

Section V Vulnerability Assessment

A. Vulnerability Overview

The purpose of the vulnerability assessment is to identify and characterize property and populations at risk from potential hazards. The types of hazards that impact a community and the potential scope or intensity of the hazard combine with the vulnerability of people, property, facilities and services to define the overall threat and outcomes of a disaster. The vulnerability assessment for Schoharie County looks at the following six (6) factors to determine potential vulnerability to the communities, people, infrastructure, facilities and services.

- Vulnerable Populations
- Impact on Improved Property
- Evaluation of Repetitive Loss Properties
- Vulnerability of Critical Facilities, Infrastructure and Services
- Potential Disaster Costs and Losses
- Consideration of Future Growth and Development

B. Vulnerable Populations

Jurisdiction	2010 Population ¹	14 years of age and under ¹	65 years of age and over ¹	^a Families below poverty level ²	^b Persons 5 years and older with a disability ³
Blenheim	377	71 19%	87 23%	5.9%	196 52%
Broome	973	131 13%	209 21%	5.4%	264 27%
Carlisle	1948	384 20%	219 11%	7.9%	417 21%
Cobleskill, T	1947	326 17%	340 17%	9.2%	386 20%
Cobleskill, V	4678	517 11%	641 14%	11.3%	1584 34%
Conesville	734	98 13%	170 23%	5.7%	211 29%

Jurisdiction	2010 Population ¹	14 years of age and under ¹	65 years of age and over ¹	^a Families below poverty level ²	^b Persons 5 years and older with a disability ³
Esperance, T	1731	326 19%	244 14%	4.8	590 34%
Esperance, V	345	56 15%	44 13%	3.7	107 31%
Fulton	1442	230 16%	228 16%	14.2	383 26%
Gilboa	1307	218 17%	249 19%	9.6	496 38%
Jefferson	1410	260 18%	254 18%	9.1	475 34%
Middleburgh, T	2246	376 17%	351 16%	11.5	615 27%
Middleburgh, V	1500	233 15%	263 17%	12.2	547 36%
Richmondville, T	1692	258 15%	298 18%	5.5	496 29%
Richmondville, V	918	204 22%	119 13%	5.4	283 31%
Schoharie, T	2283	356 16%	339 15%	3.8	624 27%
Schoharie, V	922	111 12%	195 21%	5.9	341 37%
Seward	1763	293 17%	230 13%	5.9	396 22%
Sharon	1288	224 17%	215 16%	10.8	409 32%
Sharon Springs	558	103 18%	107 19%	8.5	329 59%
Summit	1148	212 18%	228 20%	10.9	484 42%
Wright	1539	242 16%	200 13%	5.5	355 23%

Sources: ¹U.S. Census 2010 Summary File, NYS Data Center

²U.S. Census, 2009 Estimates, Schoharie County Chamber of Commerce

³U.S. Census 2000 Summary File, NYS Data Center

a Average number of persons per household in Schoharie County is 2.42 (2010). The U.S. Department of Health and Human Services calculated the 2008-2009 poverty level to be \$22,050 for a family of four.

b 2000 data for non-institutional population. Includes persons 5 years and older that report having a long-lasting sensory, physical, mental or self-care disability; and those that report difficulty going outside the home or have difficulty working at a job because of a physical, mental or emotional condition.

C. Improved Property**2011 Parcel Counts by Broad Use Property Class Code**

County of Schoharie		
Broad Use Category	Description	Parcel Count
100	Agricultural Properties	809
200	Residential Properties	13,137
300	Vacant Land	6,633
400	Commercial Properties	745
500	Recreation and Entertainment Properties	53
600	Community Service Properties	388
700	Industrial Properties	67
800	Public Service Properties	465
900	Public Parks, Wild, Forested and Conservation Properties	575
Total Parcels in All Broad Use Categories		22,872

Source: NYS Office of Real Property Tax Services

Improved Property - Parcel Counts and Assessed Values

2011 Parcel Counts and Assessment by Broad Use Property Class Code		
Town of Blenheim		
Property Use	Number of Parcels	Total Assessed Value
Agriculture	13	\$1,382,000
Residential	307	\$22,553,000
Commercial	3	\$211,400
Recreation / Entertainment	1	\$32,000
Community Service	13	\$887,000
Industrial	0	0
Public Service	24	\$52,294,000
Parks / Conservation	61	\$7,037,000

2011 Parcel Counts and Assessment by Broad Use Property Class Code		
Town of Broome		
Property Use	Number of Parcels	Total Assessed Value
Agriculture	10	\$1,007,700
Residential	736	\$54,714,000
Commercial	7	\$392,200
Recreation / Entertainment	0	0
Community Service	15	\$932,000
Industrial	1	\$20,000
Public Service	13	\$2,086,000
Parks / Conservation	93	\$7,566,000

Improved Property - Parcel Counts and Assessed Values (continued)

2011 Parcel Counts and Assessment by Broad Use Property Class Code		
Town of Carlisle		
Property Use	Number of Parcels	Total Assessed Value
Agriculture	52	\$4,972,000
Residential	659	\$60,600,000
Commercial	10	\$1,800,000
Recreation / Entertainment	1	\$110,000
Community Service	13	\$3,116,000
Industrial	0	0
Public Service	30	\$29,805,000
Parks / Conservation	0	0

2011 Parcel Counts and Assessment by Broad Use Property Class Code		
Town and Village of Cobleskill		
Property Use	Number of Parcels	Total Assessed Value
Agriculture	94	\$7,377,000
Residential	1426	\$135,933,000
Commercial	281	\$85,436,000
Recreation / Entertainment	14	\$2,400,000
Community Service	53	\$139,602,000
Industrial	23	\$9,576,000
Public Service	46	\$13,305,000
Parks / Conservation	36	\$707,000

2011 Parcel Counts and Assessment by Broad Use Property Class Code		
Town of Conesville		
Property Use	Number of Parcels	Total Assessed Value
Agriculture	19	\$4,574,000
Residential	665	\$80,053,000
Commercial	2	\$225,000
Recreation / Entertainment	2	\$13,500
Community Service	16	\$2,609,500
Industrial	7	\$521,350
Public Service	13	\$4,212,000
Parks / Conservation	40	\$6,915,000

2011 Parcel Counts and Assessment by Broad Use Property Class Code		
Town and Village of Esperance		
Property Use	Number of Parcels	Total Assessed Value
Agriculture	28	\$3,417,000
Residential	709	\$59,825,000
Commercial	40	\$5,563,000
Recreation / Entertainment	0	0
Community Service	17	\$1,581,000
Industrial	2	\$527,100
Public Service	36	\$13,328,000
Parks / Conservation	2	\$19,000

Improved Property - Parcel Counts and Assessed Values (continued)

2011 Parcel Counts and Assessment by Broad Use Property Class Code		
Town of Fulton		
Property Use	Number of Parcels	Total Assessed Value
Agriculture	63	\$6,846,000
Residential	762	\$51,443,000
Commercial	12	\$813,000
Recreation / Entertainment	2	\$23,400
Community Service	17	\$737,200
Industrial	2	\$190,000
Public Service	19	\$2,242,000
Parks / Conservation	146	\$11,051,000

2011 Parcel Counts and Assessment by Broad Use Property Class Code		
Town of Gilboa		
Property Use	Number of Parcels	Total Assessed Value
Agriculture	54	\$151,900
Residential	980	\$1,594,000
Commercial	10	\$17,900
Recreation / Entertainment	3	\$60,000
Community Service	32	\$568,000
Industrial	3	\$7,200
Public Service	29	\$3,294,000
Parks / Conservation	19	\$61,200

2011 Parcel Counts and Assessment by Broad Use Property Class Code		
Town of Jefferson		
Property Use	Number of Parcels	Total Assessed Value
Agriculture	46	\$3,319,000
Residential	828	\$59,465,000
Commercial	11	\$1,737,000
Recreation / Entertainment	5	\$3,935,000
Community Service	25	\$4,168,000
Industrial	5	\$62,800
Public Service	33	\$4,320,000
Parks / Conservation	25	\$747,300

2011 Parcel Counts and Assessment by Broad Use Property Class Code		
Town and Village of Middleburgh		
Property Use	Number of Parcels	Total Assessed Value
Agriculture	102	\$9,087,000
Residential	1251	\$103,450,000
Commercial	121	\$14,440,000
Recreation / Entertainment	6	\$887,000
Community Service	40	\$22,215,000
Industrial	6	\$505,700
Public Service	38	\$5,132,000
Parks / Conservation	32	\$1,526,000

Improved Property - Parcel Counts and Assessed Values (continued)

2011 Parcel Counts and Assessment by Broad Use Property Class Code Town and Village of Richmondville		
Property Use	Number of Parcels	Total Assessed Value
Agriculture	40	\$5,003,000
Residential	919	\$114,697,000
Commercial	62	\$13,700,000
Recreation / Entertainment	5	\$320,000
Community Service	25	\$43,121,000
Industrial	7	\$1,380,000
Public Service	33	\$6,471,000
Parks / Conservation	2	\$98,300

2011 Parcel Counts and Assessment by Broad Use Property Class Code Town and Village of Schoharie		
Property Use	Number of Parcels	Total Assessed Value
Agriculture	69	\$4,232,000
Residential	1077	\$112,580,000
Commercial	95	\$17,526,000
Recreation / Entertainment	9	\$480,600
Community Service	43	\$39,667,000
Industrial	8	\$1,631,000
Public Service	56	\$13,184,000
Parks / Conservation	1	\$500,900

2011 Parcel Counts and Assessment by Broad Use Property Class Code Town of Seward		
Property Use	Number of Parcels	Total Assessed Value
Agriculture	67	\$7,247,000
Residential	669	\$65,534,000
Commercial	12	\$1,155,000
Recreation / Entertainment	0	0
Community Service	10	\$1,443,000
Industrial	0	0
Public Service	17	\$2,050,000
Parks / Conservation	45	\$1,062,000

2011 Parcel Counts and Assessment by Broad Use Property Class Code Town of Sharon and Village of Sharon Springs		
Property Use	Number of Parcels	Total Assessed Value
Agriculture	94	\$8,430,000
Residential	716	\$56,768,000
Commercial	65	\$66,502,000
Recreation / Entertainment	5	\$330,300
Community Service	28	\$6,459,600
Industrial	2	\$591,800
Public Service	35	\$9,375,000
Parks / Conservation	41	\$414,200

Improved Property - Parcel Counts and Assessed Values (continued)

2011 Parcel Counts and Assessment by Broad Use Property Class Code Town of Summit		
Property Use	Number of Parcels	Total Assessed Value
Agriculture	11	\$1,150,000
Residential	849	\$51,194,000
Commercial	8	\$452,000
Recreation / Entertainment	0	0
Community Service	28	\$1,309,300
Industrial	1	\$102,000
Public Service	24	\$1,581,000
Parks / Conservation	24	\$1,331,700

2011 Parcel Counts and Assessment by Broad Use Property Class Code Town of Wright		
Property Use	Number of Parcels	Total Assessed Value
Agriculture	47	\$4,521,000
Residential	584	\$53,933,000
Commercial	6	\$683,100
Recreation / Entertainment	0	0
Community Service	13	\$1,184,700
Industrial	0	0
Public Service	19	\$43,776,500
Parks / Conservation	8	\$558,700

Source: NYS Office of Real Property Tax Services, Municipal Profile

Note: Property assessment administration and reports for villages are consolidated with the respective township

D. National Flood Insurance Program (NFIP)

Schoharie County
Community Participation in the National Flood Insurance Program

Data available through October, 2012

- All Schoharie County jurisdictions participate in National Flood Insurance Program (NFIP)
- There are 67 *Repetitive Loss Properties* (RLP) identified in Schoharie County
- There is one *Severe Repetitive Loss* property identified in Schoharie County
- 265 properties located in high-risk flood zones (Zone A) carry NFIP coverage
- 1 municipality in Schoharie County participates in the *Community Rating System* (CRS)

Repetitive Loss Properties (RLP)

The National flood Insurance Program (NFIP) identifies properties that have been repeatedly flooded and where multiple claims for flood losses have been made through the NFIP fund.

Certain repetitive loss properties represent a significant portion of annual flood insurance program claims. In 2004, NFIP calculated that only about 1 percent of properties insured by NFIP are considered to be repetitive loss properties -- properties for which policyholders have made two or more \$1,000 flood claims -- but approximately 38 percent of all NFIP claim costs were the result of damage to repetitive loss properties. Federal action was authorized to reduce program losses by targeting repetitive loss properties and setting priorities to use hazard mitigation grant funds to buy-out or retrofit repetitive loss properties, thus eliminating flood risks and reducing flood recovery costs. The strategy also includes proposals to phase out coverage or begin charging full and actuarially based rates for repetitive loss property owners who refuse to accept FEMA's offer to purchase or mitigate the effect of floods on their structures.

Source: National Flood Insurance Program, Actions to Address Repetitive Loss Properties, 2004

Repetitive Loss Properties

CID	Jurisdiction	Number of Repetitive Loss Properties	Value of All Repetitive Loss Properties	Property Type(s)
361580	Blenheim	1	\$ 164,674	1 Single Family
360743	Cobleskill, V	1	196,152	1 Single Family
361194	Esperance, T	10	1,232,824	10 Single Family
361542	Esperance, V	6	696,481	6 Single Family
361195	Fulton	1	66,500	1 Single Family
361433	Gilboa	2	206,183	2 Single Family
360744	Middleburgh, T	9	2,032,126	8 Single Family 1 Non-Residential
361245	Middleburgh, V	25	3,761,457	15 Single Family 2 Multiple Family 3 Condominium Buildings 1 Other Residential 4 Non-Residential
361198	Schoharie, T	2	821,936	2 Single Family
361061	Schoharie, V	9	1,652,966	8 Single Family 1 Multiple Family
361202	Wright	1	160,100	1 Single Family

Source: NFIP, 2012

(Data privacy policies apply -- contact the Schoharie County Planning and Development Agency for information)

Since 2006, fifteen (15) projects in seven (7) jurisdictions have been completed or are ongoing that address flood hazard mitigation for ***Repetitive Loss Properties***. Projects are further detailed in Section VI and involve acquisition, relocation and retrofitting of flood-prone properties

Severe Repetitive Loss Properties (SRL)

The National Flood Insurance Program (NFIP) identifies Severe Repetitive Loss (SRL) Properties to promote and encourage actions that will reduce or eliminate the long-term risk of flood damage to targeted structures that are insured under NFIP. A SRL property is defined as a residential property that is covered under an NFIP flood insurance policy and:

- (a) 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
- (b) 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 (a) and (b) above, at least two of the referenced claims must have occurred within any ten-year period and must be greater than ten (10) days apart.

The SRL program helps communities and property owners who have suffered repeated flood damage by providing federal funds to buy-out, elevate or floodproof the property and eliminate the risk of future damage. The program also protects the lives of local responders and reduces the burden of future response and recovery costs to the state and local governments, plus it eliminates future claims through the NFIP fund. In New York State, approved SRL funding often covers up to 90% of the project costs.

In 2008, one property in Schoharie County was identified as a Severe Repetitive Loss property.

Community	Properties	Building Payments	Contents Payments	Total Payments	Average Payment	Number of Losses
Town of Middleburgh	1	\$65,741.	\$23,599.	\$89,340.	22,335.	4

Source: NYS Hazard Mitigation Plan, 2008

Community Rating System (CRS)**Community Rating System (CRS)**

The Community Rating System (CRS) is a voluntary program of the National Flood Insurance Program (NFIP) where communities and property owners can take advantage of incentives and are eligible for flood insurance rate discounts when they go beyond the minimum floodplain management requirements by implementing extra measures to provide protection from flooding. Schoharie County communities with active status in the CRS include the following.

Town of Esperance

NFIP Policies and Coverage

CID	Community	# of NFIP Policies	A Zone Policies*	Coverage in Force	NFIP Claims 1978 - 2012	NFIP Claims Paid 1978 - 2012
361580	Blenheim	14	12	\$ 2,654,500	18	\$ 436,488
361431	Broome	11	3	1,667,700	13	215,165
361193	Carlisle	4	1	995,900		0
361573	Cobleskill, T	11	5	1,302,200	10	42,768
360743	Cobleskill, V	52	20	10,953,000	26	174,759
361606	Conesville	7	1	959,000	4	55,014
361194	Esperance, T	24	23	4,488,800	91	4,490,295
361542	Esperance, V	3	4	805,000	29	971,224
361195	Fulton	25	12	3,648,700	28	917,314
361433	Gilboa	4	2	1,225,000	9	102,396
361198	Jefferson	4	0	1,125,000		0
360744	Middleburg, T	50	29	8,384,800	78	3,708,177
361245	Middleburg, V	90	60	16,098,700	205	5,897,008
361197	Richmondville, T	8	0	1,899,200	4	35,349
361060	Richmondville, V	2	1	264,600	2	22,783
361198	Schoharie, T	24	7	6,173,200	26	1,509,387
361061	Schoharie, V	101	69	21,607,900	130	12,791,974
361199	Seward	8	2	1,435,400	1	0
361200	Sharon	9	1	1,618,700	2	1,402
361549	Sharon Springs	4	2	707,000		0
361201	Summit	5	0	1,330,000		0
361202	Wright	16	11	2,524,300	12	242,909

Source: NFIP Loss Statistics, 2012

* Source: NYS Hazard Mitigation Plan (2008) – data was not updated in the 2011 revision of the State plan, but it is noted that the 2008 data is considered generally applicable for planning purposes.

* **Zone A** - Areas with a 1% chance of flooding each year, and a 1-in-4 chance of flooding over the life of a 30-year mortgage. In communities that participate in the NFIP, mandatory flood insurance purchase requirements apply to improved properties in Zone A.

FEMA emphasizes that over 20% of NFIP claims are received from properties in lower risk areas outside Zone A, and that one-third of funding for flood assistance is provided to properties outside the high hazard zone.

Source: NFIP FloodSmart.gov 2012

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E. Critical Facilities, Infrastructure and Services**Schoharie County Emergency Facilities**

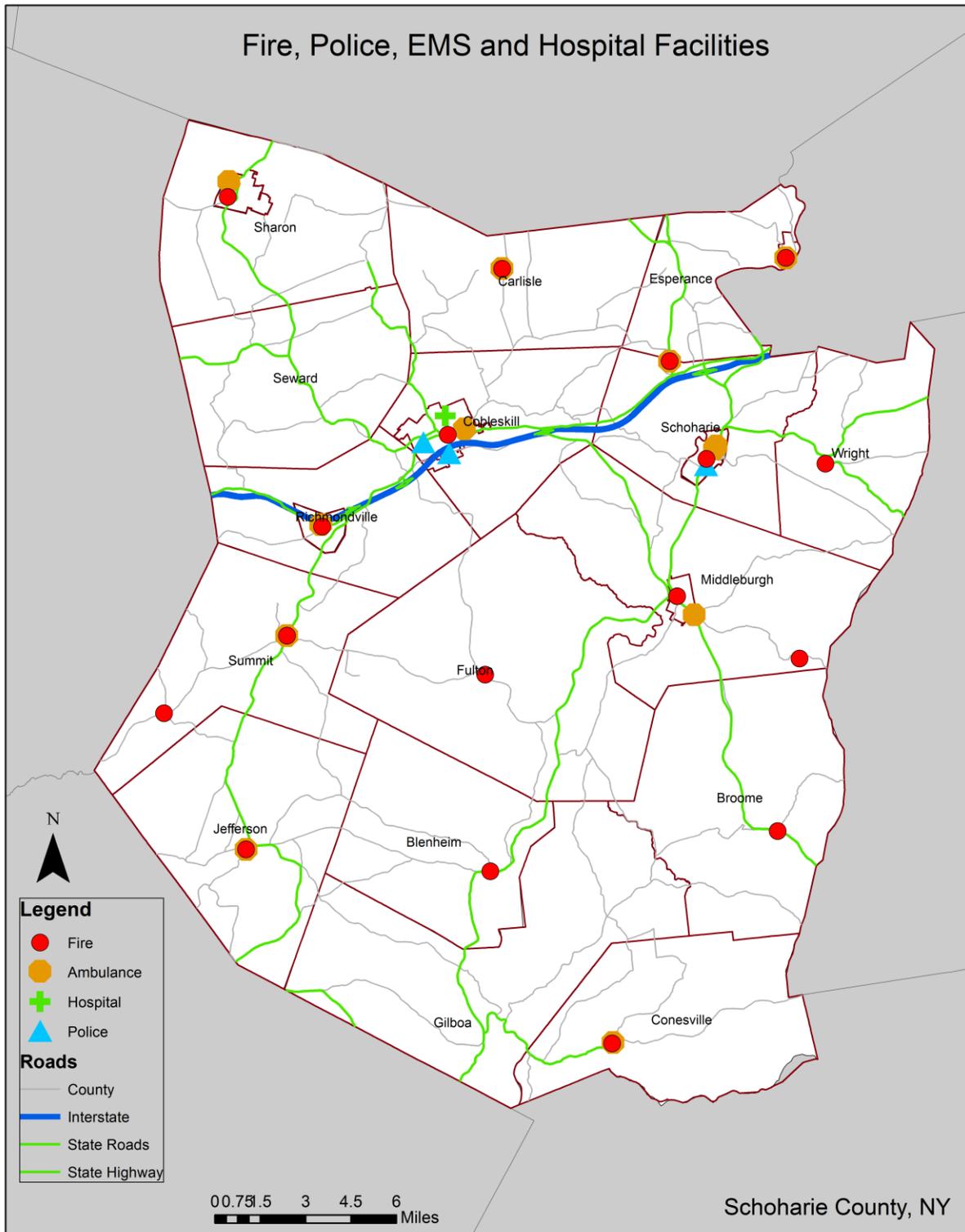
Note: The following table refers to facilities or structures that could be vulnerable or exposed to hazards and does not address service coverage areas.

Location	Fire Stations	Police Stations	EMS / Ambulance Stations	Hospitals and Adult Care Facilities	Emergency Communications
Blenheim	Blenheim FD				
Broome	Livingstonville FD				
Carlisle	Carlisle FD		Carlisle Rescue Squad		Beckers Corners Cellular Tower
Cobleskill, T		New York State Police			Temporary County Emergency Operations Center (EOC) Greenbush King Rd Cellular Tower Warnersville Cellular Tower Petersburg Mt. NYSDEC Protection Mineral Springs Rd NYSP
Cobleskill, V	Cobleskill FD	Cobleskill PD	Cobleskill FD Rescue Squad SUNY Cobleskill Student Medical Response Team	Cobleskill Regional Hospital 40 beds	Alternate County 9-1-1 Cobleskill FD
Conesville	Conesville FD		Conesville Rescue Squad		
Esperance, T					Oak Hill Rt 7 County Site Sloansville Cellular Tower

Location	Fire Stations	Police Stations	EMS / Ambulance Stations	Hospitals and Adult Care Facilities	Emergency Communications
Esperance, V	Esperance FD		Esperance FD Rescue Squad		
Fulton	West Fulton FD		West Fulton FD		
Gilboa					
Jefferson	Jefferson FD		Jefferson FD Rescue Squad		
Middleburgh, T	Huntersland FD		Middleburgh Emergency Volunteer Ambulance Corps		Rt. 145 Cellular Tower
Middleburgh, V	Middleburgh FD				
Richmondville, T					Smith Rd Cellular Tower
Richmondville, V	Richmondville FD		Richmondville Volunteer Emergency Squad, Inc.		
Schoharie, T	Central Bridge FD		Central Bridge FD		
Schoharie, V	Schoharie FD	Schoharie PD Schoharie County Sheriff Schoharie County Jail	Scho-Wright Ambulance Service Schoharie County Critical Care Team		County Highway North Main St County Office Bldg., Main St Depot Lane County Site Depot Lane Cellular Tower
Seward					
Sharon				Sharon Springs Manor Adult Care 36 beds	
Sharon Springs	Sharon Springs FD		Sharon Springs Joint FD	Marchand Manor Adult Care 36 beds	

Location	Fire Stations	Police Stations	EMS / Ambulance Stations	Hospitals and Adult Care Facilities	Emergency Communications
Summit	Summit FD Charlottesville FD		Summit FD Rescue Squad Charlottesville FD First Response Unit		
Wright	Gallupville FD		Gallupville FD		Beard Rd Cellular Tower 247 Zimmer Rd Cellular Tower

Note: All communities have service coverage, although facilities may be located in adjoining jurisdictions or service is provided from a regional location

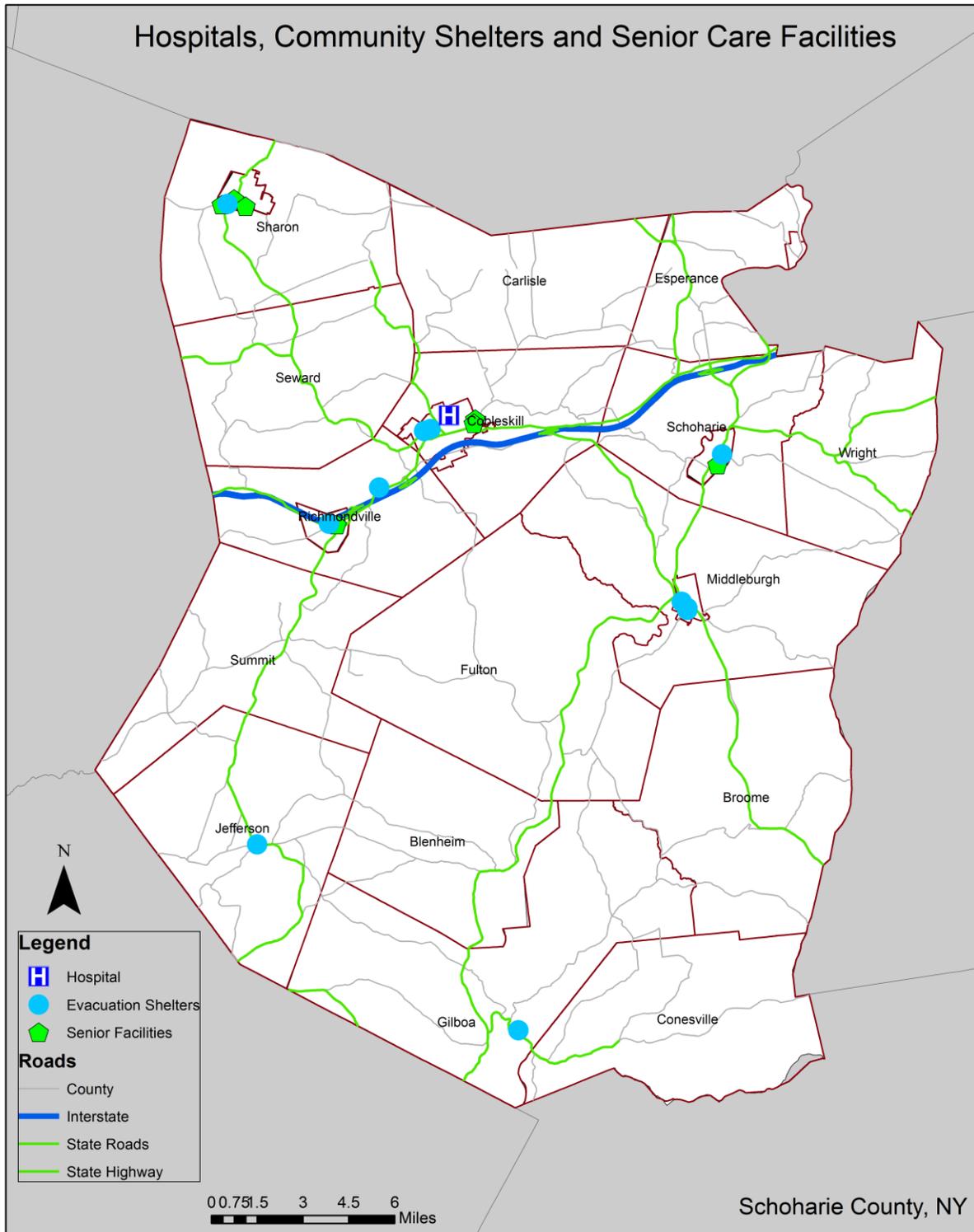


Community Shelters

Community Shelters *	
Jurisdiction	Reception, Food and Shelter Sites
Blenheim	
Broome	
Carlisle	
Cobleskill, T	
Cobleskill, V	Golding Elementary School Ryder Elementary School
Conesville	
Esperance, T	
Esperance, V	
Fulton	
Gilboa	Gilboa-Conesville Central School
Jefferson	Jefferson Central School
Middleburg, T	
Middleburg, V	Middleburgh High School Middleburgh Middle School Middleburgh Elementary School
Richmondville, T	Cobleskill-Richmondville High School
Richmondville, V	Radez Elementary School
Schoharie, T	
Schoharie, V	Schoharie High School Schoharie Elementary School
Seward	
Sharon	
Sharon Springs	Sharon Springs Central School
Summit	
Wright	

* This table is intended for community hazard mitigation planning use and lists only shelters within Schoharie County and the jurisdiction where the shelter is physically located. Emergency shelters are available to all county residents, although the shelter may be located in another nearby jurisdiction, or in some cases an adjacent county.

For instructions regarding all county shelter sites and directions to a shelter in your area, refer to the Schoharie County Emergency Plan or contact the Schoharie County Emergency Management Office at 518-295-2276 <http://www.schohariecounty-ny.gov/>



Critical Municipal Infrastructure, Utilities and Services

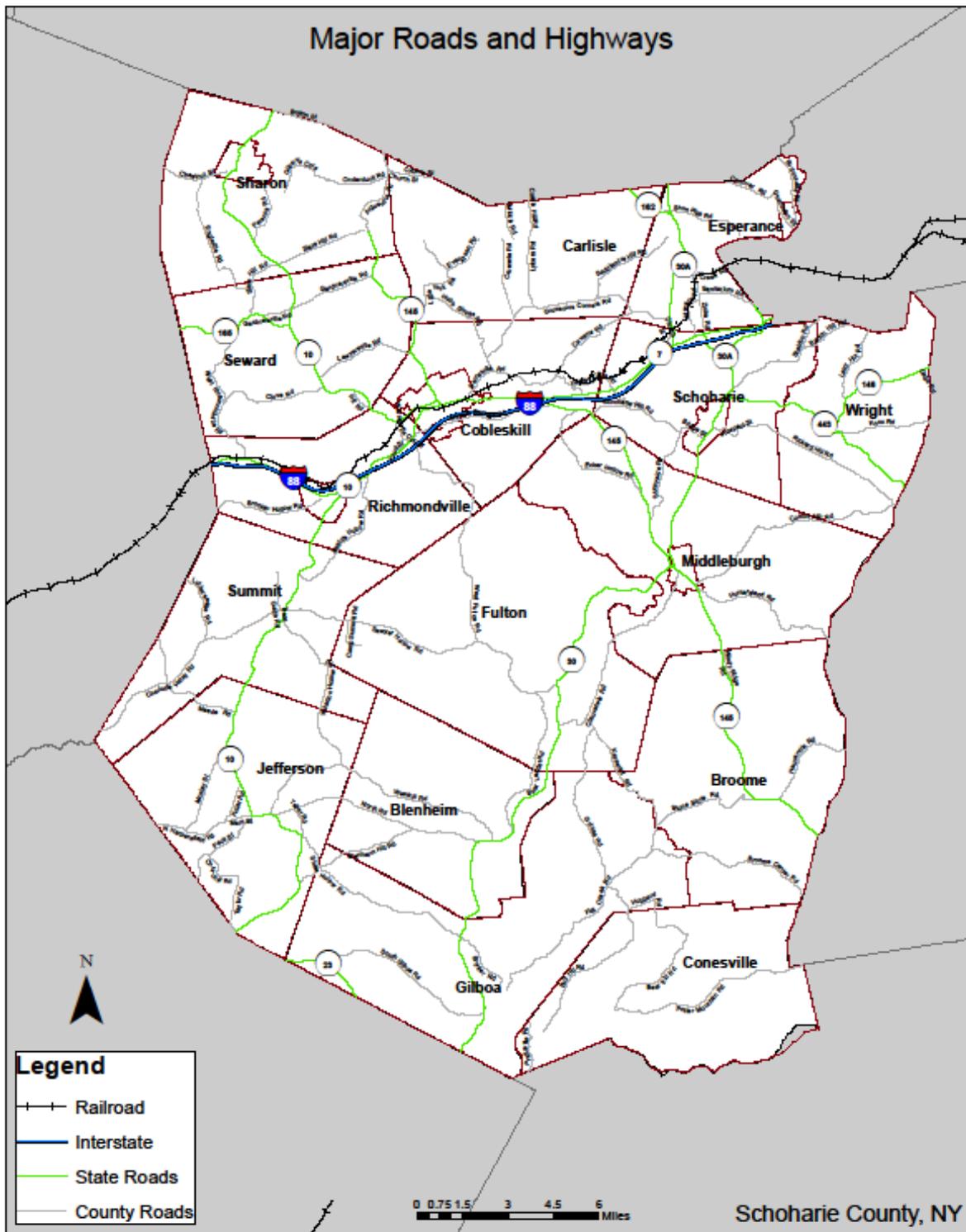
Jurisdiction	Highway Miles*	Bridges*	Municipal Water* Supply/Source	Municipal Sewer	Public Works Facilities
			Population Served		
Blenheim	44.6	8			Blenheim Highway Dept. County DPW Outpost
Broome	81.5	14			Town Highway Dept.
Carlisle	66.0	3			Town Highway Dept.
Cobleskill, T	62.9	13	Cobleskill Water Dept. 2 Reservoirs/1 Holding Pond 4,678	Cobleskill Water Pollution Control	County DPW Outpost
Cobleskill, V	11.9	9			Village/Town Shared Highway Facility
Conesville	60.9	10	West Conesville Water District 90		Town Highway Dept.
Esperance, T	37.7	5	Central Bridge Water District Surface Water 593		No facilities or equipment
Esperance, V	2.3	0			
Fulton	86.2	17			Town Highway Dept.
Gilboa	110.1	3			County DPW Outpost Town Highway Dept.
Jefferson	84.8	4	Jefferson Water District Ground Water 300		County DPW Outpost Town Highway Dept.
Middleburg, T	72.6	11	Middleburg Water Supply Ground Water 1,500	Middleburgh Sewer System	Town Highway Dept.
Middleburg, V	1.8	1			Village Highway Dept.
Richmondville, T	64.9	25	Village of Richmondville Water System 2 Reservoirs 918 Warnerville Water District Supplied from Cobleskill 1300	Village of Richmondville Sewer System	Town Highway Dept.
Richmondville, V	5.4	9			Village Highway Dept.
Schoharie, T	60.0	13	Central Bridge Water District 2 Reservoirs 593		Town Highway Dept.

Jurisdiction	Highway Miles*	Bridges*	Municipal Water* Supply/Source Population Served	Municipal Sewer	Public Works Facilities
Schoharie, V	4.2	0	Schoharie Water System 2 Springs / 1 Holding Pond 1100	Sewer District	Village Highway Dept.
Seward	70.8	14			County DPW Outpost Town Highway Dept.
Sharon	72.5	7			NYSDOT Yard Town Highway Dept.
Sharon Springs	4.3	0	Sharon Springs Water Well System 558	Sharon Springs Sewer System	Village Highway Dept.
Summit	79.2	1			Town Highway Dept.
Wright	65.9	7			Town Highway Dept.

Highway Miles* – total centerline mileage includes state, county and local - Source: NYSDOT

Bridges* - Source: NYS Department of Transportation Highway Bridge Data, includes state and county bridges

Municipal Water Systems* - Source: New York State Department of Health (NYSDOH)



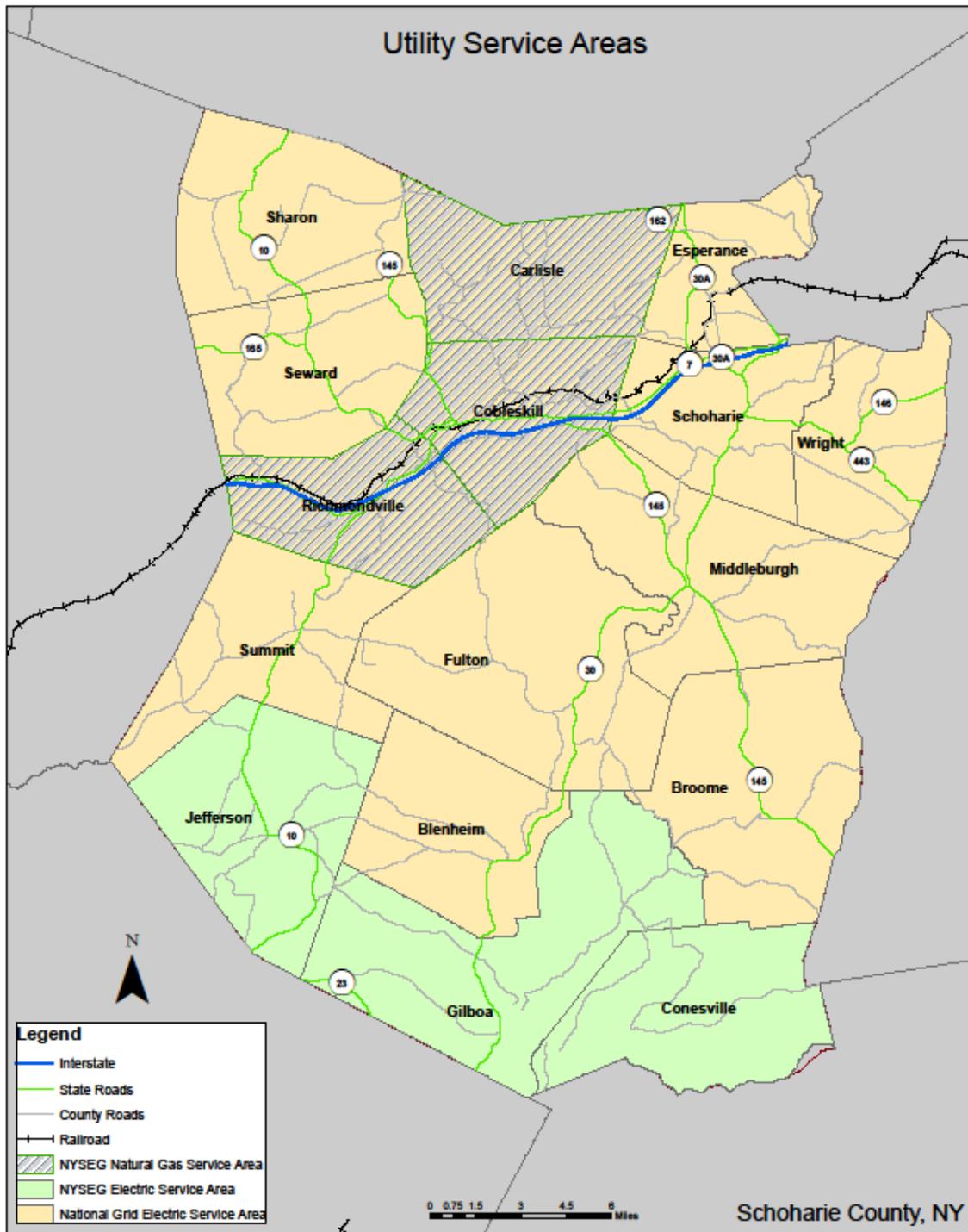
Schoharie County – Public Utilities and Services

Location	Electric ¹ Distribution	Natural ¹ Gas Service	Households ² Percent heating with utility natural gas or electric	Power Generating Station ¹	Airports
Blenheim	National Grid		146 5%	Blenheim – Gilboa NYPA	
Broome	National Grid		402 4%		
Carlisle	National Grid	NYSEG	648 12%		
Cobleskill, T	National Grid	NYSEG	2331 43%		
Cobleskill, V	National Grid	NYSEG	1770 55%		
Conesville	NYSEG		372 3%		
Esperance, T	National Grid		868 6%		
Esperance, V	National Grid		194 11%		
Fulton	National Grid		560 8%		
Gilboa	NYSEG		451 12%	Blenheim – Gilboa NYPA	
Jefferson	NYSEG		619 13%		
Middleburgh, T	National Grid		1470 20%		
Middleburgh, V	National Grid		775 24%		
Richmondville, T	National Grid	NYSEG	1035 22%		

Location	Electric ¹ Distribution	Natural ¹ Gas Service	Households ² Percent heating with utility natural gas or electric	Power Generating Station ¹	Airports
Richmondville, V	National Grid NYPA Richmondville Power and Light	NYSEG	363 34%		
Schoharie, T	National Grid		1347 20%		
Schoharie, V	National Grid		436 29%		
Seward	National Grid		618 4%		
Sharon	National Grid		740 13%		
Sharon Springs	National Grid		209 20%		Sharon Air Park Inc. a commercial facility serving small private aircraft
Summit	National Grid		488 4%		
Wright	National Grid		706 10%		

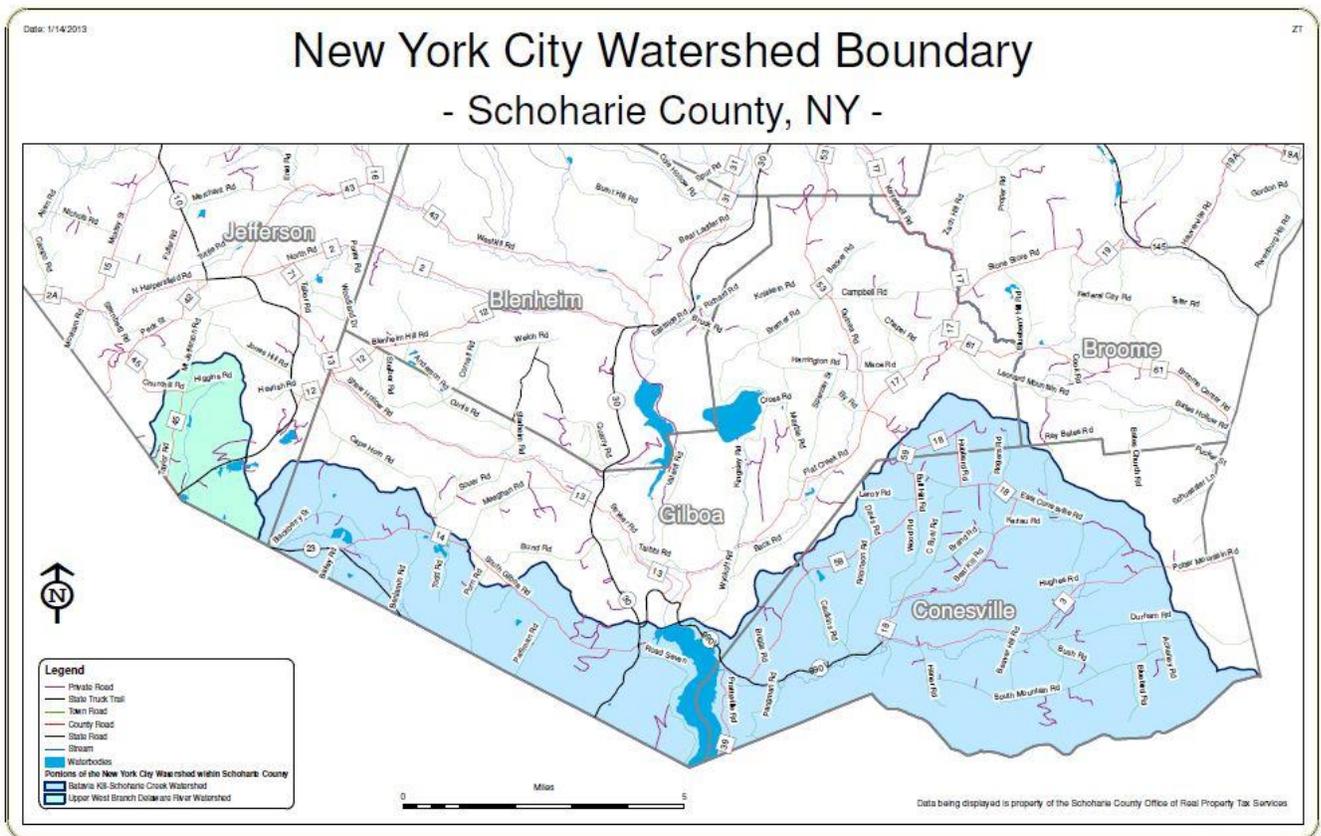
¹ Source: New York State Public Service Commission (NYSPSC)

² Source: U.S. Census 2010 – Occupied households using public utility natural gas and electric sources. Other common household heating fuels not included are commercial or private LP gas, fuel oil, kerosene, coal, pellets, wood, solar and geothermal.



New York City Water Supply

New York City draws much of its water supply from the Catskill and Schoharie region of upstate New York. The watershed supply area extends into the southern portion of Schoharie County in the Towns of Jefferson, Gilboa, Conesville and Broome. The City of New York’s water supply reservoir and pumping facilities are located in the Towns of Gilboa and Conesville. The reservoir and watershed are included as vulnerability due to the potential for security threats and watershed contamination that would affect the city’s water supply; and a breach or failure of the reservoir dam poses downstream flood risks through the Schoharie Valley. New York City is responsible for maintenance, monitoring and safety provisions associated with potential failure of their reservoir dam, and the City would be responsible for disaster recovery operations and costs involving their facilities. The impact and estimate of potential loss for Schoharie County that could result from a reservoir dam failure are captured by the analysis in the flooding and dam safety portions of this assessment.

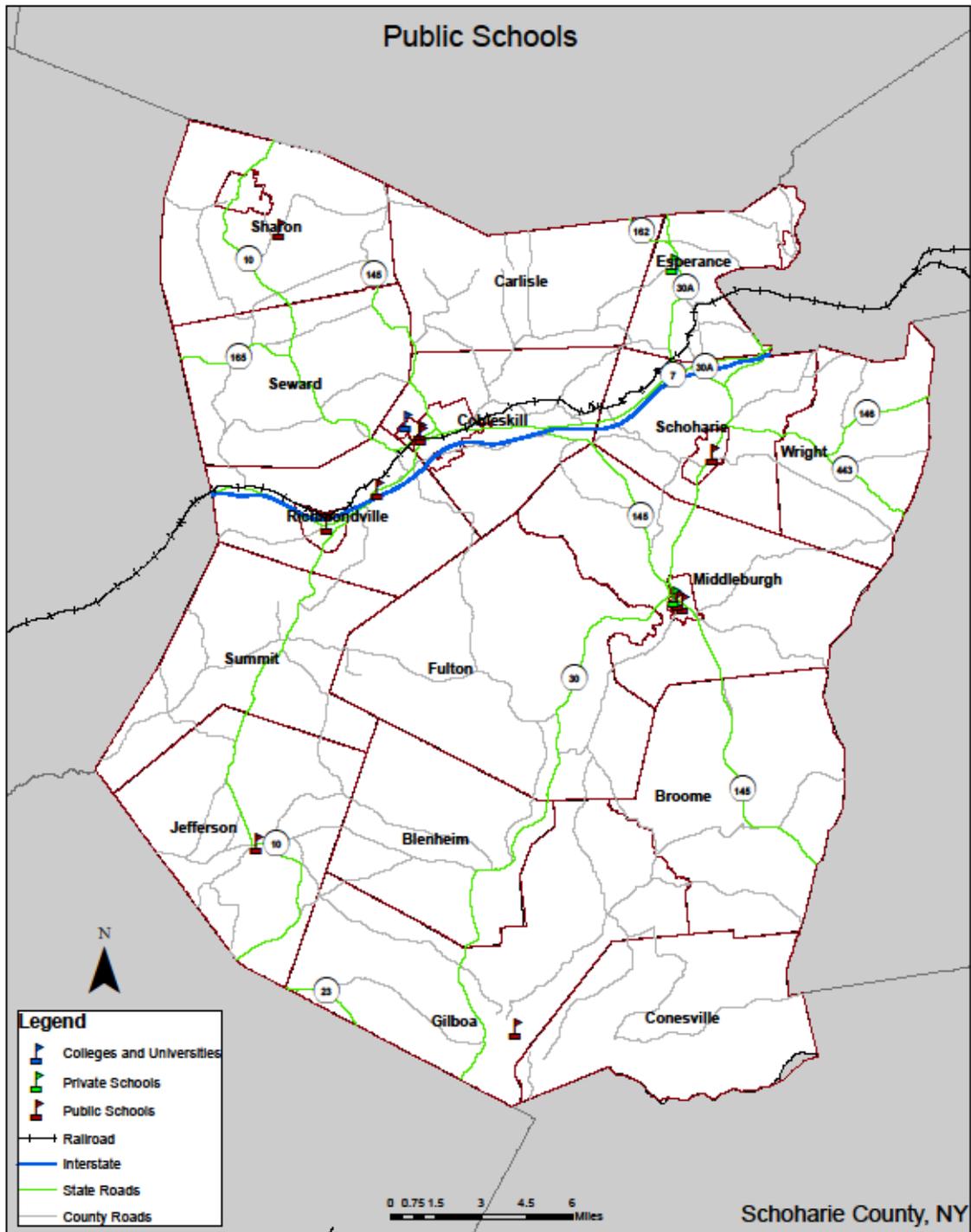


F. Schools and Colleges

Schoharie County – Schools and Colleges				
Location	Public Schools/College	Private/ Parochial Schools	# of Students	Grades
Cobleskill, T	George D. Ryder Elementary		535	KG - 5
Cobleskill, V	William H Golding Middle		486	6-8
	SUNY Cobleskill		2500	
Esperance, T		Corner Stone Christian Academy, Sloansville	10	PK - 9
Gilboa	Gilboa-Conesville Central		384	PK - 12
Jefferson	Jefferson Central School		296	KG - 12
Middleburgh, T	Middleburgh Elementary		414	PK – 5
	Middleburgh Middle School		180	6 - 8
		St. Marks Christian School	21	K-7
Middleburgh, V	Middleburgh High School		294	9-12
Richmondville, T	Cobleskill-Richmondville High School		632	9-12
Richmondville, V	Joseph B. Radez Elementary		332	PK - 5
Schoharie, T	Schoharie Elementary		458	KG - 6
Schoharie, V	Schoharie High School		438	7 - 12
Sharon Springs, V	Sharon Springs Central		335	PK - 12

Source: Schoharie County

Note: This table is a listing of school facilities that are located in Schoharie County. Schoharie County students attend 16 school districts that include facilities located in neighboring counties that are not listed in this table.



G. Historic and Cultural Resources

Sites on National Registry of Historic Places		
Jurisdiction	Historic Sites	Historic Districts
Blenheim	2	<p>Breakabean Historic District (Fulton)</p> <p>Cobleskill Historic District</p> <p>North Blenheim Historic District</p> <p>Sharon Springs Historic District</p> <p>Village of Middleburgh Historic District</p>
Broome	1	
Carlisle		
Cobleskill, T	1	
Cobleskill, V		
Conesville		
Esperance, T		
Esperance, V		
Fulton	2	
Gilboa	2	
Jefferson	1	
Middleburgh, T	1	
Middleburgh, V	4	
Richmondville, T		
Richmondville, V	2	
Schoharie, T	5	
Schoharie, V	7	
Seward		
Sharon	2	
Sharon Springs	1	
Summit	1	
Wright	2	

H. Estimate of Potential Losses

This section describes hazard vulnerability based on potential dollar losses for each hazard related to improved property, community infrastructure, facilities and services.

An estimate of potential losses follows for four (4) of the natural hazards designated as ‘*Hazards of Concern*’ in Section III, where it was determined the hazard poses a significant risk, or a serious occurrence could have major impacts for improved property in Schoharie County.

Flooding	Severe Winter Storm	Tornado	Ice Storm
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Since the threat and impact related to a Dam Failure is flooding, there is not an independent vulnerability assessment for dam failure and the analysis for flooding can be applied. The vulnerability associated with Severe Storms is related to wind damage and flooding; thus the impacts of Severe Storms are referenced in the sections for Severe Winter Storm (Wind) and Flooding. No estimate of potential losses for Earthquake was prepared for this Plan, because as noted in the Section IV Hazard Profiles, the risk of a severe event is considered very low and the sections prepared for Tornados and Floods can be used to provide a reasonable analysis.

A vulnerability assessment is also provided in this section for the following hazards – which were not designated ‘*Hazards of Concern*’ in Section III – but they could have serious consequences for certain groups, areas or populations in Schoharie County and it was determined that including an assessment of these hazards would improve overall community preparedness for these events.

Extreme Temperatures Utility/Power Failure	Transportation Accident Hazardous Materials – In Transit	Oil Spill Landslide
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Flooding

Nationally and in New York, flooding is the most common and costliest natural disaster. According to the United States Geological Survey (USGS), floods are the most frequent and costly U.S. natural disasters in terms of human hardship and economic loss. The USGS estimates as much as 90% of damage related to natural disasters (excluding drought) are caused by floods. According to the NYS Hazard Mitigation Plan (2011), flooding is the primary natural hazard in New York and damaging floods occur somewhere in the State each year.

Based on National Flood Insurance Program (NFIP) statistics, as of June 7, 2010 there were 162,541 NFIP-insured properties in New York State and it is estimated that only between 30% and 50% of at-risk properties are covered by flood insurance. Assuming that the number of current NFIP policies represents only about 50% of properties that should be insured, this means an additional 162,500 statewide properties could be at risk in the state’s Special Flood Hazard Areas (A-Zones).* But looking at properties at risk in the high hazard flood zones defines only a portion of the problem, since FEMA emphasizes that as many as 25% of the properties damaged by flooding are in lower risk flood zones outside the 100-year floodplain.

The term ‘100-year floodplain’ is commonly mis-applied. It does not mean that a flood will occur every 100 years, rather it means there is a 1% chance a flood will occur in any year, and in the 100-year floodplain there is a 26% chance a property will be flooded over the period of a 30-year mortgage (more than once in 100 years), which FEMA notes is about five times higher than the risk for a severe fire.

* Source: NYS Hazard Mitigation Plan, 2011

The 2004 Flood Insurance Rate Map (FIRM) study for Schoharie County determined that flooding is the most frequent and damaging natural disaster in Schoharie County. The highest profile flood risk areas are those along the Schoharie Creek that drains a 950 square-mile watershed that carries runoff from the Catskill Mountains to the Mohawk and Hudson Rivers. The significance of the flood threat in the Schoharie Creek valley is amplified by flood risks that exist on its many adjacent and feeder tributaries, streams and creeks; as repeatedly demonstrated by the 2011 Hurricane Irene flooding and other previous floods. Schoharie County can also have flooding in the sparsely developed southwest area of the county that is drained by Charlotte Creek which flows to the Susquehanna River; and in the east of the county a small area near Franklinton in the Town of Broome is drained by the Catskill Creek to the Hudson River.

Even when properties are not situated on creeks and streams – such as those on steep hills and gentle slopes – they can experience flooding when heavy, inundating rains produce sheets of water that overwhelm natural gullies and swales; and in flat terrain away from streams and creeks, ditches and drainage paths can quickly be overtaken when drenching rains occur. This is a particular problem in villages and developed areas when channeled drainage, catch basins and storm sewers swell beyond capacity. Floodplains and flood risk also change over time as development occurs up and down stream, and when natural stream and runoff patterns are altered as debris build-up and shifting sedimentation transforms a channel’s hydrology.

National Flood Insurance Program (NFIP)

The extent of participation in the NFIP can be a significant factor in a community's vulnerability to flooding and its capability to recover from flood losses.

When a mortgage or loan is taken against improved property that is located in a Zone A 100-year flood zone, most lenders will require that the property owner purchase and maintain flood insurance. Anytime a mortgage or loan is obtained from a federally regulated institution that involves a property in the high-hazard flood zone, federal law requires the property owner to purchase and maintain flood insurance -- this includes most types of mortgages, home equity loans and lending where the property is used as collateral. If a property is not covered by flood insurance and it is damaged by a flood, and federal disaster assistance is obtained, the property owner will be required to purchase and maintain flood insurance as a condition of receiving flood damage reimbursement.

Not all flood events will meet the federal criteria needed to make federal disaster aid available to help with losses; flood insurance may often be the only way a property owner can recover flood damages. It is FEMA's goal that all properties in the high-hazard flood zone be covered by flood insurance and they recommend that property owners in moderate and low risk areas also purchase flood insurance – policy costs for those in moderate and lower risk areas outside A-Zone are significantly less – renters can also purchase flood insurance.

To determine the number and value of properties at risk to flooding in a community, an analysis of properties in the special flood hazard zones is typically undertaken, which is usually the A zones on local flood maps or what is also called the 100-year flood zone. This assessment for Schoharie County is performed as part of the National Flood Insurance Program (NFIP) which is administered by the Department of Environmental Conservation (DEC) in New York. In many areas of New York, the assessment applies Geographic Information System (GIS) mapping technology to produce the FEMA 'Q3' digital flood mapping that assesses potential flood impacts in the high-risk flood zones. This 'Q3' digital analysis is not yet available for Schoharie and twenty-one (21) other counties in New York. While this analysis evaluates the risk of flooding in a community's high risk areas and is useful when comparing flood vulnerabilities for one community to another, it is not the most complete method of evaluating the total number of properties at risk in a county, because it does not consider properties at risk in areas outside the high risk or A-Zone. As noted above, serious flooding can occur outside the 100-year floodplain, even where the risk is considered much lower.

The NYS Hazard Mitigation Plan prepared a statewide assessment that evaluates and ranks county vulnerability to losses from flooding. In the statewide analysis, all counties are ranked relative to their vulnerability for flood losses, which is a combined rating that factors the history of flooding, density of the population and the potential loss or cost based on the value of property covered under NFIP policies.

In the state's analysis, the flood loss rating for Schoharie County was nineteen (19), on a scale where the least vulnerability to flood loss was rated seven (7) and the greatest vulnerability was thirty-three (33). Of the fifty-eight (58) New York counties, Schoharie shared the #19 rating with five (5) other upstate counties (Albany, Chenango, Greene, Oneida and Rensselaer). There were thirty-three (33) counties that had a rating less than nineteen (19) (less vulnerable to flooding), and nineteen (19) counties ranked higher than Schoharie, indicating increased vulnerability. The vulnerability ratings for Nassau, Suffolk, New York City and Westchester were significantly higher than any other areas of the state due to their urban density and the considerably higher number of developed properties.

This rating or score does not represent the risk of flooding, since all counties have flooding, rather it shows how a greater density of population and increased numbers of properties in high risk flood zones increases vulnerability. This data is from the 2011 NYS Hazard Mitigation Plan and was prepared prior to the 2011 flooding in Schoharie County, but a significant change in Schoharie County's rating or position would not occur if the analysis were updated to reflect post 2011 flood data. In the post-2011 flood period, it would be expected that more properties would be added to those covered by NFIP insurance, but increasing market values would be somewhat offset by the loss of insured properties and reduced property values linked to the flooding. In this statewide analysis, Schoharie's sparse population and low density development would work to maintain its mid-range position relative to more vulnerable urban and suburban areas, although Schoharie still has greater flood vulnerability than many other small and medium size counties.

What does the above analysis mean for Schoharie County?

It emphasizes that high density development in flood zones is the dominant factor influencing flood vulnerability, plus it highlights the vital role flood insurance plays in managing flood losses for existing and future development.

Jurisdictions Most Threatened and Vulnerable to Flood Loss (New York)

County	Rating Score	Total NFIP Policy Coverage	# of Repetitive Flood Loss Properties	# of Flood Disasters	Population Density Per Square Mile
Nassau	33 Greatest Vulnerability	\$ 11, 519,673,000.	1468	6	3,039
Schoharie	19	\$ 68,630,800.	50	8	50
Franklin	7 Least Vulnerability	\$ 20,743,000.	0	3	29

Source: NYS Hazard Mitigation Plan 2011 - Table 3-19

As noted above, serious flooding can occur outside the 100-year floodplain, even where the flood risk is considered much lower, but it is impractical to perform 'Q3' digital flood mapping or other kinds of technical analysis for all areas like that done for the high-risk zones. The table below outlines potential flood damages relative to all residential properties in each a community, thus providing a means to estimate overall flood impacts across all areas. It estimates the value of residential property that could be impacted by a flood that damages 1% of the properties in Schoharie County or as many as 15% of properties.

Value of Potential Flood Damage to Residential Properties				
Jurisdiction	Number of Residential Properties	Total Residential Property Value	1 % of Properties Damaged	15 % of Properties Damaged
			Potential Value of Damage	Potential Value of Damage
Blenheim	309	\$22,553,000	4 \$0.2 million	46 \$3.4 million
Broome	817	\$54,714,000	8 \$0.5 million	122 \$8.2 million
Carlisle	770	\$60,600,000	8 \$0.6 million	115 \$9.0 million
Cobleskill Town and Village	2,654	\$135,993,000	26 \$1.4 million	398 \$20.4 million
Conesville	855	\$80,053,000	8 \$0.8million	128 \$12.0 million
Esperance Town and Village	981	\$59,825,000	10 \$0.6 million	147 \$9.0 million
Fulton	851	\$51,443,000	8 \$0.5 million	127 \$7.7 million
Gilboa	983	\$1,602,000	10 \$16,000	147 \$0.2 million
Jefferson	1,001	\$59,465,000	10 \$0.6 million	150 \$9.0 million
Middleburgh Town and Village	1,860	\$103,450,000	18 \$1.0 million	279 \$15.5 million
Richmondville Town and village	1,252	\$114,697,000	12 \$1.1 million	188 \$17.2 million
Schoharie Town and Village	1,442	\$112,580,000	14 \$1.1 million	721 \$16.9 million
Seward	770	\$65,534,000	8 \$0.6 million	115 \$9.8 million
Sharon and Sharon Springs	930	\$56,768,000	9 \$0.5 million	139 \$7.9 million
Summit	976	\$51,194,000	10 \$0.5 million	146 \$7.7 million
Wright	771	\$53,933,000	8 \$0.5 million	115 \$8.0 million

Sources: NYS Office of Real Property Tax Services, Municipal Profile
U.S. Census – 2010

Note: Property assessment administration and reports for villages are consolidated with the respective township

Schoharie County has a long and detailed history of documented costs and vulnerabilities related to flooding.

2011 -- More than 1,880 property owners, families and residents from Schoharie County applied for disaster relief due to the August and September 2011 Hurricane Irene and Tropical Storm Lee flooding - the greatest number of applicants for any New York county affected by these back-to-back flood events. Fifty-five (55) properties located in the high risk A-zones that were damaged by the 2011 floods have been approved for buy-outs and demolition. Building officials determined that 657 homes in the fifteen (15) towns and villages affected by the floods sustained major damage and repair costs for residential structures are expected to reach \$90 million. It took up to a year before many residents were able to move back into their homes. Aside from repair costs, the Schoharie County Real Property Tax office also reported that the floods negatively affected taxable property values in these fifteen (15) towns and villages, where local assessors determined flood damage reduced the taxable property values of 423 parcels by approximately \$30 million.

Damage to public infrastructure in Schoharie County, which includes roads and public buildings, exceeded \$50 million. About one-half of the losses, \$25 million, were for repair of roads and bridges. Costs to repair the flooded Schoharie County office building was more than \$5 million, and another \$2.5 million was to be spent on improvements to prevent future flood damage. The federal and state governments helped with these expenses, although typically there is a local cost share. The County is also receiving state and federal disaster assistance to restore flood damage and mitigate future flooding at the county jail and public safety center, where the total cost was estimated to be \$9 million.

When federal disaster assistance is authorized, the federal portion of the flood restoration costs are usually 75%, and the state typically reimburses 12 ½ %, leaving a 12 ½ % share to be borne by local governments. Due to the extensive and overwhelming impacts of the 2011 flooding, the state agreed to cover the entire non-federal share of 25%. This level of reimbursement is rare, however, and after most major disasters, local governments may still incur thousands or millions of dollars in disaster losses. Many less severe floods and natural disasters may not even meet the criteria needed to trigger state and federal assistance, leaving the county and municipal governments exposed to significant disaster expenses.

2006 – From June 26th through June 28th 2006, tropical moisture and a stalled cold front combined to produce heavy rain and flooding across wide areas of eastern and central New York. In Schoharie County, flooding was most severe in areas west of the Schoharie Creek; including the towns of Seward, Richmondville, Cobleskill, Summit and Gilboa. 4-5 inches of rain fell in a short time through Gilboa and around Cobleskill, and as much as 6 inches fell in areas of Seward, Richmondville and Summit.

Up to \$160,000 in damages were reported to municipal roads, bridges and other infrastructure; while 2 (two) homes had major flood damage and 60 others had minor damage. 73 individuals and families applied for FEMA disaster aid. A local bridge was severely damaged in Charlotteville, there were mudslides and evacuations in Richmondville, Route 7 in east Cobleskill and Route 10 in west Cobleskill were flooded and closed, buildings and roads were flooded in Warnersville, Keyserkill Creek in Gilboa flooded Campbell Road and Route 145 in Broome Center was flooded. Approximately 35,125 acres, or 43 percent of the farmland in Schoharie County was damaged and extensive structural damage was also reported to farm properties. Many residents said the flooding caught them off guard.

FEMA

FEMA Approves \$82,000 Project to Mitigate Flood Damage in Richmondville

Press Release date: March 29, 2007

Release Number: 1650-155

ALBANY, N.Y. -- Repairs to Franzen Road in the Town of Richmondville, Schoharie County, damaged during the June 2006 flooding were designed to a higher standard, and may be less vulnerable to future flooding.

Thanks to a New York State and Federal Emergency Management Agency (FEMA) policy, extra funding is provided to mitigate against future damages to public infrastructure.

“We have a temporary conduit drain pipe there now,” says Highway Superintendent Keith Alheiser, “but we need to get started with the bigger new culvert. The new one will solve a couple of problems: the volume problem, and the internal water routing problem. This one will be straight through.”

A major FEMA goal is to mitigate, where it is cost effective, when restoring damaged infrastructure so the repaired facility is better able to withstand future disaster damages. Extra money spent now can reduce future impacts and costs.

“Mitigation activities such as these are a smart way of doing business by spending monies now to lessen the threat to communities before an event occurs in the future,” said State Coordinating Officer John R. Gibb, Director of SEMO. “This is an excellent example of an investment in improvements that will pay dividends for years to come,” said FEMA Federal Coordinating Officer Marianne C. Jackson.

2001 – A storm and drainage problems in the Village of Sharon Springs flooded areas along Route 20 resulting in about \$20,000 in damage to residential properties and several businesses were temporarily closed and lost revenue. No federal aid was available.

1996 – Heavy rain and warm temperatures combined with rapidly melting snow to create extensive flooding in the Schoharie Valley. Two (2) drowning's were attributed to the flood and there was widespread damage to homes, businesses, roads and bridges. More than forty (40) homes were substantially damaged by flooding and costs to restore community infrastructure were estimated to be \$1.5 million. The severity of this flood highlighted the vulnerabilities that existed in Schoharie County and prompted a new outlook on preparedness and floodplain management.

1987 – April storms producing up to nine (9) inches of rain combined with late winter runoff and already saturated soils to create extensive flooding in the Schoharie Valley. The extremely powerful flow of the Schoharie Creek resulted in the collapse of the New York State Thruway bridge and 10 fatalities downstream in neighboring Montgomery County.

Other major flood events in Schoharie County occurred in 1784, 1858, 1869, 1901, 1903, 1936, 1938, 1955, 1977, 1983, 1996, 1999, and 2000.

Nine (9) of the twenty-two (22) towns and villages in Schoharie County were significantly impacted by the 2011 flooding; municipal costs and recovery in the hardest hit communities like Middleburgh and Schoharie could reach \$15-\$20 million as they cope with restoration of flood damaged infrastructure, emergency response and clean-up.

Municipal flood recovery costs vary widely depending on the scope of the flooding, the extent and types of facilities damaged; in addition to the size of the community, the density of development and property values. Based on data from the New York State Office of Emergency Management for recent floods, costs to local jurisdictions in rural upstate communities typically range from several thousand dollars to more than \$16 million. In the August 2009 flood in Cattaraugus County, expenses in the Village of Gowanda (population: 2,600) amounted to \$16.6 million, and in the Town of Perrysburg (population: 1,771) the cost was \$5.2 million. In addition to clean-up costs and road repair, both these areas had extensive damage to municipal water systems, bridges, schools and hospitals. Costs in the Village of Perrysburg (population: 408) were \$2 million, and in Yorkshire (population: 4,210) and East Otto (population: 1,105) they were \$1.2 million each. These latter communities primarily had flood losses associated with repair of roads, drainage, parks and public grounds, debris clean-up and emergency response costs.

Severe flooding is common in many rural upstate New York communities. In 2009, flooding in Chautauqua, Cattaraugus and southern Erie counties affected several rural villages and small towns. In the Chautauqua County village of Silver Creek and four nearby towns, 43 homes were destroyed and 325 were damaged. In the Village of Gowanda that borders Cattaraugus and Erie counties, one-third of the village's 1000 homes were damaged in the same flood.

Factors that affect the severity of flooding in these areas differ from that of Schoharie County, just as there are similarities. The core of Schoharie County's flood vulnerability is associated with populated and developed areas of the Schoharie Valley, but the history and flood profile of

Schoharie County – which includes many related tributaries, floodplains and other watersheds -- demonstrates that all communities in Schoharie County share, or may even exceed the vulnerability to flooding that exists throughout New York.

Severe Winter Storm

Structural losses associated with winter storms are most often related to damages caused by wind, heavy snow loads, water damage and freezing pipes. Communities also experience extraordinary expenses for health and emergency services, snow removal and debris disposal; and there are significant economic impacts when there are power outages, transportation is disrupted and schools and businesses are closed.

In 2007, the Insurance Information Institute reported that the average homeowners claim for wind damage was \$3,500, and if the claim included water and freezing damage, the average increased to \$5,095.

Estimate of Severe Storm Losses to Residential Property

Jurisdiction	Properties at Risk	Potential Loss if 10% of property owners have \$3,500 each in damages	Potential Loss if an additional 10% of property owners have \$5,095 each in damages
Blenheim	309	\$ 108,000	\$ 265,000
Broome	817	286,000	702,000
Carlisle	770	269,000	661,000
Cobleskill, T	2,654	929,000	2,281,000
Cobleskill, V	1,993	697,000	1,712,000
Conesville	855	299,000	734,000
Esperance, T	981	343,000	842,000
Esperance, V	242	84,000	207,000
Fulton	851	297,000	730,000
Gilboa	946	329,000	810,000
Jefferson	1,001	350,000	860,000
Middleburgh, T	1,860	630,000	1,577,000
Middleburgh, V	873	305,000	749,000
Richmondville, T	1,252	420,000	1,058,000
Richmondville, V	427	149,000	366,000
Schoharie, T	1,442	504,000	1,238,000
Schoharie, V	455	159,000	390,000
Seward	770	269,000	661,000
Sharon	930	325,000	474,000
Sharon Springs	283	99,000	243,000
Summit	976	341,000	497,000
Wright	771	269,000	419,000

Structures built in compliance with NYS building codes would be designed to withstand expected snow loads, so those at greatest risk would be older or non-compliant structures. While local communities have applied building codes for decades, the New York State Uniform Fire Prevention and Building Code went into effect in 1984 to apply statewide standards. Structures built prior to 1984 are sometimes thought to be at the greatest risk, but in rural farm communities of upstate New York, only a portion of those built prior to 1984 can be considered at higher risk, since the quality of early building techniques and materials make many older structures as strong or more stable than those built using today's standards.

A severe winter storm in Buffalo and Erie County, NY in 2001 accumulated seven (7) feet of heavy snow over five (5) days and there were twenty-two (22) structures with collapsed roofs, some totally destroyed and others with partial damage. There was also widespread damage to carports, porch roofs and accessory structures, which are often not reinforced as strongly as residential or commercial construction. The National Weather Service notes the maximum record snowfall in Schoharie County was twenty-one (21) inches or less than two (2) feet; and structural densities are also much less in Schoharie County than in Buffalo and Erie. The U.S. Census Bureau estimated the 2010 median home value in Schoharie County is \$147,600, so if one-half the jurisdictions in Schoharie County (11) were exposed to a heavy snow-load storm that destroyed half as many residences as occurred in Erie County (11 homes), the potential cost could be about \$1.62 million across the county or \$147,600 in each of eleven (11) jurisdictions.

Tornado

The most destructive tornado in Schoharie County was an F3 on July 10, 1989 that made a 12-mile path through Carlisle and Schoharie. It caused \$25 million in damages to 20 homes and local facilities and injured 20 people. An F1 tornado occurred on May 2, 1992, causing \$250,000 in damages, and another F1 tornado on May 29, 2013 in the Town of Jefferson damaged trees in rural areas near Dutch Hill and Wharton Hollow Roads, but no property losses were reported.

An F1 tornado in Corfu, Genesee County in 2009 resulted in power outages, damage to thirty (30) homes, two (2) businesses, a farm and barn, and several vehicles. Property damage, clean up and municipal costs in two affected municipalities totaled \$2 million, although the greatest impacts and costs were in the Village of Corfu.

One of the most serious tornados in New York State was the 1998 F3 tornado in Mechanicville, Saratoga County. It resulted in \$60 million in property damage across nine towns and villages. There were seventy (70) injuries, fifty-five (55) homes were destroyed and 280 homes and businesses were damaged. Several farms were damaged and twenty-five (25) cows were lost when a barn collapsed. Local governments incurred emergency service and debris cleanup costs that ranged from a few thousand to more than \$1 million.

Many of the communities across New York that were affected by these tornados are similar in size and profile, and also have the same risk of tornado occurrence, as jurisdictions in Schoharie County. Potential tornado losses to communities in Schoharie County could be similar to any of these events. Since tornados tend to concentrate damages in defined areas or paths where they touchdown or pass, villages and towns that have population centers or areas of greater structural density have an increased potential for loss.

All structures in Schoharie County are at risk of tornado damage, although only certain areas would be affected by any single tornado or event. The U.S. Census Bureau estimated the 2011 median home value in Schoharie County was \$147,600. If any jurisdiction in Schoharie County sustained tornado losses similar to the 1998 F3 tornado in Mechanicville, Saratoga County, and 55 homes were destroyed, the potential loss to property in that town or village could be \$8.1 million. And, if an additional 280 homes had 20 % damage, the loss total could more than double to \$16.4 million.

Ice Storm

An ice storm can result in property and infrastructure damage, particularly when there are downed trees and limbs, or when problems associated with lack of power and heat contribute to equipment failure, water damage and structure fires. The most significant costs of ice storms are usually the economic impacts linked to power outages, utility restoration and the disruption of transportation that affects commerce and closes businesses and schools. Costs of debris clean-up, emergency power, spoiled food, sheltering and emergency services are also significant. Two of the most costly natural disasters in New York were the 1991 ice storm in Rochester and portions of the Finger Lakes and the 1998 North Country ice storm.

In 2007, the Insurance Information Institute reported that the average homeowners claim for wind damage was \$3,500, and if the claim included water and freezing damage, the average increased to \$5,095. Potential losses for wind and water damage associated with an ice storm would be similar to that estimated in the section above for Severe Storms - see the previous table above 'Estimate of Severe Storm Losses to Residential Property'.

The potential costs of a prolonged power outage following a severe ice storm would be similar to the losses estimated for power outages that can occur from many other hazards and are estimated below in the section 'Utility Failure / Power Outages'.

The most significant costs to local governments in an ice storm are related to debris clearance and disposal, emergency services, sheltering and temporary emergency power. Data provided by the New York State Emergency Management Office shows that disposal costs for rural local governments affected by a declared disaster that involve significant amounts of downed debris can typically range from a few thousand to \$150,000.

The NYS Hazard Mitigation Plan (2011) prepared a statewide assessment that evaluates and ranks county vulnerability to ice storms. A rating score is derived by combining an evaluation of the number of ice storm disasters that occurred in a county, the population density per square mile in the county and the total number of structures in the county. Schoharie County has not had any serious ice storm events, plus the population and structural densities are low, so the ice storm rating for Schoharie County's was 1, on a scale of 1 (least vulnerable) to 9 (most vulnerable). Schoharie was among five (5) counties in the state that have the least vulnerability to ice storms and fifty-seven (57) New York counties have a higher ice storm rating or vulnerability.

Jurisdictions Most Threatened and Vulnerable to Ice Storm Loss (New York)

County	Rating Score	# of Ice Storm disasters	Total # of Structures
Schoharie	1	0	12,026

Source: NYS Hazard Mitigation Plan 2011 (Table 3-37)

The economic and demographic profiles of the northern New York counties are similar to that of Schoharie County and the 1998 North Country Ice Storm resulted in power outages for 320,000 people in seven counties, requiring disaster assistance payments totaling \$55,950,736, or an average loss of about \$175. per person.* If one-third the population of Schoharie County (2010: 32,749) were similarly affected, the estimated loss in Schoharie County would be close to \$2.0 million.

* Source: NYS Office of Emergency Management report

Severe Storms

For severe storm wind damage, see *Severe Winter Storms*, for flooding associated with severe storms, see *Flooding*.

Dam Failure

For dam failure vulnerability, see *Flooding*

Hurricane and Tropical Storm

For estimates of hurricane and tropical storm losses, see sections for Severe Storms and Flooding. Once a hurricane moves inland into upstate New York and Schoharie County, they are characterized by high winds and/or flooding and lack the storm surge features that threaten coastal communities.

Transportation Accidents

Property damage associated with transportation accidents would usually be localized or concentrated at an accident site and costs are commonly born by the responsible party or insurer. The most significant impact of transportation accidents is the potential for multiple deaths and injuries and the costs of emergency response, medical care, security and investigative services.

Given the traffic and transportation profile of Schoharie County, the greatest potential for a serious accident is associated with school and tour bus transportation, where vehicles carry up to fifty (50) passengers, or a multi-vehicle chain reaction pile-up on the interstate highway involving fog or poor visibility. Response to an accident of this type could cost the local community and response agencies thousands of dollars, and would be a demanding organizational and emotional challenge, but much of the cost would be spread across several mutual-aid departments and services, and it can be expected that some costs would be recovered through responsible parties and insurers. For local governments and agencies, there may also be potential costs associated with liability claims, but only if it is determined that local infrastructure, facilities or maintenance were contributing factors to the accident.

The single private airport in Schoharie County serves small aircraft that carry only a few passengers, and the low density structural profile of Schoharie County limits risks associated small aircraft accidents. Hazards associated with commercial air traffic using regional facilities in neighboring counties are considered extremely remote.

A rare and unlikely, but credible worst-case transportation threat would be a commercial airplane accident similar to the 2009 Colgan air crash in the small town of Clarence Center, near Buffalo, New York where there were fifty (50) casualties. Another example would be an event similar to the hijacked 9-11, United Flight 93 that crashed in rural Pennsylvania killing forty-four (44). The 2009 Colgan disaster destroyed two homes and the 9-11 Flight 93 crash occurred in a remote farm and mining area. In the Colgan air crash, the Town of Clarence and local response agencies submitted claims to the airline for reimbursement of \$1.2 million in costs, while Erie County sought reimbursement of \$750,000. Major costs involved recovery of victims and remains, security, medical examiner and autopsy expenses, firefighting, safety measures and monitoring, equipment rental, repairs to streets and sidewalks and incident management.¹

There is active freight traffic on the principal railway traversing Schoharie County and while no major rail crashes have occurred, the physical damages and impacts associated with a rail accident, particularly one involving hazardous materials, could be severe. The threat is greater in more densely populated villages that border the rail line, and more so in Cobleskill where the railway

goes through the village center. There are generally fewer casualties associated with freight train accidents, unless hazardous materials or other multi-passenger vehicles are involved.

A 2011 train accident occurred in a residential neighborhood of Rochester, NY when seven (7) cars of a forty-two (42) car train derailed and two of the cars were carrying hazardous materials. Thousands of gallons of the chemicals methylene chloride and acetone were spilled and caught fire and the derailed cars severely damaged two homes. There was only one injury to a rail employee, but neighboring homes were evacuated for several hours and plumes of black smoke from the burning cars could be seen more than ten (10) miles away. Emergency services were involved in the response through the night and much of the next day; railway crews and emergency contractors worked for several days to contain and reclaim the chemicals, clean-up the site and remove the rail cars. Costs were primarily born and reimbursed by the rail company and their insurer.¹

¹ Source: NYS Emergency Management Office reports

Oil Spill

There are 204 sites throughout Schoharie County that have NYDEC petroleum bulk storage permits; where they primarily transport, transfer and/or store gasoline, fuel oil and related petroleum products. In the years 2009, 2010 and 2012, there was an average of fifty (50) oil spills in Schoharie County in each of those three (3) years. In 2011, a total of 211 oil spills were reported, the greater number attributed to Hurricane Irene flooding.¹ Most spills are minor and are remediated quickly and costs are commonly covered by the property owner, facility operator or transportation company that is responsible for the spilled product. NYSDEC notes that a spill of fifty (50) to 300 gallons can cost from \$2,000 to \$10,000 in cleanup and remediation, but can be as much as \$50,000 if groundwater and other factors complicate the response. An oil spill at the Schoharie County Office Building several years ago disrupted government operations for days and the cleanup cost exceeded \$150,000. There can also be emergency response costs to local governments and fire departments, which are sometimes reimbursed by the party responsible for the spill, or costs may be minimal and are considered a common and regular expense of emergency response operations.

A large or more widespread oil spill could result in major costs for environmental protection and clean up. Damage to homes or improved property might not be a factor, but a spill that seriously impacts groundwater, public water supplies, or a severe spill affecting recreational waterways could pose significant costs for businesses, the local economy and tourism. Local governments in Schoharie County do not have the resources and could not absorb the costs associated with a major oil spill. Action by the responsible party or support from state and/federal agencies would be essential to response and recovery from any serious spill.

Source: NYS DEC Spill Incident and Bulk Storage Databases

Hazardous Materials – In Transit

-- Highway and Rail --

Risks and costs associated with hazardous materials transportation accidents are potentially highest in the Towns and Villages of Cobleskill and Richmondville and the Town of Schoharie where Interstate 88 and the freight railway traverse. Almost one-third of Schoharie County's population or about 11,000 people live in the communities adjacent to or in the vicinity of this transit corridor. Potential risks exist on any of the State highways in Schoharie County; including Routes 20, 7, 10, 145, 162, 30, 30A and any route providing access to facilities using hazardous materials. There are eight (8) facilities in Schoharie County that maintain chemical bulk storage permits with NYSDEC where regulated types and amounts of hazardous chemicals are used, stored and/or transported. Twenty-one (21) facilities in Schoharie County are subject to reporting requirements under the federal Emergency Planning and Community Right-to-Know Act (EPCRA) Title III, which means they report and/or participate in preparedness measures for hazardous chemicals that are used or processed at these sites.

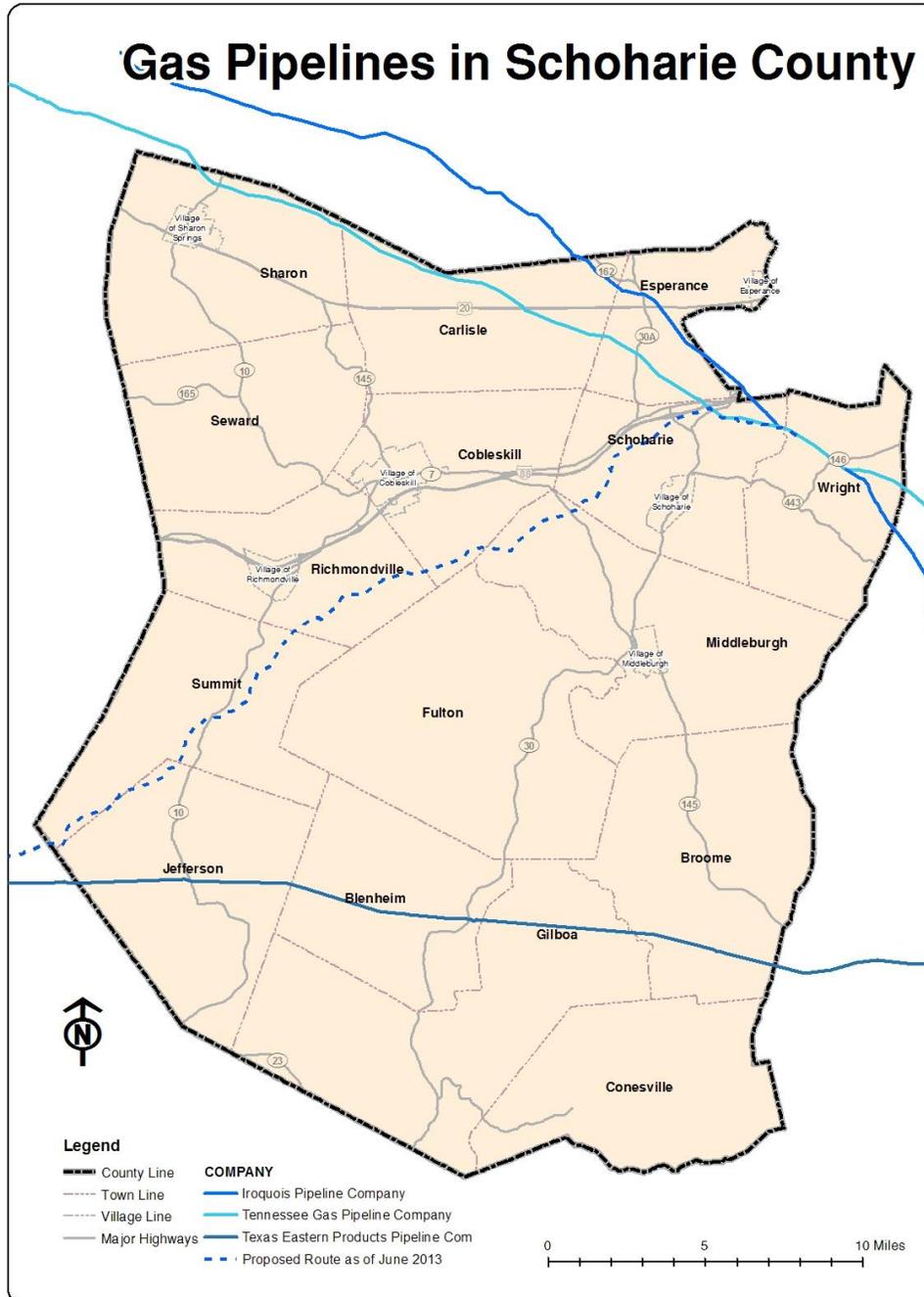
EPCRA Title III requires that spills of certain hazardous chemicals above threshold quantities be reported to the National Response Center (NRC). From 2000 thru 2012, there were forty (40) hazardous material releases or spills in Schoharie County that were reported to the National Response Center (NRC). Twenty-nine (29) were oil or petroleum spills, four (4) involved natural gas or propane and seven (7) involved other hazardous materials – of the seven (7), one was transportation related and six (6) were at fixed sites. The transportation related incident occurred in the Town of Gilboa and involved a small amount of anti-freeze leaking from a truck and no property damage was reported.

Historically, hazardous materials incident costs have not been a significant burden for local governments in Schoharie County, but the potential for serious threats exist that could impact public health, damage homes, improved property and infrastructure. In the previous section on oil spills, it was noted that cleanup and remediation costs can exceed \$150,000, and it could be expected that a serious spill or release involving hazardous chemicals could run into the millions of dollars. Cleanup and remediation of chemical hazards would typically be borne by a responsible party or covered through an environmental protection fund, but local governments cannot always be assured that emergency response costs or the cost of restoring public infrastructure will be reimbursed. The Firefighters Association of New York (FASNY) has asked the NYS Legislature to budget up to \$10,000 for reimbursement to volunteer fire departments involved in a hazardous materials response. The American Red Cross (ARC) estimates that community shelter or temporary housing costs can be as much as \$100 per day/per-person, so if a hazardous materials evacuation zone covered a 1-mile radius in or near a village area involving 100 people, community expenses could quickly approach \$20,000 to \$30,000 in 2-3 days.

-- Gas Pipelines --

Three (3) natural gas transmission pipelines that cross Schoharie County are also considered a hazardous materials transportation risk. The natural gas industry is subject to regulatory safety requirements and applies extensive technologies to prevent hazards, but gas pipeline disasters have historically been costly in both loss of life and property damage. The 1990 gas pipeline explosion in North Blenheim, Schoharie County killed two people and destroyed 10 homes.

Local governments can expect that costs associated with a pipeline hazard will be borne by the pipeline operator. Local hazard mitigation efforts generally center on using local laws and zoning to authorize and approve site plans for natural gas facilities; and in working with pipeline operators, plus state and federal regulators to enhance and monitor safety design and systems.



Extreme Temperatures

Extreme temperatures are not expected to pose significant losses to improved property or infrastructure, where costs would primarily be associated with damaged water lines, frost heaving in concrete drives and roadways, plus fire damage linked to reduced or disrupted water supply. Costs associated with extreme temperatures would be more directly related to emergency services and health care for people at risk to extreme heat or cold, temporary heating facilities, impacts on water supply and losses to the agricultural community.

The National Weather Service (NWS) reports that four (4) extreme temperature events are recorded for Schoharie County from 2000 to 2012. No property losses were reported for Schoharie County in these events, but the average loss was about \$3,000 per property in other affected counties where losses were recorded. Property damage losses from the most severe temperature event in 2004 that included twenty-one (21) New York counties totaled \$220,000, or an average of \$10,500 for any county. The National Oceanographic and Atmospheric Administration (NOAA) estimated in 2005 that the average hospitalization costs to treat a victim of extreme heat or cold was \$16,741 for a typical 3.5 days stay.

Landslide

Most of the steep slopes in Schoharie County that are subject to slope failure are in undeveloped or sparsely populated areas and the steeper hillsides where failures are most likely to occur have even less development than the valleys and less sloped terrain. The United States Geological Survey (USGS) estimates that Schoharie County has low landslide susceptibility and while five (5) slope failures have been recorded by the USGS, they are all related to development or man-made modifications to the land and there are no USGS recorded natural landslides in Schoharie County. Landslide incidents are commonly associated with heavy rain and runoff and affect very specific and localized sites that involve small sections of road or infrastructure and only a few undeveloped properties. These landslides have not caused serious residential damage, but a washout could result in costly damage affecting natural drainage-ways and channels, sections of local roads, culverts and related infrastructure. It is well established that construction on steep slopes will increase the risk of landslides (source: Schoharie County Soil and Water Conservation District (SWCD)).

A landslide that damages a small and isolated section of roadway and associated infrastructure could result in repair costs up to about \$100,000. Partial damage to a home or structure might cost up to \$150,000, or more depending on the value of the structure and extent of damage.

If long stretches of roadway are damaged and accompanying slope reinforcement or protective measures are needed, the costs can be much higher. In 2009, Erie County, NY completed the restoration of 750 feet of a flood damaged rural roadway that included drainage and slope reinforcement. The cost was approximately \$2 million, or about \$14.1 million per mile.

Utility Failure / Power Outage

Disruption of electrical service is the most common utility interruption and usually the result of severe storms, ice storms, high winds, equipment and technological failure, terrorist or criminal activity, fires and accidents. Natural gas service can be affected by supply disruptions, equipment or technical failure, terrorism or sabotage, fires and accidents. Communication services are also at risk to severe weather, storms, high winds, equipment or technical failure, terrorism or criminal activity, fires and accidents.

Damages and costs to improved property and municipal infrastructure associated with utility outages are most often related to surges that damage electrical services, equipment and appliances. Damaged equipment and structural impacts can also occur when heat and power loss cause freezing and water damage. Fires are a further concern when there are electrical malfunctions or gas leaks, and when alternate heating sources and generators are misused during outages.

While not directly affecting improved property and infrastructure, there are many other utility and power outage costs that impact the community. Spoiled food and the replacement cost of food, emergency response and sheltering, and health care costs linked to increased injuries and the loss of heat and air conditioning are common. The most costly impacts to the community from a sustained, widespread power outage can be economic and include the closing of businesses and schools, disruption of commerce, suspension of transportation and public services and unemployment. Agricultural operations typically experience significant losses as well when there are utility failures.

The most power sensitive facilities and customers typically include:

- Mission-critical computer systems
- Industrial processing companies
- High-tech manufacturing facilities and clean rooms
- Financial institutions
- Digital communication facilities (phone, television, satellite)
- Military operations
- Wastewater treatment facilities
- Hospitals and other health care facilities

Power outages or service interruptions impose direct costs on facilities and customers in the following ways:

- Damaged facility equipment
- Diminished or off-specification product and output
- Extra maintenance costs
- Cost for replacement or repair of failed components
- Loss of revenue due to downtime that cannot be made up
- Costs for idle labor
- Liability for safety/health

The U.S. Environmental Protection Agency (EPA) maintains data that estimates electric power reliability and the associated costs that customers experience when there is an interruption of power (*US EPA, Calculating Reliability Benefits, last updated, July 2009*). Their analysis estimated the cost of outages per kilowatt hour for Pacific Gas and Electric (PG&E) customers.

Costs of Power Interruption

Customer Class	\$/kWh un-served
Industrial	\$12.70 - \$424.80
Commercial	\$40.60 - \$68.20
Agricultural	\$11.50 - \$11.70
Residential	\$5.10 - \$8.50

Note: A kilowatt hour is a unit of energy equal to 1000 watt hours. A heater rated at 1000 watts (1 kilowatt), operating for one hour uses one kilowatt hour of energy. Using a 60 watt light bulb for one hour consumes 0.06 kilowatt hours of electricity, or using a 60 watt light bulb for one thousand hours consumes 60 kilowatt hours of electricity.

The U.S. Energy Information Administration (EIA) estimated in 2008 that residential customers in New York State used an average of 19.7 kilowatt hours of electricity per day. Using the EPA and EIA estimates, residential customers in Schoharie County would have costs that range from \$100 to \$167 each day there is an outage. If electric service is disrupted throughout an entire town or village, the cost to all residents in each town are outlined in the following table.

Power Outage - Daily Cost to Residents

Potential Residential Power Outage Costs Per Day			
Jurisdiction	Occupied Residences¹	Average Cost Per Day	Total Daily Cost Per Jurisdiction
Blenheim	146	\$133	\$ 19,418
Broome	402		\$ 53,466
Carlisle	648		\$ 86,184
Cobleskill, T	2331		\$ 310,023
Cobleskill, V	1770		\$ 235,410
Conesville	372		\$ 49,476
Esperance, T	868		\$ 115,444
Esperance, V	194		\$ 25,802
Fulton	560		\$ 74,480
Gilboa	451		\$ 59,983
Jefferson	619		\$ 82,327
Middleburgh, T	1470		\$ 195,510
Middleburgh, V	775		\$ 103,075
Richmondville, T	1035		\$ 137,655
Richmondville, V	363		\$ 48,279
Schoharie, T	1347		\$ 179,151
Schoharie, V	436		\$ 57,988
Seward	618		\$ 82,194
Sharon	740		\$ 98,420
Sharon Springs	209		\$ 27,797
Summit	488	\$ 64,904	
Wright	706	\$ 93,898	

¹ U.S. Census, 2010

I. Analysis of Development Trends

1. Development Management Tools

The primary planning documents and local boards that analyze development trends in Schoharie County and local communities include the following.

- Comprehensive Master Plans prepared by most of the county's towns and villages
(see table *Local Development Policies* below)
- Schoharie County Long Range Economic Development
- Schoharie County / New York City Watershed: Low Impact Development Design Strategies
- Cobleskill Small Urban Area Corridor Plan
- Schoharie County Highways Shared Services / Consolidation Study
- Cobleskill Water and Sanitary Sewer Master Plan
- Blenheim Long-Term Recovery Plan
- Schoharie Planning Commission's Guide for Local Officials
- Schoharie County Board of Supervisors
- Schoharie County Planning Commission
- Schoharie County Agriculture & Farmland Protection Board
- Southern Tier East Regional Planning Development Board (STERPDB)
- Mohawk Valley Regional Economic Development Council
- Schoharie Area Long-Term Disaster Recovery Coalition (SALT)

Communities in Schoharie County use the following plans, local laws and regulatory tools to manage growth and development.

Local Development Policies

Summary of Relevant Plans, Regulations and Zoning					
Jurisdiction	Comprehensive Master Plan	Zoning or Land Use Law	Subdivision Regulations	Planning Board	Zoning Board of Appeals
Blenheim	Development in process	None	None	None	None
Broome	Adopted, 2004	Building Site	Yes	Yes	None
Carlisle	Adopted, 2006	Building Site	Yes	Yes	None
Cobleskill, T	Adopted, 1960s	Zoning	Yes	Yes	Yes
Cobleskill, V	Adopted, 1999	Zoning	Yes	Yes	Yes
Conesville	Adopted, 2007	None	Yes	Yes	None
Esperance, T	Adopted, 2008	Zoning	Yes	Yes	Yes
Esperance, V	Adopted, 2004	Zoning	Yes *	Yes	Yes
Fulton	Adopted, 1990	Building Site	Yes	Yes	None
Gilboa	Adopted, 2004	Building Site	Yes	Yes	None
Jefferson	Adopted, 2008	Rural Development	Yes	Yes	Yes
Middleburgh, T	Adopted, 1999	Zoning	Yes	Yes – Joint Town/Village Board	Yes
Middleburgh, V	Adopted, 1999	Zoning	None		Yes
Richmondville, T	Adopted, 2006	Zoning	Yes	Yes	Yes
Richmondville, V	Adopted, 2006	Zoning	Yes	Yes	Yes
Schoharie, T	Adopted, 1997	Zoning	Yes	Yes	Yes
Schoharie, V	Adopted, 1997	Zoning	Yes	Yes	Yes
Seward	None	Zoning	Yes	Yes	Yes
Sharon	Adopted, 2009	Zoning	Yes	Yes – Joint Town/Village Board	Yes
Sharon Springs	Adopted, 2002	Zoning	Yes		Yes
Summit	Adopted, 2008	Building Site	Yes	Yes	Yes
Wright	Adopted, 2008	Building Site	Yes	Yes	Yes

Source: Schoharie County Planning and Development Agency, August 2013

* Not a full subdivision review, new lots must meet minimal area requirements

2. Population Trends

Population growth and associated development in Schoharie County will not significantly influence hazard mitigation goals and priorities in the years ahead. As noted by the 2010 U.S. Census, much of Schoharie County experienced slight population growth over the last decade -- primarily in Blenheim, Carlisle, Jefferson and the Village of Richmondville – but even in these communities the gains are modest and the low-density character of the areas is not expected to change.

Population Trends

Schoharie County - Population Trends			
Jurisdiction	2000 Population	2010 Population	Change 2000 to 2010
Blenheim	330	377	+ 14%
Broome	947	973	+ 3%
Carlisle	1758	1948	+ 11%
Cobleskill, T	1874	1947	+ 4%
Cobleskill, V	4533	4678	+ 3%
Conesville	726	734	+ 1%
Esperance, T	1663	1731	+ 4%
Esperance, V	380	345	- 9%
Fulton	1495	1442	- 3%
Gilboa	1215	1307	+ 7%
Jefferson	1285	1410	+ 10%
Middleburgh, T	2117	2246	+ 6%
Middleburgh, V	1398	1500	+ 7%
Richmondville, T	1626	1692	+ 4%
Richmondville, V	786	918	+ 17%
Schoharie, T	2269	2283	+ 1%
Schoharie, V	1030	922	- 10%
Seward	1637	1763	+ 8%
Sharon	1296	1288	+ 1%
Sharon Springs	547	558	+ 2%
Summit	1123	1148	+ 2%
Wright	1547	1539	- 1%

Source: U.S. Census Bureau

Population growth and related development are expected to remain manageable in the years ahead due to the following factors.

- Economic and employment growth will primarily be linked to tourism and small business development, where modest increases or changes in job patterns are not expected to significantly offset adjustments or losses in other employment sectors.
- Communities are not planning expansion of water and sewer services (except in Cobleskill, where options for expanded services have been evaluated but not enacted), which limits opportunities for residential growth and development. In fact, some towns have expressed opposition to water and sewer expansion in their master plans because it would encourage

growth that is not consistent with goals for preserving the agricultural, natural resource and rural character of their communities.

- Most plans recommend that residential expansion occur in proximity to the villages and hamlets, to take advantage of the associated infrastructure and services already provided, and to reduce development pressure on areas dedicated to agriculture, natural resources and rural uses.
- While part of the Albany-Capital District region, Schoharie County is situated well outside the core commercial zone and transportation hub that is most attractive to businesses and employers. Although Schoharie County looks to be successful in attracting businesses and jobs that seek a more rural setting combined with interstate transportation access and a more cost-effective business environment, such growth is not expected to dramatically increase the area's population and development profile in the near future.

3. Development Priorities

Most of the development and master plans prepared by Schoharie County, local municipalities and area resource management groups call for applying a sustainable development approach; one that balances modest growth with the protection of agriculture, preservation of the community's rural and small town features and conservation of natural resources.

Tourism and Cultural Resources

Schoharie County is situated in the central upstate New York region where the preponderance of natural resources, historic features and transportation access make it an attractive destination for those from throughout the northeast. These natural resources have combined to generate a significant tourism industry in the county centered on the many rural markets, beautiful vistas, outdoor recreation, water resources, culture and history.

Efforts are focused on developing gateway access that will welcome and orient visitors, making it easier for tourists and visitors to access Schoharie County using the interstate highways that connect the county to northeast urban centers.

Agricultural Preservation

The history and economy of Schoharie County are closely linked to its agricultural roots and the dominant rural character of the area is a key feature that attracts visitors, tourists and new residents.

There is widespread support for retention and promotion of the agriculture economy, the preservation of farms and rural activities. The quiet and sparse rural setting of Schoharie County, combined with its extraordinary natural resources, forested areas, quaint valleys and vistas are significant attractions that appeal to visitors, vacationers, retirement home buyers and new residents who seek a country and small town lifestyle.

Residential Development

Demand for residential expansion in Schoharie County is expected to remain modest, primarily focused on scattered single family housing or town-house and related low-density construction. The greatest potential for development exists in the highway and rail transportation corridor crossing the county through Esperance, Schoharie, Cobleskill and Richmondville. Other communities like Blenheim and Jefferson have seen modest growth as people look to retire or relocate to these attractive rural and natural settings, but any increase in population has been gradual and in low density single family units that have not demanded significant outlays of infrastructure and services. These kinds of development have led communities to adopt or consider strengthening local zoning and ordinances to manage building in sensitive natural areas, and it is still expected that any significant residential expansion should take place in or near the villages and hamlets with existing water and sewer services.

Commercial Development and Services

To maintain a progressive local economy that supports jobs, active communities and a vibrant quality of life, Schoharie County must seek business and commercial activity that sustains employment and revenue. Local planning calls for the development of commerce and commercial services in proximity to the villages and hamlets of Schoharie County, especially in the highway and rail transportation corridor crossing the county through Esperance, Schoharie, Cobleskill and Richmondville. There is general acceptance that pressure for commercial growth along the I-88 corridor should be concentrated in pockets where business activity has already established a foothold, in or near areas of existing water and sewer services.

Schoharie County has endorsed an economic development strategy that focuses on building a sustainable economy that links Schoharie County with the opportunities and resources available in the greater Capital Region of New York. The strategy outlines prospects for commercial growth, employment and community development using the following objectives.

- Rebuild and expand local employment opportunities for county residents by attracting and supporting businesses that offer challenging, good-paying jobs
- Enhance the tax base of the county to off-set the burden residents bare to maintain quality schools, public services and community infrastructure
- Improve access to goods and services that enhance local quality of life
- Provide the kind of community resources and quality of life that will attract professionals to Bassett Hospital and related medical facilities, draw top quality educators for local schools and SUNY Cobleskill and appeal to businesses leaders and technical specialists needed to support commerce and community services
- Preserve the natural beauty, historic character and heritage of the area, including the ability to maintain family farms and sustain small-town living

Commercial and economic sectors that are targeted for implementing this development strategy include the following.

- Technology-Related Manufacturing
- Information Technology
- Traditional Manufacturing
- Financial Services/Back Office Operations
- Distribution Warehousing
- Recreation/Tourism

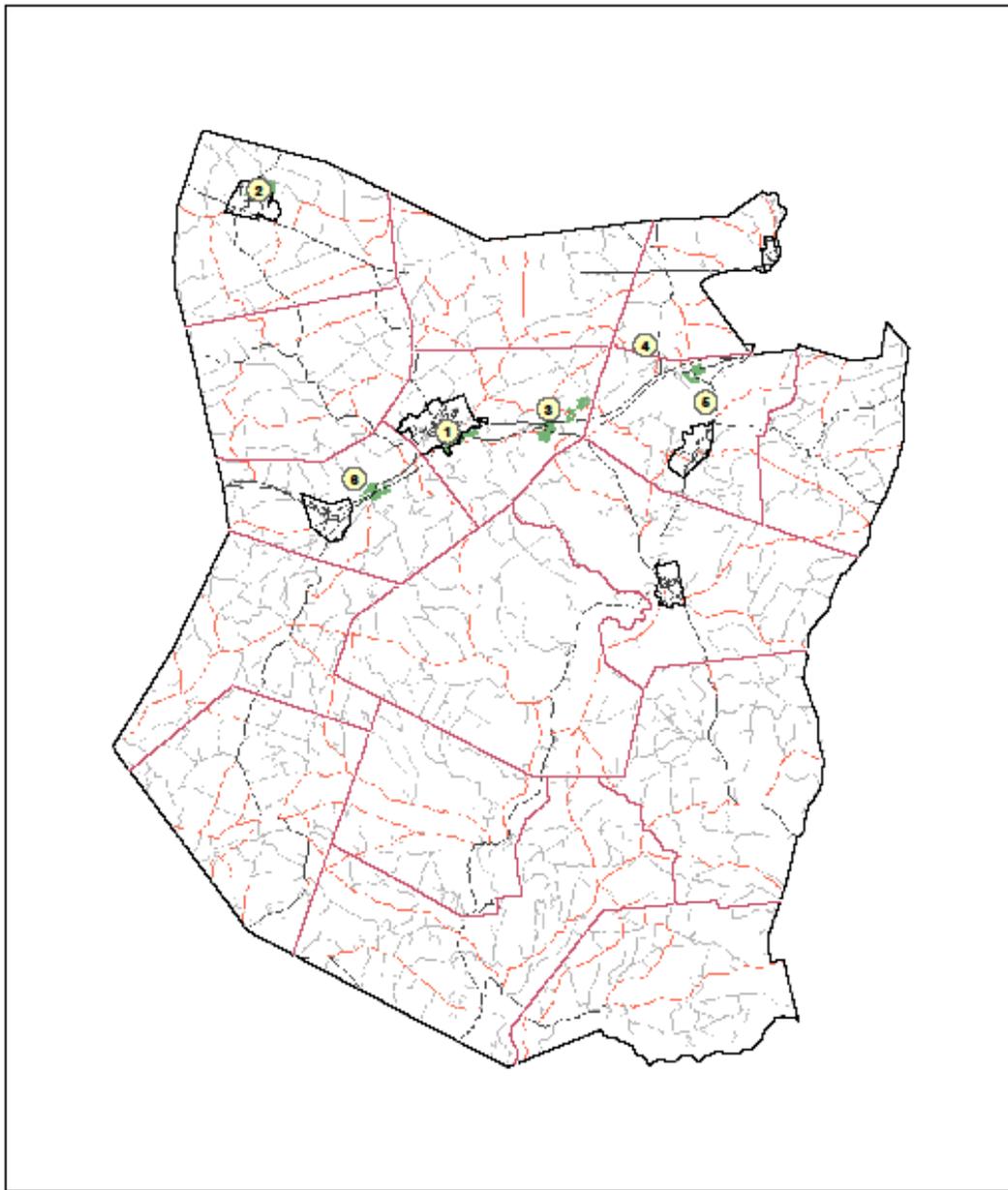
Managing Development and Protecting Natural Resources

Planning is focused on ways to enhance commerce, tourism, recreational opportunities and access to history and culture while protecting natural resources. Local officials and development policies reflect the importance of managing growth in a way that protects natural resources; including forestlands, wetlands, drainage systems, conservation areas, slopes, vistas and water quality. Plans further emphasize that industrial uses should be located away from these natural resources and that development must consider storm water management.

To manage commercial and industrial expansion, Schoharie County participates in the *Empire Zone* program sponsored by New York's Empire State Development (ESD). Empire Zones are geographically defined areas within Schoharie County where businesses who have located in these zones are eligible for incentive loans, grants and tax credits. While the Empire Zone program no longer offers benefits to new businesses that are not currently in the program, the designation and geographic identification of these zones continues to serve as a plan and spatial footprint that targets preferred locations for commercial expansion. In Schoharie County, six (6) such zones have been identified as areas for promoting economic growth.

1. Cobleskill – Mineral Springs
2. Sharon Springs
3. East Cobleskill and Howe's Cave
4. Central Bridge – Railway Area
5. Town of Schoharie – I-88/Exit 23 Vicinity
6. Richmondville

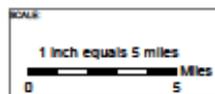
Schoharie County Empire Zones



Schoharie County
Proposed Empire Zone Overview

Legend August 12, 2005

■ Empire Zone



4. Potential Development Considerations

Gas Pipelines

There are currently three (3) major pipelines transporting fuel underground in Schoharie County and proposals have been made to add two more pipelines in the central and northern towns of the county. The pipelines carry natural gas or propane and the proposed new pipelines are in the planning and review stages and have not been approved.

The rapidly changing energy market, including the public's demand for cleaner, lower-cost fuel and less reliance on foreign supplies, has prompted the expansion and development of pipeline projects. Schoharie County is in the center of a regional distribution network that strives to move fuel supplies from Canada and the Gulf of Mexico – and now Appalachian states – to high demand users throughout the northeast.

For many, the pipelines are an attractive economic development opportunity because they yield tax revenue for long-suffering municipalities and school districts. Others think they could also add desperately needed jobs, and they could be even more beneficial if the gas lines were to be accessed as a direct, lower cost fuel source for businesses and homeowners. Many in the community, however, are opposed to pipeline expansion because it means giving up land and it could negatively impact property values and quality of life -- and they fear the health and safety consequences as highlighted by the pipeline disasters of 1990 and 2004.

Aside from direct health and safety hazards associated with pipeline operations, the overall economic impact of pipeline construction and how it might influence other hazards through residential, commercial and infrastructure expansion are not clearly known. Pipeline construction and operations would be required to meet state and federal regulatory standards and would have to incorporate designs to prevent flood hazards in the community. Some think that smart pipeline planning could actually be used to enhance flood protection by designing or altering drainage patterns in the course of construction as a means for improving overall groundwater management. Existing pipeline operations have been a valuable asset for job growth and revenue in the county, but at the same time the limited number of jobs that are generated and the extent of secondary business activity related to the pipelines have not dramatically changed the overall economic condition and profile of the county.

Natural Gas Shale Extraction

Deep underground shale deposits throughout the Appalachian region contain valuable natural gas reserves that can be accessed through a drilling process called hydraulic fracturing. This extraction has been occurring in Pennsylvania and other states and can be economically lucrative for landowners and local governments. The balance of risks and benefits associated with hydraulic fracturing are controversial, however, especially the issues related to the health and hazard concerns. New York State has not approved the extraction process, although it is being reviewed and a decision is pending this continuing evaluation. If New York State decides to approve

hydraulic fracturing, it is expected there would be immediate pressure and interest to proceed with natural gas extraction in Schoharie County, although many local governments oppose the practice and have passed resolutions banning it in their jurisdictions, and other towns have authorized moratoriums to delay fracturing until more information and analysis is available.

The geologic and environmental impacts of natural gas extraction are beyond the scope of this plan, but it is clear that surface operations associated with extraction work can have significant consequences for the economy, lifestyle, public services and infrastructure in the communities where it occurs. In Bradford and Susquehanna counties of Pennsylvania, just south of the New York border, there has been extensive natural gas drilling and operations have been expanding. The extraction process brings immediate revenues for landowners and municipal governments, draws a large workforce at much higher wage rates, swells demand for temporary housing, results in a greater need for community services and has wide-ranging impacts on local infrastructure.

Cornell University and Penn State University are two regional research institutions that have examined the economic development prospects for natural gas extraction in local communities. Work at both universities concur that the employment, revenue and economic activity generated during the active drilling period can be extensive, but the Penn State study emphasizes that natural gas is a non-renewable resource, so by definition, drilling will end at some point and so will its local economic impact.¹ The Penn State analysis further highlights that it may be possible for drilling activity to continue at various locations across a county for up to 30 years, but the evaluation by Cornell cautions that any specific site or area might only sustain drilling activity for 5 to 7 years.² Both research groups summarize that the long-term economic impacts of natural gas extraction for local communities is uncertain. In this research, Cornell determined that much of the long-term employment and economic revenue is eventually redirected away from the drilling communities back to larger, more permanent corporate sites in other states. In these studies, both research groups note that any lasting employment and economic impacts are largely dependent on the ability of communities to capture revenues during the drilling period and invest them in transitional measures that will sustain economic opportunities after drilling ends.

¹ *Economic Impacts of Marcellus Shale in Bradford County: Employment and Income in 2010*

Timothy W. Kelsey (Penn State), Martin Shields (Colorado State), James R. Ladlee (Penn State), and Melissa Ward (Penn State), in cooperation with Tracy L Brundage (Penn College), Larry L Michael (Penn College), and Thomas B. Murphy (Penn State)

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² *The Economic Consequences of Marcellus Shale Gas Extraction: Key Issues*

Cornell University Department of City & Regional Planning, 2011 www.cardi.cornell.edu

Susan Christopherson, Professor, Department of City & Regional Planning, Cornell University

5. Hazard Mitigation Considerations

Many of the proposed mitigation strategies that follow in Section VI are intended to complement and enhance the development priorities outlined in local master plans and related policies referenced above.

- Stormwater management projects continue to be a priority for most communities in Schoharie County. Improvements will provide significant protection for residences and improved property, and they are a key strategy for communities in protecting local roads and infrastructure from flood and storm damage. A primary goal for many communities is to prevent or reduce flooding by improving stormwater management infrastructure on local road and culverts. Solutions local governments can consider to manage stormwater and prevent flooding on private property include; limiting the percentage or amount of area that structures and impervious pavement can cover on a property or lot, requiring site area reviews on all construction, extending or connecting to existing sanitary sewers where possible, and requiring erosion control technologies such as retention systems, sand filters, and use of permeable materials for paving.
- Many Schoharie County communities place a strong emphasis on stream stabilization projects as a means to manage erosion and prevent flooding. Even where stabilization does not protect a specific road, bridge or improved property, stabilization is beneficial in protecting downstream properties and facilities by helping to contain erosion and the movement or collection of stream debris.
- Local plans and policies emphasize the importance of municipal floodplain management, including comprehensive flood plain management ordinances, and expanded participation in the National Flood Insurance Program (NFIP). These planning elements and policies have been reinforced by the post-disaster observations, discussion and recommendations of the 2006 and 2011 floods.
- In recent years, both the local master plans and hazard mitigation goals have incorporated provisions to address hazards associated with steep slopes. Actions began with measures to require or place firebreaks on steep slopes, but the emphasis on this threat has led to discussions and proposals to consider building ordinances and regulations to manage development on steep slopes.
- The devastating 2006 and 2011 flooding and the success of hazard mitigation funded buyouts of repetitive loss properties has generated wider attention and acceptance among property owners and local officials of this and other forms of hazard mitigation initiatives. As a result, hazard mitigation measures and opportunities have become a key consideration in comprehensive master planning and other development plans as they are prepared, reviewed and updated.
- Agencies and appropriations that provide community planning and development grant funding have more consistently required that grant funded plans and development projects incorporate hazard mitigation provisions and actions in their projects.

- Hazard Mitigation actions that protect natural resources and manage development not only reduce vulnerability and losses associated with natural and manmade hazards, but have mutual and far-reaching benefits in meeting other community priorities related to natural resource protection, commercial and business development, agricultural protection and promotion of tourism.