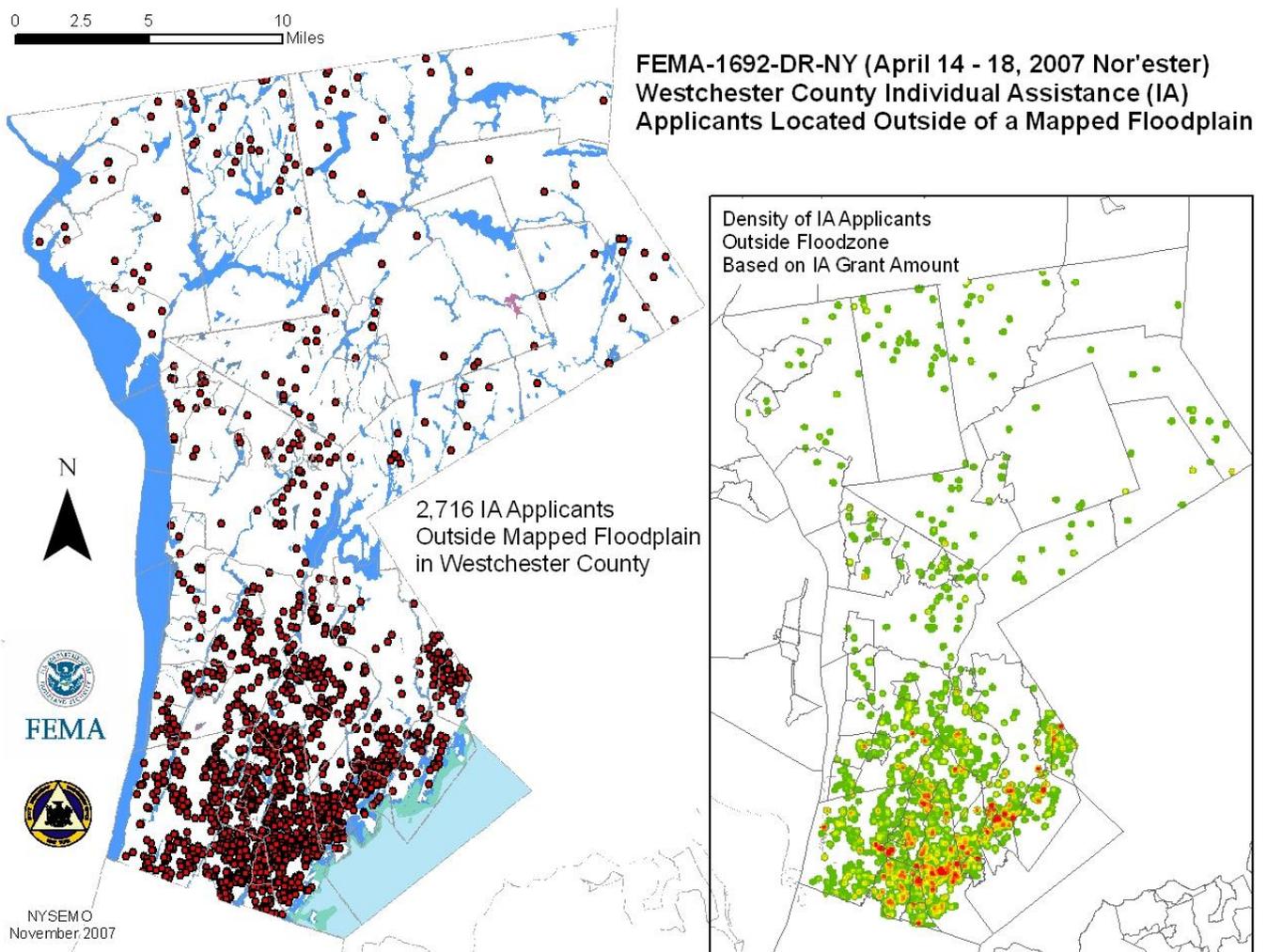


Flooding Outside Mapped Flood Plains

It is a common misconception that Flood Insurance is only available if a home or business is located within a mapped 100-year flood plain. This is not correct. Flood insurance is available outside the mapped flood plains because flooding can and does occur outside mapped flood plains. Businesses and homeowners should be encouraged to consider obtaining National Flood Insurance Program (NFIP) coverage even if they are outside the immediate 100-year floodplain. Larger floods will occur that extend beyond the 100-year flood plain and flooding occurs along rivers and streams that have no formal NFIP 100-year flood plain map. Over time flood plains change. Development upstream can change current hydraulic and hydrologic runoff patterns and impact downstream flooding. **Figure 3-84** shows the extent of flooding that occurred outside the NFIP mapped flood plains in Westchester County from the April 14-18th, 2007 Nor'easter.

Figure 3-84



HAZUS Flood Loss Estimation Study – Town of Niskayuna, NY

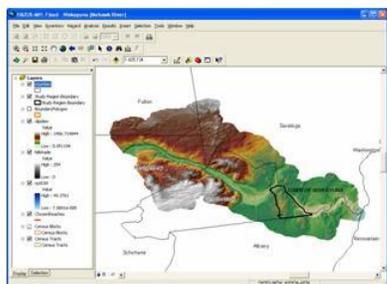
The 100-Year Floodplain Property Exposure Analysis that was conducted as part of the State Hazard Mitigation Plan update has identified the types, numbers and value of real property in the 100-year floodplain for 972 New York State Municipalities. As an “exposure” analysis it provides an indication of the flood risk but it does not provide an estimate of likely damage if a

100-year flood were to occur. In contrast, FEMA’s HAZUS model, which has been used by the State for earthquake and hurricane wind analysis as documented in other sections of this plan, generates loss estimates, including dollar damages, casualties, debris, shelter needs, etc.

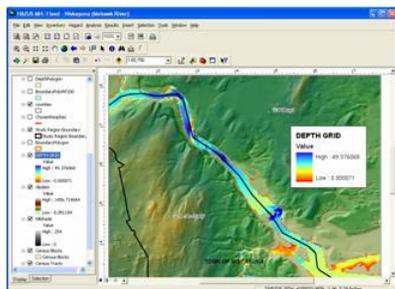
A test case use of the FEMA HAZUS Flood Model was conducted of the Town of Niskayuna, Schenectady County, as part of the State Hazard Mitigation Plan update to evaluate the potentials of this model. This study identified advantages and limitations of the model, particularly in contrast to an exposure analysis and shown in **Figure 3-85**

Figure 3-85

HAZARD IDENTIFICATION AND RISK ASSESSMENT



HAZUS calculates watershed for study area



HAZUS performs hydrologic analysis, generating flood inundation and water depths for depth-damage calculations

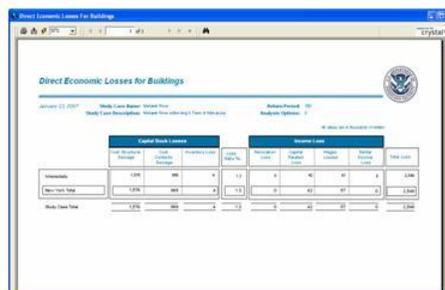
Use of FEMA HAZUS – GIS Based Modeling Software for Flood Loss Estimation*

Advantages:

- Provides loss estimates for various flood scenarios, not just identification of properties at risk
- Analysis can be performed in areas where FEMA Q3 digital flood data is not available

Limitations:

- Default data is limited and may result in potentially wide margin of error in loss estimations



HAZUS generates reports of estimated flood losses, including damage to buildings, vehicles, debris and shelter needs

NYSEMO GIS – January 2007

* earthquake, hurricane, flood

The information gained from a HAZUS flood loss estimation study can be useful in developing a hazard mitigation plan and should be conducted as part of a flood risk assessment and will supplement the flood exposure analysis. The relationship of the numbers developed through exposure analysis to loss estimates should be explored further. With a significant number of community 100-year flood loss estimates generated from HAZUS, a comparison of these numbers to a community’s property exposure numbers may be possible. Through statistical analysis, it may be possible to determine the relationship between property exposure and loss estimates. For instance, this would enable estimates of how much damage is likely to occur in a 100-year flood given the types, numbers, and value of properties in the 100-year floodplain as provided by the exposure analysis. This would be useful given the number of communities we now have analyzed from a property exposure perspective.

Community Rating System Program of the NFIP

The NFIP’s Community Rating System (CRS) was implemented in 1990 as a program for recognizing and encouraging community floodplain management activities that exceed the minimum NFIP standards. According to FEMA’s web site, nationwide over 1,000 communities

receive flood insurance premium discounts based on their implementation of local mitigation, outreach, and educational activities that exceed minimum NFIP requirements. While premium discounts are one benefit of participation in CRS, it is more important that communities carry out activities that save lives and reduce property damage. FEMA NFIP statistics indicate that CRS communities represent a significant portion of the Nation's flood risk as evidenced by the fact that over 66% of the NFIP's policy base is located in them. Based on this statistic, we must acknowledge that New York communities participating in CRS are at higher flood risk than other communities. Twenty-seven New York communities in 11 Counties receive flood insurance discounts through participation in the CRS program. Of the over 1,600 communities that participate in the NFIP program in NYS, only 28 are eligibly enrolled in the CRS program. While it is primarily important that these 28 communities are saving lives and reducing property damage, they are also securing reduced NFIP rates for individuals and families within their boundaries. Increasing overall CRS participation in New York would have two potential significant positive impacts: 1) it would increase flood mitigation actions across the State and reduce flood losses; 2) it would result in added savings for individuals and families with NFIP policies. NYS has already taken Flood Hazard Mitigation actions on a statewide basis that provide credits to Local governments meeting the minimum requirement of 500 points to qualify for participation in the CRS program. Modest additional steps at the local level could result in further premium cost reductions and provide added flood mitigation measures.

Table 3-17.1 identifies jurisdictions receiving NFIP discounts through CRS participation.

**Table 3-18
NFIP CRS Participants**

CRS#	Community	County	Current Class	Status
360226	Amherst, Town of	Erie	8	C
360147	Ashland, Town of	Chemung	9	C
360988	Bayville, Village of	Nassau	8	C
360148	Big Flats, Town of	Chemung	8	C
360149	Chemung, Town of	Chemung	9	C
360772	Corning, City of	Steuben	9	C
360463	East Rockaway, Village of	Nassau	9	C
360150	Elmira, City of	Chemung	8	C
360151	Elmira, Town of	Chemung	9	C
360774	Erwin, Town of	Steuben	8	C
360464	Freeport, Village of	Nassau	7	C
360417	Greece, Town of	Monroe	9	C
360153	Horseheads, Town of	Chemung	9	C
360154	Horseheads, Village of	Chemung	9	C
360308	Ilion, Village of	Herkimer	9	C
360047	Johnson City, Village	Broome	9	C
360247	Lackawanna, City of	Erie	9	C
360476	Lawrence, Village of	Nassau	7	C
365338	Long Beach, City of	Nassau	8	C
360118	Moravia, Village of	Cayuga	8	C
360506	Niagara Falls, City of	Erie	8	C
360667	Oneonta, City of	Otsego	8	C
360932	Scarsdale, Village of	Westchester	8	C
365342	Southampton, Town of	Suffolk	8	C
360156	Southport, Town of	Chemung	9	C
360595	Syracuse, City of	Onondaga	8	C
360056	Union, Town of	Broome	8	C
360157	Wellsburg, Village of	Chemung	9	C

Status: C = Current, R = Rescinded no longer qualify for program

Probability of Future Flood Hazard Events

Given the history of occurrences in New York State, it is certain that future flooding will occur. Therefore, we can express the probability of future flooding in the State as high. This Plan expresses the probability of future flooding using simple historic frequency to indicate the future flooding potential.

Using documented historical flood disaster and emergency declaration information to estimate the probability of future flood declarations, our records indicate New York State has experienced 28 flood-related disasters since 1984 and therefore can expect, on average, one flood event meeting disaster criteria every year.

Based on analysis of records from the National Climatic Data Center of the National Oceanic and Atmospheric Administration (NOAA), future occurrences of flooding, which results in at least \$25 thousand in damages, can be projected as follows: 54 individual flooding events can be expected annually, of which 28 per year can be classified as flash flood events, and 26 per year can be classified as flood events. Further analysis indicates flash floods from ice jams is estimated to occur once every 3 years, and coastal flooding approximately once every 7 years.

In summary, historical data indicates high frequency of general flood occurrence in New York State. The fact that the elements required for flooding exist and major damaging flooding has occurred throughout the State in the past suggests that many people and properties are at risk from the flood hazard in New York State.

Flood Risk Assessment Methodologies

In the previous sections, various ways of evaluating and looking at the risk of flooding were laid out for consideration. They include:

- a listing and statewide map of all high hazard dams in NYS
- a listing of all documented ice jam events occurring over the last five years
- a statewide map depicting the location of all recorded ice jam events, including the total number of incidences on individual waterways
- a listing of all the recorded coastal flooding events in NYS
- a listing of communities located within Coastal Erosion Hazard areas across NYS
- a listing of both un-declared and declared flood disaster events across the State
- maps and associated spreadsheet of the National Flood Insurance Program data for New York State municipalities
- maps and spreadsheets of Municipal and County totals of the number, type, and value of property located in a 100-year floodplain based on GIS analysis of FEMA Q3 digital flood maps with the NYS Office of Real Property Services parcel data (35 Counties only)
- comparison of NYS Municipalities NFIP statistics with the GIS flood property analysis, providing an indication of those communities that are potentially at greater risk due to percentages of property owners without flood insurance.
- an example of a flood loss estimation study using the HAZUS flood model, including a comparison of loss estimation with a property exposure analysis
- individual County maps showing the location and concentration “hot spots” of residential property within the 100-year floodplain
- a ranking of flood risk by County using specified risk factors

One of the most important and useful documents to use in defining your risk of flooding is the FEMA Flood Insurance rate Maps or FIRMs. A FIRM is a product of a Flood Insurance Study (FIS) for a community.

Older versions of the FIRMs are found in paper form. Many of the paper maps in NYS have been transformed into digital form called Q3. These are essential electronic images of the paper map. The newer FIRMs are being produced directly in digital form called DFIRMs. At the conclusion of flood mapping process, each community is provided a complete set of flood maps so that they can be kept on file by the community to assist in making decisions for safe and appropriate development in communities potentially impacted by flooding. To determine if your community has had a FIS and if on-line flood maps are available please click on the following web site:

<http://msc.fema.gov/webapp/wcs/stores/servlet/FemaWelcomeView?storeId=10001&catalogId=10001&langId=-1>

FIRMs delineate Special Flood Hazard Areas (SFHAs) - land areas subject to inundation by a flood that has a 1-percent probability of being equaled or exceeded in any given year (hence, the terms “1-percent annual chance flood” and “100-year flood”). SFHAs are shaded on the FIRM and are divided into different flood hazard zones, depending on the nature and severity of the flood hazard. To get more information on how to read or use the information in a FIRM, click on the following link www.fema.gov/library/viewRecord.do?id=1570 and look for the document titled **FACT 03: Using a Flood Insurance Rate Map (FIRM)**.

Please see **Figure 3-85.1** on the following page to determine the status of DFIRM production for your community or contact the NYSDEC Regional Floodplain Administrator for assistance.

Obviously, there is no single all-encompassing way of looking at risk and we’re not suggesting that we identified all the factors that need to be considered. The State primarily focused on defining risk for those areas within the 100-year floodplain (those areas having at least a 1% chance of flooding during any given year). While the Plan focuses on the 100-year floodplain, it is important that communities not dismiss the risk associated with the 500-year floodplain. The probability for flooding to the full extent of the 500-year level is low (0.2% chance of flooding in any given year); however, flooding above the 100-year level is not uncommon as was shown in certain areas of the State during the June 2006 flooding event where 300-year flood levels were reached. In addition, it must be recognized that much of the flood damage that typically occurs is in areas that are outside a floodplain altogether, particularly in urban and densely populated areas where storm water runoff and ponding conditions are more likely.

While the GIS analysis of property in the 100-year floodplain includes information for all property classifications (agricultural, commercial, vacant, etc.), a primary focus has been on residential property. This is based on the fact that residential properties comprise the greatest number and total value of property within floodplains and that damage to residences has the greatest impact on citizens. The analysis that has been conducted is an exposure assessment - identifying property that is in harm’s way. While indicating the potential for loss, exposure does not equate to the actual losses from a 100-year flood event. In order to project actual flood losses - damage to structures, dollar losses, debris generation, number of people requiring shelter, etc - information on flood inundation depths and elevations of individual structures is needed. While this information can be collected, it is generally not widely available and for most municipalities

NYS-wide FEMA DFIRM Status
 October 2010

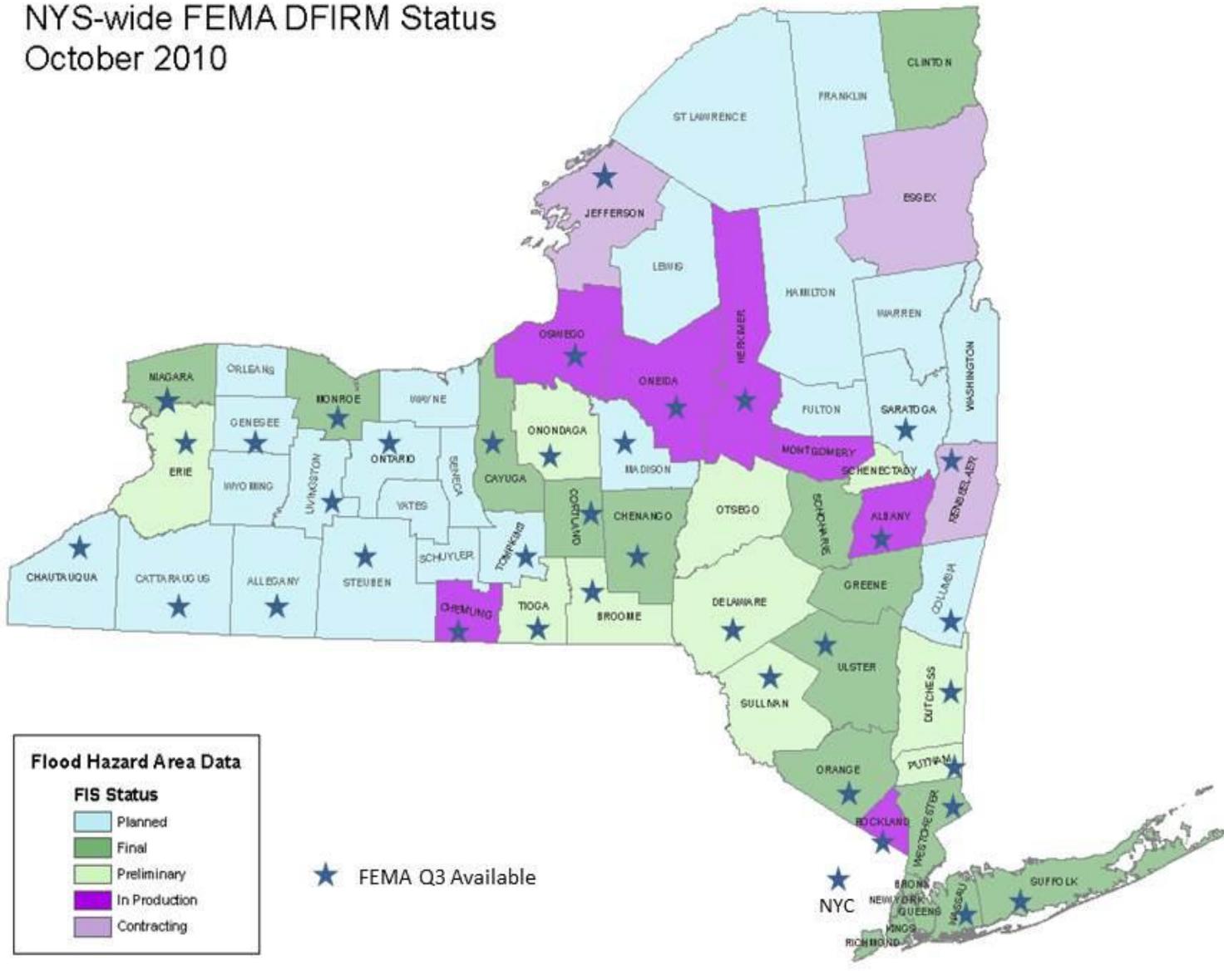


Figure 3-85.1

it is cost prohibitive to obtain. The FEMA HAZUS flood modeling tool provides a cost effective alternative to estimate losses as it can be undertaken without building first floor elevations or for that matter a digital floodplain map. This may be of particular interest in those areas of the State where neither a FEMA Q3 digital flood map nor a Digital Flood Insurance Map (DFIRM) is available. This plan includes a sample HAZUS community flood loss estimation study for the Town of Niskayuna, Schenectady County, including a contrasting of the advantages and disadvantages of this tool with a property exposure analysis.

We encourage all Jurisdictions and Entities to use the following information and tools as guides in evaluating your community's risk to flooding. Your knowledge of local events, conditions, and special situations are critical and may cause you to include additional factors that we have not documented, or to disregard methods employed in this plan.

Jurisdictions Threatened by and Vulnerable to Flood Hazard and Estimating Potential Losses

Table 3-19 present the results of our vulnerability assessment depicting how vulnerable a County may be to flood hazards as determined by a final rating score. Each County accumulates points based on the value of each vulnerability indicator. The higher the indication for flood exposure the more points assigned resulting in a final rating score (see scoring table below). The Plan developed in 2008 presented two methods of analysis using two tables. The first assessment method employed overlays of Q3 floodplain analysis data and NYS Office of Real Property Services (RPS) assessed property value data. The second method of analysis was done at that time because Q3 data was not available and still is not available for all areas of the State. The task of obtaining this data, overlaying and comparing it was time consuming and very labor intensive. Staffing resources limited the NYS Office of Emergency Management ability to present this analysis in the 2011 update. [*The Q3-RPS information presented in the 2008 Plan is still a valuable tool for information purposes and individuals may wish to refer to 2008 document which can be accessed on the NYSOEM website by "clicking" on the following link [New York State Standard Multi-Hazard Mitigation Plan](#)]. The method employed in **Table 3-19**, excludes Q3 floodplain analysis data resulting in 7 vulnerability indicators.*

The result of our flood hazard assessment presents a gross indication of a County's vulnerability to flood hazard using readily available information. The analysis methodology for this section uses key vulnerability indicators to provide an assessment of vulnerability. Those vulnerability indicators reflect both the characteristics of the hazard and the built environment for the County. We acknowledge the limitations of this analysis to provide site specific or community specific accuracy and recognize that its applicability may not be appropriate beyond a general indication. Instead, the analysis results may be best used as a guide to help target communities that would benefit from further flood hazard and vulnerability analysis.

Table 3-19 - County Jurisdiction Threatened and Vulnerable to Flood Loss

(excluding Q3 flood data)								
County	Rating Score	# of NFIP insurance policies	# of NFIP claims	\$ total NFIP claims	\$ Mil total NFIP policy coverage	# of Repetitive Flood Loss Properties	# of Flood Disasters	Pop density (HAZUS)
Nassau	33	43,622	13,708	86,225,821	11,519,673,100	1,468	6	3,039
New York City	32	35,889	21,643	73,182,682	7,911,732,900	2,378	4	17,866
Suffolk	32	39611	16,026	147,343,095	10,956,974,800	1,938	6	640
Westchester	32	7421	7,859	79,552,698	1,956,861,000	855	7	1,912
Erie	30	3,417	2,678	11,709,110	528,434,400	112	8	744
Broome	28	1,788	1,643	44,248,096	348,379,700	242	8	272
Orange	28	1,870	1,163	9,045,370	356,922,700	106	8	458
Rockland	28	1614	2,503	12,136,576	389,364,200	234	6	1,506
Ulster	28	1143	688	9,385,468	239,449,500	72	12	156
Sullivan	27	826	941	14,191,263	160,309,300	124	11	76
Onondaga	26	1,796	806	5,022,884	287,406,300	39	5	565
Tioga	26	803	827	13,764,158	114,083,300	136	8	96
Delaware	25	1,154	951	24,083,138	181,617,500	72	13	31
Cattaraugus	24	858	796	5,567,569	107,724,400	12	9	60
Monroe	24	2,128	567	2,388,136	345,317,700	25	4	530
Chautauqua	23	755	2,132	8,493,687	98,946,700	194	5	89
Dutchess	23	1077	378	5,856,695	246,345,700	39	5	356
Saratoga	20	906	377	3,027,838	158,863,500	42	2	261
Steuben	20	965	383	1,656,302	130,235,600	11	9	69
Albany	19	844	217	2,040,239	160,993,900	22	3	560
Chenango	19	589	387	5,420,652	72,924,900	33	5	56
Greene	19	524	297	4,088,693	77,136,800	30	8	74
Oneida	19	804	392	1,839,366	118,155,500	24	4	184
Rensselaer	19	1,144	305	1,487,689	169,917,000	16	6	234
Schoharie	19	413	362	4,135,556	68,630,800	50	8	50
Allegany	18	442	568	1,714,579	38,877,700	97	10	47
Putnam	18	411	232	940,903	102,175,400	15	5	404
Montgomery*	17	258	167	4,108,919	42,383,400	11	9	119
Schenectady	17	365	208	1,620,000	60,888,500	27	4	726
Tompkins	17	330	214	1,527,860	59,371,700	11	8	207
Chemung	16	686	233	1,135,883	98,859,300	14	5	215
Cortland	16	538	273	2,175,531	60,634,800	17	4	96
Madison	16	615	220	951,681	76,086,400	12	5	106
Niagara	15	758	112	227,424	90,895,700	2	5	188
Otsego	15	478	287	6,316,376	77,918,600	6	5	61
Cayuga	14	483	239	890,881	62,498,800	12	4	90
Columbia	14	268	168	1,776,178	59,059,300	9	7	95

Genesee	14	566	135	845,656	54,971,700	9	4	117
Herkimer	13	525	167	1,047,446	62,349,300	6	7	43
Ontario	13	452	207	1,098,988	83,185,300	4	3	159
Clinton	12	239	191	1,525,203	40,210,600	19	3	73
Essex	12	238	267	1,446,332	45,560,200	20	5	20
Oswego	12	417	187	1,054,934	58,380,200	12	4	87
Livingston	11	353	110	431,015	46,108,300	2	5	98
Wyoming	11	198	133	1,320,307	21,588,800	6	3	69
Fulton	10	148	72	686,103	21,106,000	6	3	103
Jefferson	10	403	173	690,459	65,299,200	7	2	68
Orleans	9	111	35	69,411	15,625,700	1	4	52
Warren	9	249	112	389,964	52,912,400	2	2	71
Washington	9	193	115	600,998	29,994,600	4	3	74
Yates	9	258	93	206,269	42,606,400	0	6	65
Hamilton	8	81	44	204,650	14,611,600	3	3	3
Lewis	8	93	45	344,304	13,433,100	4	4	20
Schuyler	8	61	49	302,890	10,742,100	0	4	55
Wayne	8	246	104	523,617	38,223,300	3	1	65
Franklin	7	139	34	172,512	20,743,000	0	3	29
Seneca	7	156	79	433,767	25,276,600	7	0	87
St. Lawrence	7	203	77	351,238	28,899,000	3	1	39

Sources: FEMA NFIP and US Census data. Analysis supported by GIS technology.

Score Method-Jurisdiction Most Threatened/ Vulnerable to Flood/Flood Loss (excluding Q3 flood data)

County	Rating Score	# of NFIP insurance policies	# of NFIP claims	\$ total NFIP claims	\$ Mil total NFIP policy coverage	# of Repetitive Flood Loss Properties	# of Flood Disasters	Pop. Density
Rating Score Variables Distributions and Point Values	1	61-300	34-259	69-700k	10-50m	1-10	1-2	1 – 49
	2	301-525	260-461	701-1.5M	50m-100m	11-20	3-4	50 – 99
	3	526-750	462-778	1.5M-3.0M	100m-200m	21-100	5-6	100 – 299
	4	751-1950	779-5956	3.0M-10.0M	200m-1.9B	101-1000	7-8	300 – 1999
	5	1951-43,622	5957-21,643	10.0M-147.3M	1.9B-11.5B	1001-2500	9-13	2000 - 17,866

Estimating Potential Flood Loss by Jurisdiction

This Section in Chapter 3.4.5 remains unchanged from the 2008 Hazard Mitigation Plan update. Limited staffing resources have prevented the NYS OEM from updating the information and the respective tables. Even though the data and the tables have not been updated to reflect additional FEMA mapping that may have occurred and changing property values, this Section still provides an excellent general indication of the extent and distribution of a community's flood risk that is useful for mitigation planning.

Table 3-20 is the result of our flood loss analysis which presents a gross estimate of potential flood losses by County using readily available information. We believe our analysis methodology is sound in that it provides a reasonable estimate of potential flood loss expressed in terms of total exposure. We certainly acknowledge its limitations for complete accuracy and that its applicability may not be appropriate beyond a general indication, especially at the Local level. We have established activities in our mitigation strategy that will advance the accuracy of the flood risk assessment through future more detailed analysis using Local risk assessment information, better data as it becomes available and continued application of GIS technology. Furthermore, it is our position that the State Plan addresses issues at the County level. Municipalities understand that they should use the information herein as a guide in their detailed and locally specific analyses.

Our flood loss analysis and estimation methodology involved the following: an identification of properties considered vulnerable to flooding and an estimation of dollar value. The total number of at-risk residential structures is presented for analysis two ways: first, using Q3 floodplain data and applying GIS technology and analysis by overlaying the Q3 data and the Office of Real Property Services data and second, through statistical estimation of total structures in the floodplain using NFIP insurance report data which provides the number of insured structures in the floodplain. Federal and State NFIP and floodplain management officials estimate that the overall number of insured structures in the floodplain represents only 30% of the actual number of structures in the floodplain. Using this assumption, a simple calculation was made to estimate total number of structures in the floodplain. Dollar value of the identified at-risk structures is estimated using median sales price of existing (residential) single family homes by County as found in the 2003 New York State Statistical Reference Almanac. **Table 3-20** presents the two methods of loss estimate analysis, sorted by dollar value loss from greatest to lowest loss potential. It is recommended that you use the right side of **Table 3-20** to estimate loss potential only where Q3 or Real Property Services data is missing.

Table 3-21 is shown for comparison purposes only. This is the exact data presented in the original 2005 Statewide Hazard Mitigation Plan. You will note that the 2005 estimates of structures within the Q3 zones are considerably higher, for the most part, than the data shown in the 2008 plan. In the 2005 plan, the Q3 data was overlaid on the HAZUS-MH statistical data. This was the best data available at that time, but significantly inflated the number of structures at risk.

**Table 3-20
Estimating Potential Flood Loss by County**

Using Q3- number and estimated value of residential structures in 100yr Floodplain			Using NFIP data – calculated estimate- number and estimated value of structures in 100y floodplain				
County (2)	Q3 # in floodplain	Calculated estimate \$ Value	County	FEMA NFIP #	Calculated NFIP #	Median Sale Price (1)	Calculated estimate \$ Value
Suffolk	15,133	\$15,284,000,000	Nassau	30,831	102,770	\$489,000	\$50,254,530,000
Westchester	2,636	\$2,523,000,000	New York City**	28,143	93,810	\$520,000	\$48,781,200,000
Erie	10,197	\$1,263,000,000	Suffolk	15113	50,377	\$397,450	\$20,022,338,650
Monroe	7,501	\$1,053,000,000	Westchester	4,828	16,093	\$670,000	\$10,782,310,000
Dutchess	2,345	\$715,000,000	Dutchess	966	3,220	\$342,000	\$4,794,840,000
Orange	2,644	\$690,000,000	Rockland	1,461	4,870	\$498,000	\$2,425,260,000
Rockland	1,406	\$612,000,000	Orange	1,598	5,327	\$317,600	\$1,691,855,200
Onondaga	4,318	\$524,000,000	Ulster	1,085	3,617	\$250,000	\$904,250,000
Ulster	1,854	\$395,000,000	Monroe	2211	7,370	\$118,000	\$869,660,000
Saratoga	1,992	\$332,000,000	Onondaga	1,832	6,107	\$123,000	\$751,161,000
Herkimer	2,042	\$296,000,000	Rensselaer	1,154	3,847	\$155,000	\$596,285,000
Ontario	989	\$285,000,000	Columbia	218	727	\$239,000	\$416,577,000
Niagara	2,822	\$272,000,000	Putnam	294	980	\$410,000	\$401,800,000
Cayuga	1,882	\$269,000,000	Sullivan	756	2,520	\$159,000	\$400,680,000
Jefferson	2,246	\$265,000,000	Allegany	466	1,553	\$52,268	\$355,945,080
Sullivan	1,551	\$247,000,000	Cortland	523	1,743	\$84,800	\$355,057,600
Steuben	2,138	\$206,000,000	Albany	758	2,527	\$189,900	\$294,914,700
Rensselaer	2,183	\$204,000,000	Tioga	867	2,890	\$100,850	\$291,456,500
Chautauqua	1,935	\$201,000,000	Schenectady	363	1,210	\$230,000	\$278,300,000
Oswego	2,165	\$196,000,000	Steuben	957	3,190	\$79,750	\$254,402,500
Oneida	1,969	\$181,000,000	Madison	626	2,087	\$119,450	\$249,292,150
Madison	1,677	\$174,000,000	Broome	2043	6,810	\$92,500	\$244,847,500
Livingston	1,190	\$169,000,000	Oneida	767	2,557	\$91,050	\$232,814,850
Albany	1,317	\$162,000,000	Niagara	787	2,623	\$85,000	\$222,955,000
Broome	2,078	\$136,000,000	Schoharie	446	1,487	\$141,850	\$210,930,950
Columbia	646	\$135,000,000	Cayuga	377	1,257	\$86,000	\$202,100,000
Cattaraugus	1,833	\$132,000,000	Otsego	499	1,663	\$112,500	\$187,087,500
Delaware	1,626	\$127,000,000	Saratoga	859	2,863	\$65,000	\$186,095,000
Tioga	1,533	\$114,000,000	Ontario	425	1,417	\$125,900	\$178,400,300
Chemung	2,169	\$110,000,000	Chautauqua	705	2,350	\$69,000	\$174,087,000
Genesee	1,369	\$103,000,000	Tompkins	299	997	\$164,800	\$164,305,600
Cortland	1,142	\$93,000,000	Chemung	757	2,523	\$77,250	\$159,135,000
Chenango	1,460	\$88,000,000	Fulton	155	517	\$75,000	\$148,725,000
Tompkins	443	\$70,000,000	Genesee	595	1,983	\$85,000	\$138,805,000
Allegany	1,314	\$59,000,000	Warren	238	793	\$174,950	\$138,735,350
			Herkimer	497	1,657	\$74,900	\$124,109,300
			Livingston	336	1,120	\$105,750	\$118,440,000
Bronx	Not available	Not available	Jefferson	365	1,217	\$92,500	\$112,572,500
Clinton*	Not available	Not available	Oswego	414	1,380	\$77,000	\$106,260,000
Essex*	Not available	Not available	Clinton	213	710	\$123,000	\$89,421,000
Franklin*	Not available	Not available	Yates	240	800	\$111,000	\$88,800,000
Fulton*	Not available	Not available	Cattaraugus	794	2,647	\$69,000	\$86,733,000
Greene*	Not available	Not available	Wayne	224	747	\$110,000	\$82,170,000
Hamilton*	Not available	Not available	Erie	4,206	14,020	\$105,000	\$80,850,000
Kings Brooklyn	Not available	Not available	Montgomery	286	953	\$77,500	\$73,857,500
Lewis*	Not available	Not available	Washington	181	603	\$105,000	\$63,315,000
Montgomery*	Not available	Not available	Essex	231	770	\$165,000	\$62,205,000
Nassau	Not available	Not available	Chenango	618	2,060	\$80,000	\$56,800,000
Manhattan	Not available	Not available	Wyoming	194	647	\$77,913	\$50,409,711
Orleans*	Not available	Not available	Seneca	136	453	\$105,000	\$47,565,000
Otsego*	Not available	Not available	St. Lawrence	163	543	\$87,000	\$47,241,000
Putnam*	Not available	Not available	Franklin	113	377	\$78,500	\$40,584,500
Queens	Not available	Not available	Delaware	1256	4,187	\$114,900	\$36,768,000
Richmond	Not available	Not available	Greene	490	1,633	\$164,000	\$34,932,000
Schenectady*	Not available	Not available	Schuyler	78	260	\$120,000	\$31,200,000
Schoharie*	Not available	Not available	Orleans	108	360	\$73,000	\$26,280,000
Schuyler*	Not available	Not available	Lewis	75	250	\$73,000	\$18,250,000
Seneca*	Not available	Not available	Hamilton	64	213	NA	NA
St. Lawrence*	Not available	Not available					
Warren*	Not available	Not available					

County	Using Q3- number and estimated value of residential structures in 100yr Floodplain		County	Using NFIP data – calculated estimate- number and estimated value of structures in 100y floodplain			
County (2)	Q3 # in floodplain	Calculated estimate \$ Value	County	FEMA NFIP #	Calculated NFIP #	Median Sale Price (1)	Calculated estimate \$ Value
Washington*	Not available	Not available					
Wayne*	Not available	Not available					
Wyoming*	Not available	Not available					
Yates*	Not available	Not available					

Source: (1) 2006 median sales prices by county for residential single family homes derived from NYS Real Property Services statistical data base . (2) County* indicates Q3 data not readily available. ** New York City NFIP stats include 5 boroughs, value estimate determined using average of known median sale prices ~290K.

Table 3-21
Estimating Potential Flood Loss by County 2005 TABLE (for comparison only)

County	Using Q3- number and estimated value of residential structures in 100yr Floodplain		County	Using NFIP data – calculated estimate- number and estimated value of structures in 100y floodplain			
County	Q3 # in floodplain	Calculated estimate \$ Value*	County	FEMA NFIP #	Calculated NFIP #	Median Sale Price ***	Calculated estimate \$ Value*
Nassau	23,592	8,611,080,000	Nassau	16,103	53,676	\$365,000	19,591,740,000
Suffolk	27,029	7,703,265,000	Suffolk	18,190	60,633	\$285,000	17,280,405,000
Queens	10,132	3,368,890,000	New York City**	10,276	**34,253	\$288,000	9,933,370,000
Westchester	5,785	3,034,232,500	Westchester	1,790	6,203	\$524,500	3,253,473,500
Richmond (Staten Island)	7,065	2,034,720,000	Erie	2,495	9,816	\$88,850	872,151,600
Orange	5824	1,455,708,800	Rockland	536	1786	\$362,500	647,425,000
Erie	13419	1,192,278,150	Monroe	1468	4893	\$113,000	552,909,000
Kings Brooklyn	4309	1,169,893,500	Orange	639	2130	\$249,950	532,393,500
Rockland	3144	1,139,700,000	Onondaga	1155	3850	\$90,000	346,500,000
Monroe	7949	898,237,000	Dutchess	381	1270	\$265,000	336,550,000
Dutchess	3388	897,820,000	Rensselaer	696	2320	\$117,075	271,614,000
Onondaga	6325	569,250,000	Saratoga	481	1603	\$167,000	267,701,000
Albany	4183	551,319,400	Ulster	448	1493	\$156,500	233,654,500
Ulster	2818	441,017,000	Albany	406	1353	\$131,800	178,325,400
Saratoga	2116	353,372,000	Tioga	461	1536	\$103,750	163,968,000
Rensselaer	2846	333,195,450	Niagara	632	2106	\$69,750	146,893,500
Oswego	4116	288,243,480	Madison	425	1416	\$79,900	113,138,400
Ontario	2445	244,500,000	Genesee	381	1270	\$87,500	111,125,000
Herkimer	1737	243,180,000	Delaware	537	1790	\$60,000	107,400,000
Columbia	1482	228,228,000	Broome	428	1426	\$71,900	102,529,400
Niagara	3203	223,409,250	Putnam	83	276	\$347,000	95,772,000
Tompkins	1856	214,368,000	Oneida	418	1393	\$68,250	95,072,250
Oneida	3017	205,910,250	Steuben	454	1513	\$61,100	92,444,300
Broome	2664	191,541,600	Cortland	417	1390	\$66,250	92,087,500
Chemung	2683	182,444,000	Sullivan	270	900	\$99,500	89,550,000
Jefferson	2747	178,555,000	Chautauqua	409	1363	\$64,775	88,288,325
Tioga	1666	177,845,500	Chemung	388	1293	\$68,000	87,924,000
Sullivan	1770	176,115,000	Greene	219	730	\$115,000	83,950,000
Cayuga	2023	155,265,250	Essex	108	360	\$227,000	81,720,000
Steuben	2539	155,132,900	Ontario	233	776	\$100,000	77,600,000
Madison	1917	153,168,300	Cattaraugus	427	1423	\$53,000	75,419,000
Genesee	1581	138,337,500	Allegany	296	986	\$62,250	61,378,500
Chautauqua	2124	137,582,100	Tompkins	159	530	\$115,500	61,215,000
Cattaraugus	2552	135,256,000	Schoharie	214	713	\$85,450	60,925,850
Allegany	1943	120,951,750	Warren	127	423	\$144,000	60,912,000
Delaware	1818	109,080,000	Chenango	318	1060	\$54,353	57,614,180
Chenango	1876	101,966,228	Otsego	188	626	\$90,000	56,340,000
Livingston	928	72,384,000	Columbia	109	363	\$154,000	55,902,000
Cortland	1056	69,960,000	Cayuga	214	713	\$76,750	54,722,750

County		Using Q3- number and estimated value of residential structures in 100yr Floodplain	County		Using NFIP data – calculated estimate- number and estimated value of structures in 100y floodplain		
County	Q3 # in floodplain	Calculated estimate \$ Value*	County	FEMA NFIP #	Calculate d NFIP #	Median Sale Price ***	Calculated estimate \$ Value*
Wyoming*	73	5,964,100	Oswego	210	700	\$70,030	49,021,000
Fulton*	Not available	369,999	Schenectady	143	476	\$101,000	48,076,000
Bronx	2183	Not available	Livingston	178	593	\$78,000	46,254,000
Clinton*	Not available	Not available	Yates	134	446	\$86,000	38,356,000
Essex*	Not available	Not available	Wayne	121	403	\$92,750	37,378,250
Franklin*	Not available	Not available	Wyoming	123	410	\$81,700	33,497,000
Greene*	Not available	Not available	Jefferson	148	493	\$65,000	32,045,000
Hamilton*	Not available	Not available	Clinton	91	303	\$97,500	29,542,500
Lewis*	Not available	Not available	Seneca	81	270	\$83,000	22,410,000
Montgomery*	Not available	Not available	Washington	79	263	\$79,310	20,858,530
New York City**	Not available	Not available	Montgomery	74	246	\$70,000	17,220,000
NYC Manhattan	920	Not available	Franklin	60	200	\$271,500	14,000,000
Orleans*	Not available	Not available	Herkimer	296	986	\$14,000	13,804,000
Otsego*	Not available	Not available	St. Lawrence	71	236	\$55,000	12,980,000
Putnam*	Not available	Not available	Fulton	78	260	\$41,111	10,688,860
Schenectady*	Not available	Not available	Orleans	44	146	\$67,300	9,825,800
Schoharie*	Not available	Not available	Schuyler	26	86	\$105,000	9,030,000
Schuyler*	Not available	Not available	Lewis	42	140	\$56,000	7,840,000
Seneca*	Not available	Not available	Hamilton	24	80	\$87,000	6,960,000
St. Lawrence*	Not available	Not available	Bronx	**Not available		**Not available	Not available
Warren*	Not available	Not available	Kings Brooklyn	**Not available		**Not available	Not available
Washington*	Not available	Not available	NYC Manhattan	**Not available		**Not available	Not available
Wayne*	Not available	Not available	Queens	**Not available		**Not available	Not available
Yates*	Not available	Not available	Richmond Staten Isl.	**Not available		**Not available	Not available

Source: FEMA NFIP Q3 data and *** 2003 New York State Statistical Yearbook, 28th Edition by the Rockefeller Institute of Government, State University of New York which provided median sales prices by county for residential single family homes used to calculate estimated value exposed property. County* indicates Q3 data not readily available. ** New York City NFIP stats include 5 boroughs, value estimate determined using average of known median sale prices ~290K.

State Facilities – Assessing Vulnerability and Estimating Loss from Flood Hazard

Table 3-22 presents the results of our flood vulnerability assessment and loss analysis for State facilities. The results present a gross estimate of potential flood losses to those identified vulnerable State facilities in terms of dollar value of exposed property. Collaboration with key State agencies that manage State fixed assets resulted in the identification of two (2) State databases that provided key facility information. The NYS Office of General Services (OGS) fixed asset data base and the Office of Cyber Security (OCC) database included fields identifying whether the facility is in the floodplain (yes or no) and building replacement value. The analysis methodology for this plan section presents potential loss estimate in terms of total exposure and property value using generally accepted and readily available information. We certainly acknowledge its limitations for complete accuracy and that its applicability may not be appropriate beyond a general indication. Instead, the first level analysis is best used as a stepping stone to continue the analysis; it identifies facilities that might benefit from further analysis. Further analysis may include activity as simple as determining the general accuracy or verification of the floodplain field in the data base or a more sophisticated analysis such as determining elevation of structures so that 100 year floodplain water depths can be established. We have established activities in our mitigation strategy that will advance the accuracy of the flood risk assessment including further analysis using GIS technology application and Q3 or other digital flood data as it becomes available. For now, one of the best tools that State managers have to determine the potential of flood risk remains the use of the FIRM.

**Table 3-22
Flood Hazard Exposure (in 100 year floodplain)New York State Agency Facilities**

NY State Agency	Total Facilities	Total number # and percent % in floodplain		Critical facilities total number # and \$ and percent % in floodplain
		# and \$	%	
Department of Environmental Conservation	1880	7	0.4 %	0
	\$104,611,361	\$1,782,837	1.7 %	0
Department of Transportation	908	33	3.6 %	0*
	\$232,514,852	\$48,153,066	20 %	0*
Office of General Services	130	6	4.6 %	6 (4.6%)
	\$2,133,659,048	\$8,110,562	0.40%	\$8,110,562 (.4%)
State Emergency Management Office	4	0		0
	\$3,365,434	0		0
Number of facilities Total	2922	46	1.6%	6 (.2%)
Approximate Replacement Value of Structure(\$)	\$2,472,819,244	\$58,046,465	2.35%	\$8,110,562 (.38%)

Source: NYS Fixed Asset information -Offices of General Services and Cyber Security data bases, FEMA Q3 digital floodplain mapping data. Analysis supported by GIS technology. * DOT facility determined critical is included in the OGS listing. Data last updated in 2003.