabular data are soil properties that factor into calculating landslide susceptibility. The soil unit properties contained in the soil survey that were identified by the pilot study geologists Kappel, Kelly, and Kozlowski as landslide susceptibility indicators include: 1) American Association of State Highway and Transportation Officials (ASSHTO) Soil Classification; 2) Liquid Limit; 3) Hydrologic Group; 4) Physical Soil Properties (%silt and %clay); and 5) Hazard of Erosion. In this pilot study methodology, each of these soil unit properties was assigned a weighted



value relative to their contributing factor in predicting landslide susceptibility (see **Figure A.3-121** – relative weights are shown in parentheses).

Figure A.3-121: USGS/NYS Geological Survey’s Preliminary Landslide Analysis Algorithm



Landslide Risk Assessment

To access the identified soil unit properties, the Microsoft Office Access Application is used to generate soil reports that can be exported to an Excel format. With some database preparation, including deletion of cells containing long sentences, text descriptions and deletion of blank records and cells, this file can be linked to the GIS soil unit shapefile. Using the (MUSYM) field as database link, the pertinent attribute information for landslide susceptibility is established within the GIS layer.

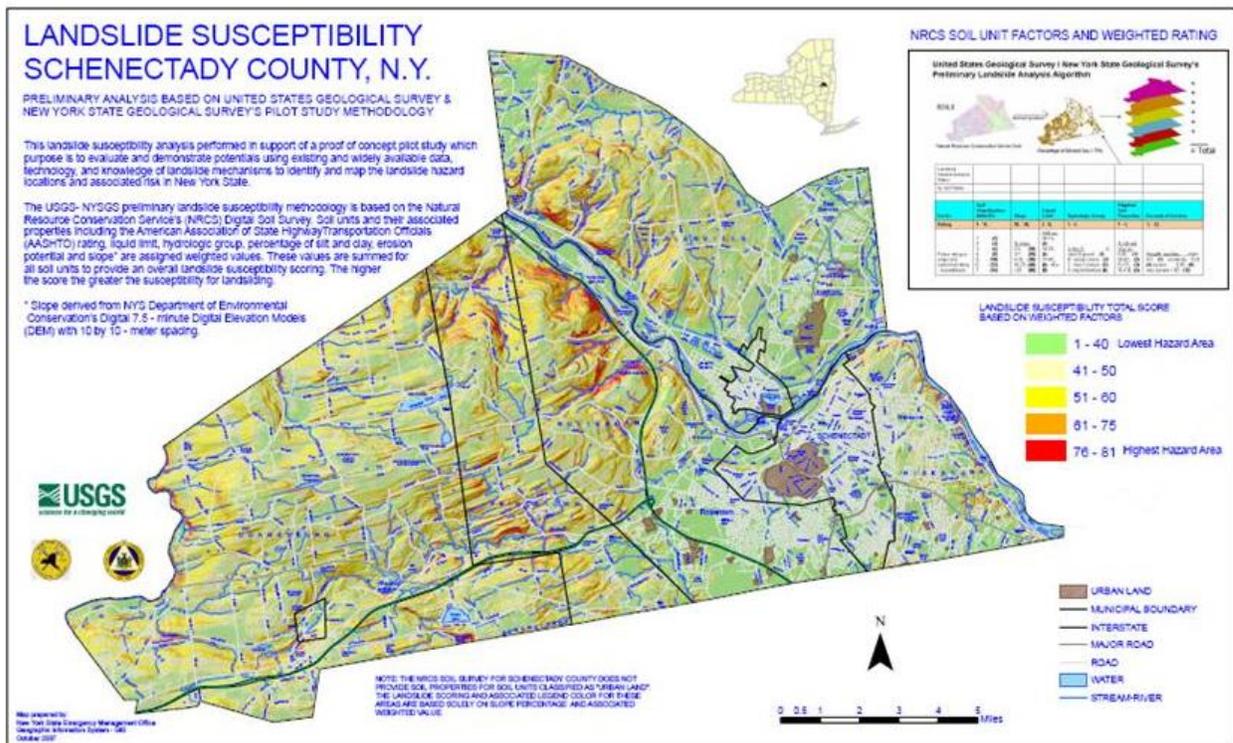
The landslide susceptibility variable that receives the highest weighted value in this methodology is slope. While the SSURGO soil units contain information on slope (indicated by the letters “A”, “B” or “C” that are appended to soil text abbreviation (MUSYM)), the slope values that were used in this study were based on a slope analysis derived from a countywide Digital Elevation Model (DEM) compiled from the NYS Dept. of Environmental Conservation (DEC) 7.5 Minute Quadrangle DEMS. It was believed this would provide a more accurate indicator of slope than the SSURGO source. The slope map generated from the NYS DEC’s 7.5 Minute Quadrangle DEMS was combined (ESRI “Union” command) with the SSURGO Soil Survey GIS layer that was previously attributed with the landslide susceptibility variables. At this point each discrete soil unit had all six variable values and



the corresponding weighted values as individual fields in the attribute table. The six fields containing the weighted values of the six variables were then summed to establish landslide susceptibility "total score". The "total score" ranged from areas with numbers as low as 4 to as high as 81.

Figure A.3-122: Thumbnail Overview of Landslide Susceptibility in Schenectady County, NY

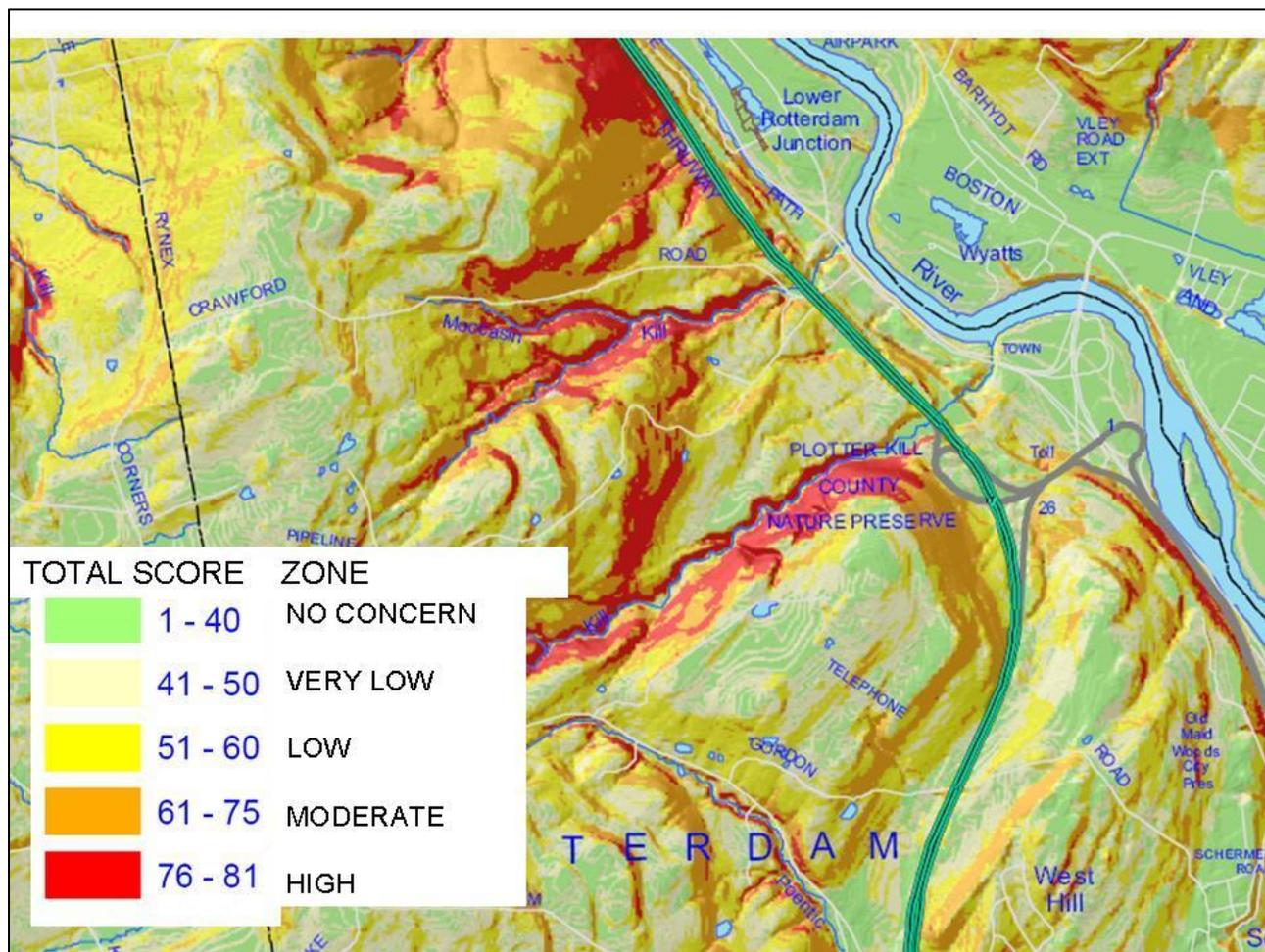
Thumbnail Overview of 26"x 42" Map Showing Results of Pilot Study: Landslide Susceptibility Schenectady County, N.Y.



Range groupings were established from total score values to assign landslide susceptibility descriptive zones as HIGH= greater than 75 (Red); MODERATE = 61 to 75 (Orange); LOW = 51 to 60 (Yellow); VERY LOW = 41 to 50 (Beige); NO CONCERN = less than 41 (Green). See **Figure A.3-123**.



Figure A.3-123: Landslide Susceptibility in Schenectady County, NY



Model Limitation in NRCS Soil Survey Areas Classified as “Urban”

As the NRCS Soil Surveys were developed primarily for agricultural purposes, portions of the Schenectady County that are highly developed, primarily in the City of Schenectady, have soil units that are classified as “Urban”. The SSURGO database does not include soil properties for the “Urban” soils. Consequently, while slope values for these areas can be calculated from the DEMs, the remaining 5 variables and their associated weighted values were not able to be derived from the Soil Survey. As a result, the total score values in these areas do not reflect the appropriate level of hazard and have been excluded from the study.

Pilot Study Validation

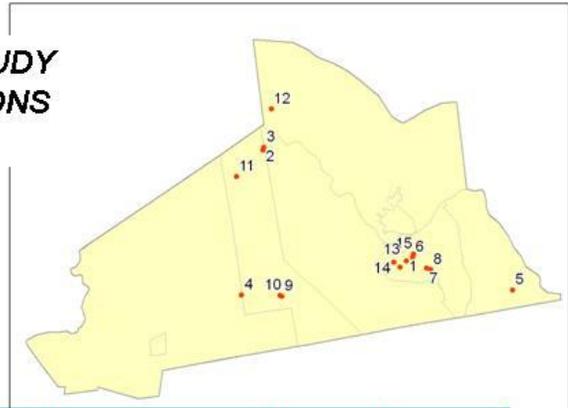
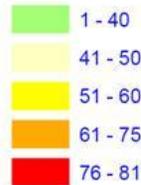
A validation of the model was performed by comparing the locations of past landslide events to the landslide susceptibility map. Schenectady County Economic Development and Planning Department provided a GIS point file of 15 landslide events. These landslides are larger events taken from recent memory and historical records where a general location was easily supplied. There have been many others, usually of lesser magnitude, which have not been geographically located (latitude / longitude) and therefore were not used in this initial assessment.



The GIS file of landslide events was overlaid on the landslide susceptibility map with each landslide event tagged with the “total score” value at the respective point location. The results showing the total score value and associated zone color for each landslide event is shown in **Figure A3-124**.

Figure A3-124: Schenectady County Landslide Study Risk Score Values at Point Locations

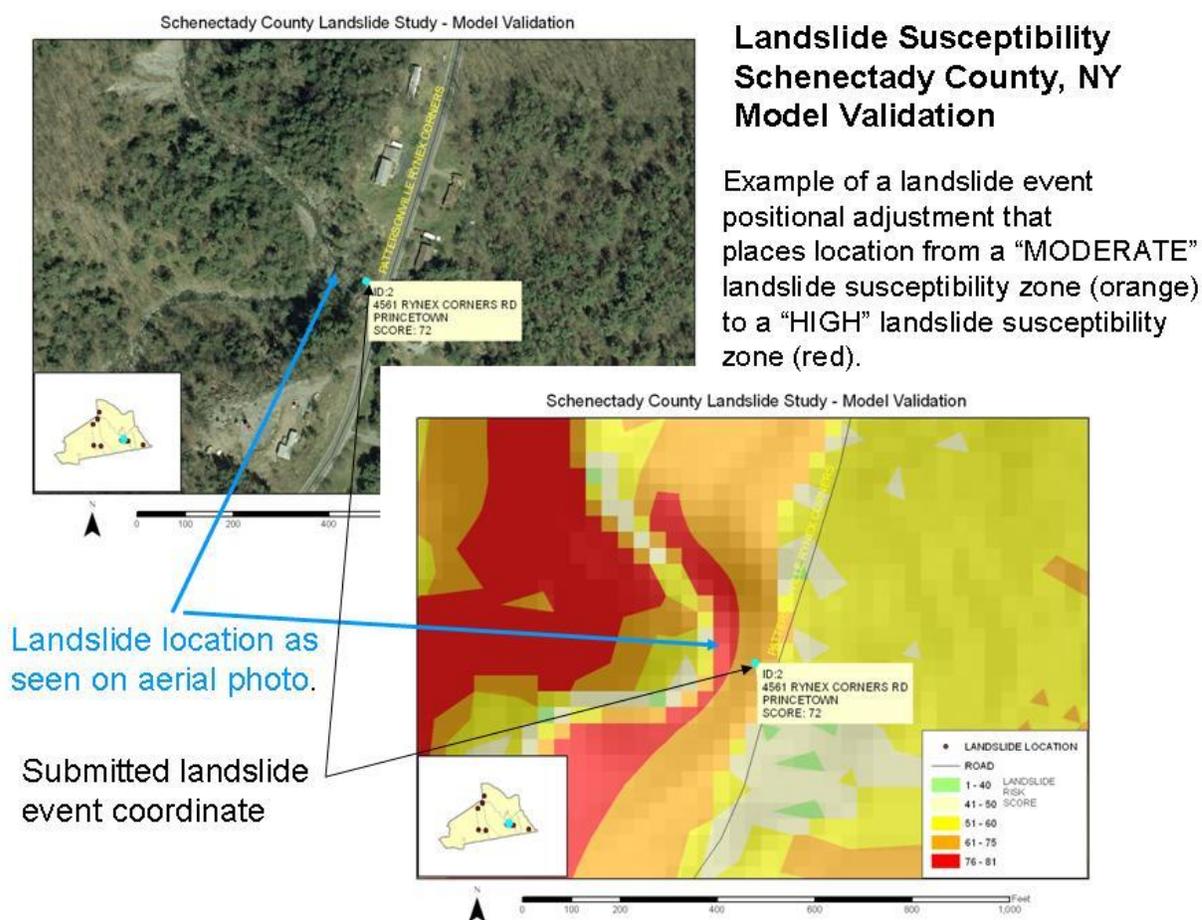
**SCHENECTADY COUNTY LANDSLIDE STUDY
RISK SCORE VALUES AT POINT LOCATIONS
OF LANDSLIDE OCCURRENCES**



ID	LOCATION	MUNICIPALITY	RISK SCORE	MAP COLOR
1	797 BROADWAY	SCHENECTADY	61	Orange
2	4561 RYNEX CORNERS RD	PRINCETOWN	72	Orange
3	4853 PATTERSONVILLE-RYNEX CORNERS RD	ROTTERDAM	78	Red
4	4169 SCOTCH RIDGE RD	DUANESBURG	68	Orange
5	2654 TROY-SCHENECTADY RD	NISKAYUNA	77	Red
6	585 BROADWAY	SCHENECTADY	76	Red
7	RAMP OFF I-890	SCHENECTADY	61	Orange
8	RAMP OFF I-890	SCHENECTADY	21	Green
9	248 KELLEY STATION RD	PRINCETOWN	48	Yellow
10	KELLEY STATION RD	PRINCETOWN	38	Green
11	ENNIS RD	PRINCETOWN	76	Red
12	WOLF HOLLOW RD	GLENVILLE	58	Yellow
13	BELLEVUE LITTLE LEAGUE	SCHENECTADY	61	Orange
14	SCHERMERHORN RAVINE	SCHENECTADY	41	Yellow
15	VEEDER/BROADWAY	SCHENECTADY	76	Red

On first inspection, only 5 of the 15 landslide events fall within a HIGH landslide susceptibility zone. On further inspection, however, using an orthoimagery backdrop, it becomes apparent that a slight adjustment in the point location of the landslide to fall more directly on the visible slide area would coincide with 10 of the 15 landslide events in a HIGH landslide susceptibility area. In addition, several of the locations with LOW landslide scores appear to be related to road construction embankments. Since the model is based on natural soils characteristics and slope, these changes are not accounted for in this model. With these landslide events eliminated from the validation, 10 of 13 landslide events fall within a HIGH landslide susceptible zone.

Figure A.3-125: Landslide Susceptibility Schenectady County, NY Model Validation



The HIGH landslide susceptibility zone comprises only 2% of the total area of Schenectady County. Given that only a limited area of the County is classified as HIGH susceptibility and that 10 of 15 landslide events fall within this zone, the model has shown, in this instance, to be an excellent predictor of the landslide hazard.

Model Refinements

As a pilot study, the methodology used can be considered preliminary and likely to be refined through additional studies. Approaches that address the lack of data for “Urban” soils will need to be devised and other shortcomings, such as the limited information of soil depths, will need to be addressed. A Phase II study that looks at the inclusion of infrastructure would also be of benefit in furthering the identified hazardous areas.

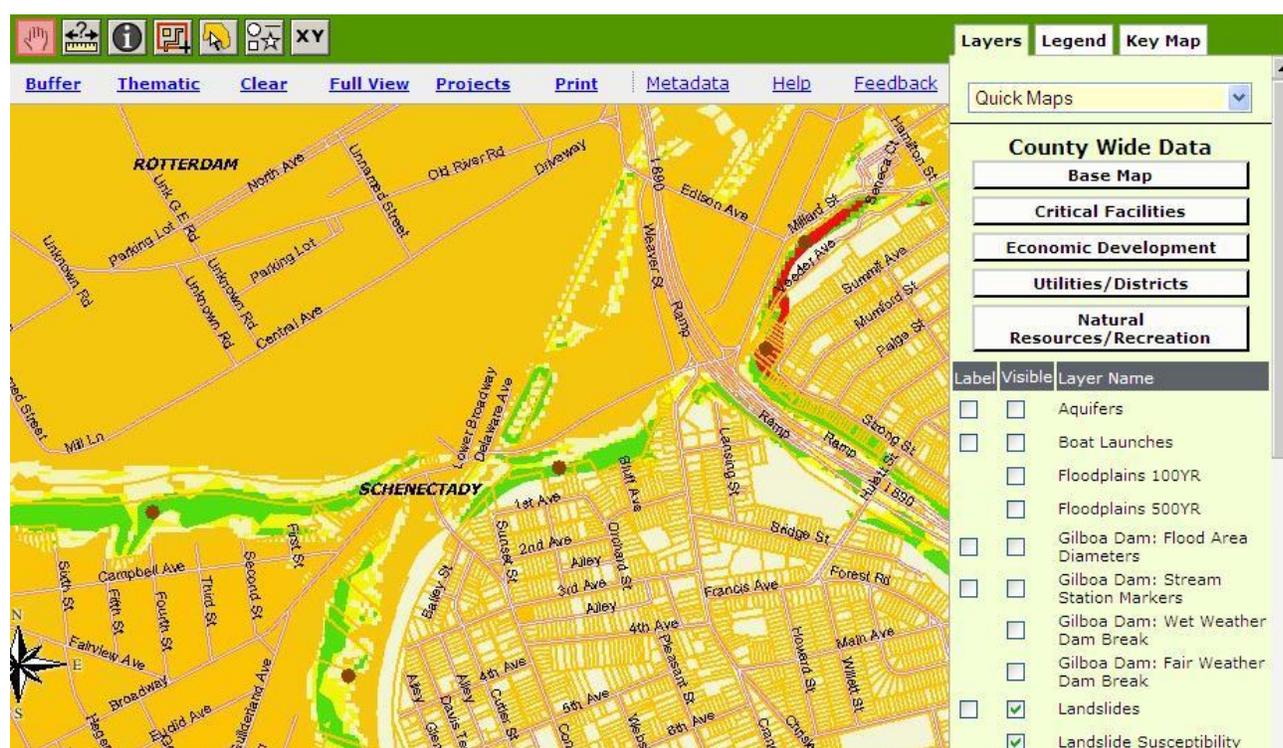
While the NYSDEC DEM provides an acceptable slope resolution, the use of Light Imaging Detection and Ranging (LIDAR) terrain data that is becoming more widely available through the FEMA Flood Map Modernization Program will provide better slope input and may be useful in identifying previous undocumented landslides. An effort should be made to ensure that surrounding slopes

are also included when collecting LIDAR data for a floodplain mapping, and FEMA should consider the multi-hazard utility of LIDAR into its data collection planning.

Conclusion

The Landslide Susceptibility Pilot Study of Schenectady County provides a “proof of concept” example, reinforcing previous statements by the USGS and New York State Multi-Hazard Mitigation Plan that significant advancements can be made in mapping the landslide hazard in New York State. Given existing widely available data, GIS technology, and knowledge of landslide mechanisms, landslide susceptibility maps can be generated in a cost effective manner. The geographic resolution of these maps is sufficient for land use planning and would provide a foundation for mitigation. Importantly, as a digital product, these landslide susceptibility maps can be easily integrated into systems that make the data widely available to the general public or for internal government review as demonstrated by the integration of the landslide susceptibility GIS map layer into County’s “Schenectady Internet Mapping System (SIMS)” - (see **Figure A.3-126**).

Figure A.3-126: Schenectady Internet Mapping System



While this pilot demonstrates that landslide susceptibility maps can be generated in a more cost effective manner than was previously possible, it does not imply that resources will not be needed to expand this work to other Counties and eventually Statewide. Of particular need is staffing. The NYSGS has traditionally been the lead agency on landslide hazard analysis and for many years had staff supporting this responsibility. This staff position remains unfilled following a retirement several years ago. In addition, the agency no longer has its own in-house GIS staff and now relies on limited shared NYS Museum GIS staff.



The enhancement of staffing and resources at the NYSGS would enable this agency to better serve its traditional role and responsibilities with landslides and serve as lead for a multi-agency program focusing on landslide evaluation and susceptibility mapping. This program should include at a minimum NYSDOT, NYSOEM and possibly NYSOCC, which may be in the best position to serve as an interactive clearinghouse for reporting and mapping landslide occurrences.

Irrespective of how the State may organize itself in the future to better map landslide susceptibility and support landslide hazard mitigation, coordination with the USGS and with Local government - an important end user of this information - will be critical to a successful program. The theme of Federal-State-Local partnership that is demonstrated with the Landslide Susceptibility Pilot Study of Schenectady County should be carried forward in future efforts. The partnership theme is also consistent with recommendations made by the National Research Council of the National Academies in its report "Partnerships for Reducing Landslide Risk - Assessment of the National Landslide Hazards Mitigation Strategy", available at: <http://www.nap.edu/catalog/10946.html>.

