

# PLAN PURPOSE

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The main purposes of the Schoharie County All Hazards Mitigation Plan can be broken down into three parts: 1) identify the natural and human caused hazards that may impact Schoharie County municipalities at any time 2) establish goals and objectives to help the County decrease the impact of such hazards on public and private property and on living things and 3) describe the actions the County and municipalities will take to implement the plan.

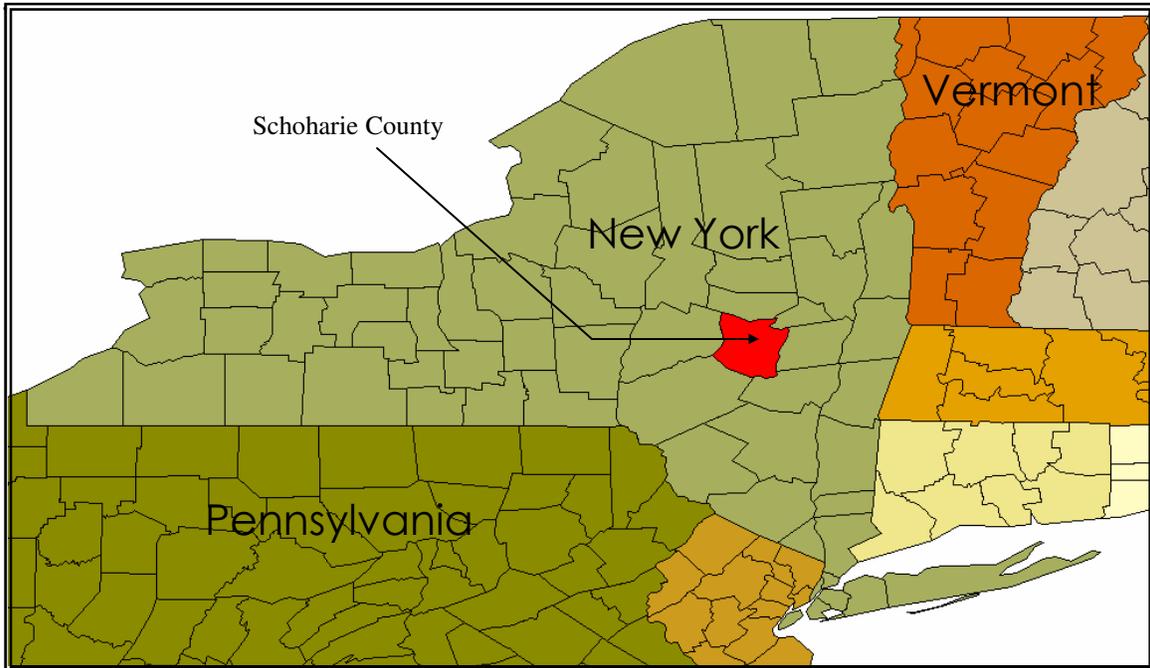
Following devastating floods in January 1996, Schoharie County has taken a proactive stance against natural and human caused hazards. Immediately after the January 1996 floods, the County was forced to make decisions about mitigating the impacts of a similar future flood. Tough decisions on local levels were made, such as implementing land use regulations to limit the ability of private property owners to rebuild and remain in harms way and on the County level as well, such as placing deed restrictions on County tax sale parcels located in the 100 year floodplain. With the assistance of the New York State Emergency Management Office and the Federal Hazard Mitigation Grant Program, and later with funding from the New York State Department of Environmental Conservation, Schoharie County and several town and village governments decided to be proactive through education, property acquisition, and home/utility elevation projects. Such proactive measures have been successful, but further mitigation efforts in the last several years have been hindered by typical barriers to many rural governments in New York State including, lack of clear mitigation goals, lack of adequate funding, lack of adequate staff, lack of cooperation amongst government agencies and lack of cooperation between government and the private and non-profit organizations. A lack of clear goals to the hazard mitigation effort will hopefully be eliminated by the time the first review of this plan occurs in 2010 and the County agencies and the twenty-two municipalities in the County have used and improved this plan.

Schoharie County wants this plan to be comprehensive, yet as brief and understandable as possible. In the summer of 2004, the County received a State Archives and Records Administration grant for equipment, training, and software to better organize the County GIS. Several of the methods used to estimate potential losses for certain hazards will be modified and improved as the data contained within the Schoharie County Geographic Information System (GIS) is further developed and connections between databases are made. For example, a point identifies each structure in a special flood hazard area in Schoharie County but associating the point with a content assessed inventory is still being developed. Additionally, the County is currently involved in a detailed inventory of bridges and culverts and an associated value can be determined. The County also intends to maximize the use of HAZUS-MH to further analyze hazards once a workstation and Spatial Analyst software is purchased and a staff person becomes efficient with the use of the software. This information will make the estimate of potential dollar losses for natural hazards more accurate and this plan will be revised as soon as this new information is available. Additionally, a key base map layer, digitized tax maps, will not be completed countywide until late 2006. This missing key layer hinders the County in making fast queries in regard to property information. Once completed, improvements can be made to this plan and additional maps or improvements to the accuracy of existing maps can be made at the first plan review in 2010.

Schoharie County agencies and municipalities need to work together to solve common problems and to protect County residents and visitors from hazards. The All Hazards Mitigation Plan will place the County on the path to solving existing problems, improving cooperation, and sharing limited resources.

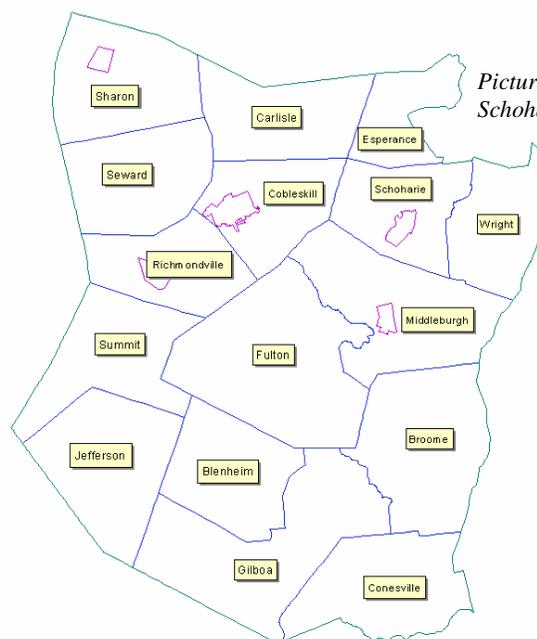
# COMMUNITY OVERVIEW AND PAST MITIGATION PROJECTS

Schoharie County is located in the east-central part of New York approximately 30 miles west of the City of Albany and 135 miles north of the City of New York. It occupies approximately 390,000 acres, or 610 square miles. The terrain is a mix of rounded mountainsides and flat, narrow valleys. Elevation ranges from an average of about 1,200 feet in the northern limestone plateau section of the County to approximately 2,000 feet in the higher plateaus in the southern part of the County. Higher elevations exceeding 2,500 feet exist in sections of the Catskill Mountains that extend north into the County. Schoharie Creek flows north from the Catskill Mountains through the County to the Mohawk River. The County is rural and surrounded by Montgomery, Schenectady, Albany, Greene, Delaware, and Otsego Counties. Schoharie County is the least populated county in the region with 31,582 people (2000 Census)



Picture 1 – Schoharie County in New York State

Schoharie County is comprised of 16 towns and 6 villages. There are no cities in the County. The most populated region of the County (approximately 14,000 people) is the northwest towns of Carlisle, Cobleskill, Richmondville, Seward, and Sharon where the Villages of Cobleskill, Richmondville, and Sharon Springs are located.



Picture 2 – Schoharie County Towns

As shown in Table 1, the County experienced a slight decrease in population of 277 persons or .9 percent from 1990 to 2000. As for the minor civil divisions, the Town of Cobleskill had the greatest decrease in population with 863 persons or 11.9 percent. The Village of Cobleskill also decreased by 735 persons or 14 percent, while the remainder of the Town of Cobleskill decreased by 128 persons or 6.4

percent. The greatest increase, however, was in the Town of Middleburgh with 257 persons or 13.8 percent.

**TABLE 1  
TABULATION OF POPULATION CHANGES 1940 TO 2000  
SCHOHARIE COUNTY WITH MINOR CIVIL DIVISIONS**

GEOGRAPHIC AREA	1940	1950	1960	1970	1980	1990	2000	SHORT TERM CHANGE 1990-2000		LONG TERM CHANGE 1940-2000	
								Number	Percent	Number	Percent
<b>SCHOHARIE COUNTY</b>	<b>20,812</b>	<b>22,703</b>	<b>22,616</b>	<b>24,750</b>	<b>29,710</b>	<b>31,859</b>	<b>31,582</b>	<b>-277</b>	<b>-0.9%</b>	<b>10,770</b>	<b>51.7%</b>
Blenheim Town	415	378	345	260	292	332	330	-2	-0.6%	-85	-20.5%
Broome Town	768	635	517	551	761	926	947	21	2.3%	179	23.3%
Carlisle Town	917	1,010	900	1,040	1,417	1,672	1,758	86	5.1%	841	91.7%
Cobleskill Town	4,005	4,709	4,964	6,017	7,048	7,270	6,407	-863	-11.9%	2,402	60.0%
Cobleskill Village	2,617	3,208	3,471	4,368	5,272	5,268	4,533	-735	-14.0%	1,916	73.2%
Remainder of Town	1,388	1,501	1,493	1,649	1,776	2,002	1,874	-128	-6.4%	486	35.0%
Conesville Town	673	626	593	489	681	684	726	42	6.1%	53	7.9%
Esperance Town	887	1,128	1,232	1,567	1,951	2,101	2,043	-58	-2.8%	1,156	130.3%
Esperance Village	219	322	314	408	374	324	380	56	17.3%	161	73.5%
Remainder of Town	668	806	918	1,159	1,577	1,777	1,663	-114	-6.4%	995	149.0%
Fulton Town	1,010	1,050	1,008	1,060	1,394	1,514	1,495	-19	-1.3%	485	48.0%
Gilboa Town	1,061	943	782	854	1,078	1,207	1,215	8	0.7%	154	14.5%
Jefferson Town	845	819	800	840	1,108	1,190	1,285	95	8.0%	440	52.1%
Middleburgh Town	2,113	2,460	2,437	2,486	2,980	3,296	3,515	219	6.6%	1,402	66.4%
Middleburgh Village	1,074	1,298	1,317	1,410	1,358	1,436	1,398	-38	-2.6%	324	30.2%
Remainder of Town	1,039	1,162	1,120	1,076	1,622	1,860	2,117	257	13.8%	1,078	103.8%
Richmondville Town	1,503	1,728	1,746	1,903	2,186	2,397	2,412	15	0.6%	909	60.5%
Richmondville Village	598	709	743	826	792	843	786	-57	-6.8%	188	31.4%
Remainder of Town	905	1,019	1,003	1,077	1,394	1,554	1,626	72	4.6%	721	79.7%
Schoharie Town	2,417	2,777	3,063	3,088	3,107	3,369	3,299	-70	-2.1%	882	36.5%
Schoharie Village	941	1,059	1,168	1,125	1,016	1,045	1,030	-15	-1.4%	89	9.5%
Remainder of Town	1,476	1,718	1,895	1,963	2,091	2,324	2,269	-55	-2.4%	793	53.7%
Seward Town	1,146	1,224	1,210	1,271	1,587	1,651	1,637	-14	-0.8%	491	42.8%
Sharon Town	1,476	1,463	1,405	1,566	1,915	1,892	1,843	-49	-2.6%	367	24.9%
Sharon Springs Village	433	361	351	421	514	543	547	4	0.7%	114	26.3%
Remainder of Town	1,043	1,102	1,054	1,145	1,401	1,349	1,296	-53	-3.9%	253	24.3%
Summit Town	790	850	704	690	903	973	1,123	150	15.4%	333	42.2%
Wright Town	786	903	910	1,068	1,302	1,385	1,547	162	11.7%	761	96.8%

Sources: 1940, 1950, 1960, 1970, 1980, 1990, and 2000 U.S. Census of Population & Housing.  
Prepared by the Southern Tier East Regional Planning Development Board.

## Land Uses

The accompanying Table 2 summarizes land use in Schoharie County. As shown on the table, single family, agricultural, wild forest, and unused land uses predominate among the municipalities that make up Schoharie County. Development has occurred primarily in the Schoharie Valley and Cobleskill Creek Valley where all but one village is located. The table presents information for each town and village in the county, with the town figures excluding any villages.

**TABLE 2  
DISTRIBUTION OF LAND USES -2002  
SCHOHARIE COUNTY AND ITS MUNICIPALITIES**

Distribution of Land Uses (in Acres)											
City, Town or Village	Single Family	Multiple Family	Mobile Home	Comm/Retail	Indust	Inst Public	Agric	Wild Forest	Rec'r'n	Unused	Total
Blenheim T	6,087.29	186.24	544.41	10.55	0.00	1,489.00	1,313.32	7,691.42	0.16	4,315.89	21,638.28
Broome T	10,318.70	347.79	1,786.14	282.73	20.00	12.28	3,103.31	7,717.25	26.40	6,786.82	30,401.42
Carlisle T	4,564.62	167.80	859.52	60.03	0.46	143.76	11,760.15	507.49	0.00	3,332.83	21,396.66
Cobleskill T	2,628.13	274.29	160.93	398.48	301.74	790.34	7,822.68	1,167.01	105.70	2,994.49	16,643.79
Cobleskill V	382.63	58.46	4.79	265.22	100.78	479.16	259.62	0.00	65.15	306.37	1,922.18
Conesville T	8,201.44	144.40	1,199.51	53.80	0.22	574.40	3,716.00	4,615.37	98.10	6,785.09	25,388.33
Esperance T	4,030.10	144.25	576.86	289.08	72.20	87.43	3,273.64	2.00	0.00	3,487.86	11,963.42
Esperance V	96.23	4.30	2.90	4.54	0.00	15.23	22.32	0.00	0.60	146.48	292.60
Fulton T	10,139.63	44.24	1,192.84	10.53	200.33	14.14	5,974.06	13,466.56	155.30	9,019.84	40,217.47
Gilboa T	10,604.91	620.00	1,886.57	8.94	68.20	2,729.62	9,444.12	1,463.21	563.77	9,987.11	37,376.45
Jefferson T	9,312.09	73.60	1,151.31	57.75	52.50	204.28	6,596.82	1,577.21	382.49	7,988.15	27,396.20
Middleburgh T	12,098.26	446.30	1,280.01	203.63	266.42	153.95	6,018.87	1,605.46	187.70	8,585.56	30,846.16
Middleburgh V	252.86	27.63	1.40	38.10	0.00	71.88	170.50	16.70	2.20	108.84	690.11
Richmondville T	4,633.35	99.79	607.95	156.90	35.61	551.49	5,240.14	264.55	16.25	5,763.05	17,369.08
Richmondville V	297.93	16.97	10.88	24.48	0.30	79.45	203.65	3.00	2.50	244.70	883.86
Schoharie T	4,257.86	245.54	357.83	75.42	228.00	249.98	6,764.54	99.85	44.19	4,706.69	17,029.90
Schoharie V	251.96	152.85	1.10	34.28	21.40	135.70	327.65	0.00	9.79	66.43	1,001.16
Seward T	5,287.78	263.59	569.80	133.87	0.00	74.21	9,637.02	1,073.56	32.94	5,778.16	22,850.93
Sharon T	5,404.66	341.36	536.12	175.75	14.47	516.77	12,418.53	646.22	86.20	3,208.66	23,348.74
Sharon Springs V	354.20	5.68	12.39	251.77	1.30	57.04	47.02	3.00	103.29	266.03	1,101.72
Summit T	9,441.79	0.00	1,035.36	43.71	26.90	103.16	2,663.56	2,036.51	0.00	8,090.99	23,441.98
Wright T	5,937.81	323.65	582.72	134.48	0.00	89.45	6,675.85	666.74	0.00	3,485.77	17,896.47
<b>Total</b>	<b>114,584.23</b>	<b>3,988.73</b>	<b>14,361.34</b>	<b>2,714.04</b>	<b>1,410.83</b>	<b>8,622.72</b>	<b>103,453.37</b>	<b>44,623.11</b>	<b>1,882.73</b>	<b>95,455.81</b>	<b>391,096.91</b>

Source: Schoharie County Planning Department. Town figures exclude villages.

According to the Schoharie County Agricultural and Farmland Protection Plan, agriculture is the predominant industry in Schoharie County with dairy products accounting for 66% of agricultural sales in the County. Approximately 353,000 acres of the County is in farm or forest use, about 90% of the total land mass. Schoharie County has little heavy industry (several quarries do operate in the County) and industrial land is predominately light manufacturing, warehousing, and other similar uses. The lack of heavy industry in the County reduces the possibility of problems associated with some analyzed hazards such as air contamination, explosion, fire, oil spill, hazardous material (fixed site). Table 3 is a list of major employers in the County of which only 3 are industrial.

**TABLE 3  
SCHOHARIE COUNTY MAJOR EMPLOYERS WITH 50 OR MORE EMPLOYEES**

Employer	Location	Number of Employees*	Product or Service
State University of New York at Cobleskill	Cobleskill	566	Higher education.
Schoharie County Government	Entire County	380	Government services.
Cobleskill-Richmondville Central Schools	Cobleskill	347	Public school district.
Wal-Mart Distribution Center	Sharon Springs	290	Distributor for Wal-Mart stores.
Schoharie County ARC	Schoharie	250	Employment services for mentally retarded/disabled.
Wal-Mart Super Center Store	Cobleskill	230	Department store.
Bassett Hospital of Schoharie County	Cobleskill	200	Healthcare services.
Schoharie Central Schools	Schoharie	200	Public school district.
Middleburgh Central Schools	Middleburgh	199	Public school district.
Price Chopper Supermarket	Cobleskill	185	Supermarket providing food and general merchandise.
New York Power Authority	Blenheim	160	Government services.
Eden Park Nursing Home	Cobleskill	165	Long term care nursing home.
Camp Summit Correctional Facility	Summit	134	Government services/correctional facility.
Kintz Plastics Inc.	Cobleskill	130	Manufacturer of printed garments like t-shirts and hats.
Best Western of Cobleskill	Cobleskill	85	Hotel and conference center services.
Mill Services	Cobleskill	75	Wood Products
Gilboa-Conesville Central Schools	Gilboa	74	Public school district.
Sharon Springs Central Schools	Sharon Springs	71	Public school district.
Jefferson Central Schools	Jefferson	54	Public school district.
Eckerd	Cobleskill	51	Retail prescription drug and general merchandise store.

Note: Number of employees may include full time, part-time, and temporary or seasonal employment.

\* Based on the 1998 Full-time Employment figures.

Source: Schoharie County Chamber of Commerce, "Employment in Schoharie County," Largest Public and Private Employers, 2002.

## Land Use Regulation

In New York State land use regulation is an optional exercise of discretionary authority delegated to the most local units of local government – the cities, towns and villages. Typical land use regulatory tools available to municipalities include zoning regulations which control the type of land use; subdivision regulations which govern the division of real property for sale or use; site plan regulations which govern the arrangements of buildings or improvements in the development of specific properties; and specialized regulations to protect unique community assets such as aquifers, or to regulate specific types of land uses such as mobile homes. The county role in land use regulation is limited to one of coordination under provisions of §239 of the General Municipal Law. The County Planning Commission meets monthly to review new laws/comprehensive plans/projects in the County and can use their advisory capacity to help the municipalities mitigate hazards in planning and new construction. Table 4 provides information concerning the status of land use regulations in each of the municipalities in Schoharie County.

All municipalities in the County have participated in the National Flood Insurance Program since the 1980s. Construction standards for structures in the mapped 100-year floodplain or floodway have been regulated through flood damage prevention laws since this time. Each municipality has a designated floodplain administrator and proper training of the administrators continues to be a problem. As with many municipalities, most development in Schoharie County villages and hamlets occurred in areas where building and transportation access was easiest, commonly the flat, easily accessible floodplain. The Village of Middleburgh and the Village of Schoharie predominately developed in the Schoharie Creek floodplain. To a lesser extent, the Village of Cobleskill and Village of Esperance have some development in the floodplain. Schoharie County received new countywide digital Flood Insurance Rate Maps in early 2004 and all 22 municipalities adopted the maps and updated flood damage prevention laws by April 2, 2004.

Some communities have used local land use regulations to limit development in the floodplain. For example, in 2004 the Town of Middleburgh adopted a new zoning amendment requiring 20 acres for newly created lots in the floodplain. Much of the land in the Town is predominately agricultural and classified as a New York State agricultural district, but some commercial development pressure on the edge of the Village of Middleburgh has been felt over the last decade, including the construction of a commercial bank. The 20 acre lot size will help ensure that the predominate use of the land remains agricultural and that any new development will be sparse. In fact, a large farm in the floodplain, commonly referred to as “Pindar Flats” was listed for sale in 2005 and is impacted by the 20 acre lot size requirement. This will help limit potential flood damages and emergency operations in the Town of Middleburgh. The Village and Town of Cobleskill zone some floodplain portions of the Cobleskill Creek as Land-Conservation limiting uses to agricultural and recreational.

Table 4 shows that of the 22 towns and villages in Schoharie County, all but three have written comprehensive plans. All but three municipalities have local regulations governing the subdivision of land. Twelve have zoning regulations in force that govern the minimum size and use of properties in the community, while one is in the process of being developed. Only five have site plan reviews in place. In addition to these mentioned, there are six municipalities in Schoharie County that have a homesite law. A homesite law is similar to a zoning law in that it regulates area requirements (setback and acreage) and some minor uses.

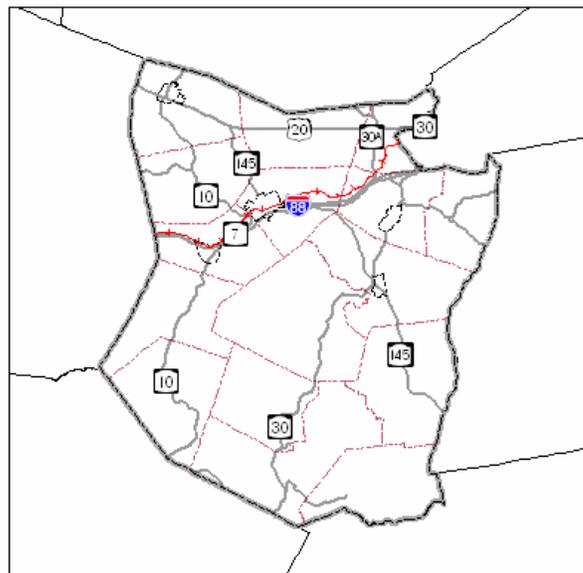
**TABLE 4  
LAND USE PLANS AND REGULATIONS – 2005  
Schoharie County Towns and Villages**

Town or Village	Written Comprehensive Plan	Subdivision Regulations	Zoning Ordinance	Site Plan Review	Homesite Law/ Other Regulations
Schoharie County					
Blenheim T	No	No	No	No	Homesite Law Homesite Law
Broome T	Yes	Yes	No	No	
Carlisle T	Yes	Yes	No	Yes	
Cobleskill T	Yes	Yes	Yes	Yes	
Cobleskill V	Yes	Yes	Yes	Yes	
Conesville T	Yes	Yes	No	No	Homesite Law
Esperance T	Yes	Yes	Yes	No	
Esperance V	Yes	No	Pending	No	
Fulton T	Yes	Yes	No	No	
Gilboa T	Yes	Yes	No	No	Homesite Law
Jefferson T	In Process	Yes	No	No	
Middleburgh T	Yes	Yes	Yes	Yes	
Middleburgh V	Yes	No	Yes	No	
Richmondville T	Yes	Yes	Yes	No	
Richmondville V	Yes	Yes	Yes	No	
Schoharie T	Yes	Yes	Yes	No	
Schoharie V	Yes	Yes	Yes	No	
Seward T	No	Yes	Yes	No	Homesite Law Homesite Law
Sharon T	Yes	Yes	Yes	No	
Sharon Springs V	Yes	Yes	Yes	No	
Summit T	Yes	Yes	No	No	
Wright T	Yes	Yes	No	Yes	

Source: Schoharie County Planning Department, 2006

## Transportation

Major east-west transportation routes in the County include Interstate 88, U.S. Route 20, NYS Route 7, and NYS Route 443. Canadian Pacific rail has freight service through Esperance, Schoharie, Cobleskill and Richmondville. No passenger rail services the County. Major north-south transportation routes include NYS Route 10, NYS Route 30, NYS Route 30A, and NYS Route 145 (see individual municipal maps). All intersections are at-grade and several railroad crossings are also at-grade. According to NYDOT average daily traffic counts, the busiest State Route in the County is NYS Route 7 through the Village of Cobleskill with an average of 16,248 vehicles per day. NYS Route 7 is the only east/west route in downtown Cobleskill. In comparison, I-88 (a four lane divided highway) has an average daily count of 10,000 –11,000 vehicles. The busiest County Roads are Mineral Springs Road and Barnerville Road (in the Village of Cobleskill) with approximately 2,300 and 3,900 vehicles per day respectively. There are no commercial airports in the County. The County relies heavily on the services around the City of Albany and Schenectady for passenger rail and air services.



Picture 3 –  
Schoharie County Transportation

## **Schoharie County Mitigation Projects**

All of the mitigation projects undertaken to date in Schoharie County reduce the impacts of flooding. Approximately 100 floodplain acres have been acquired in the County and the land protected as open space. Five homes have been elevated in the County. A list of projects completed or ongoing since 1996 include:

### **Town of Blenheim – Home Acquisition**

One home was acquired in the floodplain of the Schoharie Creek after 5 feet of water impacted the first floor living space of a home in January 1996. This project is complete and 1 acre of land in a frequently flooded portion of Blenheim is now open space. The elderly resident moved to a group home facility outside of the County. HMGP funds. Total cost - \$18,000.

Another HMGP project to purchase a flood prone, single family home on the banks of the Schoharie Creek is under review in 2006.

### **Town of Broome – Catskill Creek Home Acquisition**

One home was acquired in the floodplain of the Catskill Creek after flood damage occurred twice to the home in 2000 (picture on cover). The project is complete and 3.5 acres of land is open space. The residents relocated in the Town of Broome. HMGP funds. Total cost - \$51,000.

### **Town of Esperance – Home Elevation**

3 homes were elevated resulting in first floor living space approximately 1 foot above the base flood elevation. 2 homes are located in the area referred to as “Priddle Camp” and 1 home is located on Cripplebush Creek. Utilities were also raised. This project is complete. HMGP/NYDEC funds. Total cost - \$79,000.

Another HMGP project to elevate 4 more homes is under review in 2006.

### **Town of Esperance – Fly Creek Restoration**

This ongoing project utilizes Environmental Protection Funds through the NY Department of Environmental Conservation. The project involves stabilizing banks and altering the channel of Fly Creek where several properties and septic systems are severely eroding during high water events.

### **Town of Fulton – Home Acquisition**

This project involved purchasing and demolishing approximately 12 homes and over 32 acres of land along Schoharie Creek. The homes were substantially damaged in January 1996. One historically significant home was archived and relocated to high ground in Delaware County (picture at right shows dismantling of home). This project is complete. HMGP/NYDEC funds. Total cost - \$524,000.



### **Town of Fulton – Redling Road Drainage**

This project involved installing new larger box culverts under a frequently flooded road and paving a small section of the road to reduce erosion and road repair costs. This project is complete. HMGP funds.

### **Town of Fulton – Pleasant Valley Home Acquisition**

This ongoing project will purchase one home and ¼ acre that is threatened by ground subsidence and stream bank failure. HMGP funds. Approximate cost - \$100,000.

*Schoharie County All-Hazards Mitigation Plan – May 2006*

### **Town of Gilboa – Home Acquisition/Road Relocation/Church and Town Hall Relocation**

This project was completed as 3 separate projects and is the largest mitigation project completed in the County to date. Several residences along Stryker Road that were damaged in January 1996 were purchased and demolished. A County Road was relocated out of the floodplain and an historic church and town hall were relocated to higher ground (picture at right). This project is complete. HMGP/NYDEC funds. Total cost – 1 million

### **Town of Middleburgh – Home Acquisition**

1 home near NYS Route 30 in an area of repetitive flooding was purchased and demolished after January 1996 flooding. This home was also flooded in 1987. This project is complete. HMGP funds. Total cost – \$63,000.

### **Town of Middleburgh – Home Elevation**

1 home was elevated along Huntersland Creek. HMGP/NYDEC funds. Total cost – \$40,000.

### **Village of Middleburgh – Home Acquisition**

2 repetitive loss properties homes on Baker Avenue were purchased and demolished. The land is now utilized as open space and a gravel parking lot for a neighboring school. HMGP/NYDEC funds. Total cost - \$103,000.

Another HMGP project to purchase 5 flood prone, single family homes on Baker Avenue is under review in 2006.



### **Village of Middleburgh – Home Elevation**

1 historic home was elevated in the floodplain of Schoharie Creek (picture at left). Homes in the general vicinity experience flood waters at least once a decade. HMGP funds. Total cost - \$60,000.

### **Town of Sharon – Bowmaker Pond Restoration**

This project restored an historical recreation area and wetland. In order to alleviate drainage problems in the Village of Sharon Springs, a diversion culvert was installed by NYSDOT to redirect water to West Creek and away from a problem drainage area. This project was funded with several grants, NYSDOT, and volunteer work and was completed in 2002.

### **Schoharie County Early Warning System/Flood Education**

Primarily for floods, the County installed an early warning system that will also be utilized in the future for various hazard scenarios. The mapping component of the system is useful for mitigation planning, evacuation route planning, and shelter location identification. While it is a completed project, the early warning system is still being modified and improved.

Flood awareness, training and education are a major ongoing component of this project. Funding was provided by NYSEMO/NYDEC. The County produced a 30-minute flood education video (news article – Appendix E) to run annually on local cable stations and distributed to schools and libraries in the County. Due to emergency issues surrounding a New York City owned dam in southern Schoharie County, an audible warning system and advanced call system are being developed in 2006. Additionally, using NYDEC funds, the County installed 61 signs *Schoharie County All-Hazards Mitigation Plan – May 2006*



*Sign in Village of Cobleskill near Cobleskill Creek*

at locations where roads intersect special flood hazard areas or at municipal boundaries (picture at right). The signs state “Flood Zone Regulation in Effect” and have been useful in prompting questions from the general public about flood issues.

## PLANNING PROCESS/PLAN ADOPTION

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The Schoharie County Planning and Development Agency lead in the development of this plan. Shane Nickle, Senior Planner and County Hazard Mitigation Coordinator, led in the development of the plan at the staff level. Brian Fleury, Planner, led in the development of maps and property analysis. Two interns, Michael Sellers and Terry Rowe, made many contacts for risk assessment work. Although Schoharie County has been working on flood hazard mitigation since early 1996, the official kickoff for development of this multi-jurisdictional all-hazard mitigation plan occurred on June 24, 2003 with a dinner meeting held at the Holiday Inn Express in Schoharie, New York. The purpose of the dinner was to introduce the mitigation concept, describe past efforts in the County and to get all possible participants on the same page for the multi-jurisdictional planning process. Key players from several organizations and representatives from each municipality in the County were invited. The dinner was well attended with 61 people. 31 people attended representing each of the 22 municipalities (16 towns and 6 villages) in the County and 30 agency people attended representing involved County agencies and participants/plan reviewers including SUNY-Cobleskill, Bassett Hospital, Schoharie County Board of Supervisors, Schoharie County Farm Bureau, Schoharie County Community Action Program (SCCAP), NY Power Authority (NYPA), NY State Emergency Management Office (NYSEMO), National Weather Service (NWS), and the NY State Police.

Based on interest generated at the meeting, Schoharie County formed a hazard mitigation planning team in August 2003 made up of the following members:

Bassett Hospital:	Janet Gordon	County Board Chair:	Earl Van Wormer III
Chamber of Commerce:	James Batsford	County Planning:	Shane Nickle
SCCAP:	Barbara Rivenburg	DPW:	Thomas Fagnani
County Health:	Carl Stefanik	NYPA:	Steve Ramsey
County Sheriff:	John Bates	SEMO Region III:	Robert Bacarri
EMO:	Judy Cary	County Soil/Water:	Steve Hoerz
EMS:	William Averill	SUNY Cobleskill:	David Schindler
Farm Bureau:	Donna Burr	One representative from each of the	
Fire Coordinator:	Charlie Stanton	municipalities	

A workshop with the Committee and NYSEMO staff was held on September 4, 2003 to go over the planning process in more detail. Meetings of the committee are held monthly in conjunction with the County Emergency Planning Committee monthly meeting. A meeting summary is listed in Appendix D. Risk analysis through January 2004 was based, in part, by a County HAZNY review in 1999 and an updated HAZNY review on December 12, 2003. Key representatives participated in the HAZNY process or were contacted for input. It was found that each municipality essentially is at risk from the same hazards even though the priority of the threat may differ. A breakdown of hazard risk for each municipality was completed in 2005. The Schoharie County Hazard Mitigation Committee was formed in September 2003 and was officially appointed by a resolution of the Schoharie County Board of Supervisors in April 2004. Based on the need to streamline the ongoing process and the need for a committee to continue meeting for plan adoption, plan implementation and plan review, the resolution determined that the mitigation committee would consist of key members and a representative from each municipality would be expected to report to their town/village board. A copy of the resolution can be found in Appendix C. The new County Safety Coordinator participates in meetings with the Committee and will be formally added to the committee.

Each municipality selected representatives as contacts for the hazard mitigation committee and was contacted for information and received draft copies of the plan for comment. Town boards/planning

boards and village boards of trustees/planning boards also participated in plan development and review. As of May 2006, the municipal representatives are as follows:

Municipality	Representative(s)
Town of Broome	James Chichester/Marie Campbell
Village of Richmondville	Joe Furnell/Kevin Neary
Town of Middleburgh	Joe Furnell/Dennis Richards
Village of Sharon Springs	Peter Irwin
Town of Sharon	Peter Irwin/Anthony Desmond
Town of Schoharie	Peter Irwin/Martin Shrederis
Town of Cobleskill	Peter Irwin/Michael Montario
Town of Summit	Carl Jackson/Harold Vroman
Village of Middleburgh	William McCabe
Town of Fulton	Joe Nelson/Phil Skowfoe
Village of Schoharie	Joe Nelson/John Borst
Village of Esperance	Joe Nelson/Steve Miller
Town of Carlisle	Michael Piccolo/Larry Bradt
Town of Richmondville	Michael Piccolo/Betsy Bernocco
Village of Cobleskill	Michael Piccolo/Michael Sellers
Town of Blenheim	Norwood Tompkins/Robert Mann
Town of Jefferson	Michael Schwarzkopf/Richard Kuhn
Town of Gilboa	Audrey Tompkins/Anthony VanGlad
Town of Conesville	Ken Nolte/Donald Brandow
Town of Wright	Earl Van Wormer III/Susan Loden
Town of Esperance	Jerry Weis/Earl Van Wormer III
Town of Seward	Jerry Weis/Larry Phillips

Representatives were contacted throughout the development of this plan and worked with a municipal team of representatives including local fire chiefs, highway superintendents, planning board members, or other officials from the municipality. All 22 municipalities participated in the planning process and reviewed and commented on the plan. The Village of Cobleskill, the most populous village in the County (4,533 people), was heavily involved with meetings and correspondence. The public was engaged through the use of posting the plan online, newspaper articles in the Times Journal and Mountain Eagle, legal notices in the Times Journal and Mountain Eagle, and a posted announcement at each municipal office in the County (See Appendix E). County Planning and Development staff and EMO staff have also discussed mitigation issues at several special meetings since 1996 and at several town/village board meetings. Response from the public focused only on flooding issues.

Many experts were contacted for information and the name of the contact and/or source of information is cited within the plan itself. The National Weather Service provided many useful suggestions on the draft plan and their websites were utilized extensively. During the process, communities undergoing comprehensive planning projects (Town of Gilboa, Town of Richmondville, Village of Richmondville, and Village of Esperance) incorporated the hazard mitigation goals into their local plans. Incorporating the goals/actions of the hazard mitigation plan will become part of the adopting resolution for each municipality to help ensure implementation of the plan. Communities without comprehensive plans will be contacted annually by the Hazard Mitigation Committee to help achieve the goals and implement the actions. The Schoharie County Planning and Development Agency and Emergency Management Office provided and utilized information from several Federal and State reports and web sites for the development of this plan. Federal Emergency Management Agency materials (State and Local Mitigation Planning How-to Guides) were relied upon heavily for plan development. Other resources used include: *Schoharie County All-Hazards Mitigation Plan – May 2006*

The Pipeline Group Midwest Emergency Response Manual  
Blenheim-Gilboa Pumped Storage Project Emergency Action Plan in the Event of Dam Failure  
Gilboa Dam of Schoharie Reservoir Emergency Action Plan – October 2001  
Flood Damage Reduction Measures – Schoharie County, NY – March 2000  
Flood Protection for your Community in New York State  
Soil Survey of Schoharie County  
Environmental Geology, Carla W. Montgomery  
Earth Science, Edward Tarbuck  
Susquehanna Guardian – Managing the Basin’s Groundwater  
Comprehensive Plans – Town of Carlisle, Town of Esperance, Village of Esperance, Town of Wright,  
Town/Village of Schoharie, Town of Middleburgh, Town of Broome, Town of Gilboa, Village of Sharon  
Springs

**Plan Adoption** - Before final adoption of the plan, it will have been reviewed by: 6 Schoharie County villages, 16 Schoharie County towns, all fire departments in the County, Village of Cobleskill and Village of Schoharie Police, all main school districts in the County, SUNY Cobleskill, Bassett Hospital, New York Department of Environmental Conservation Bureau of Flood Protection, Army Corps of Engineers, National Weather Service, United States Geological Survey, New York Department of Transportation – Region 9, Citizens for Clean Environment, County Sheriff, County Emergency Services, County Fire Coordinator, County Safety Officer, County Emergency Management Office, County Planning Department, County Department of Public Works, County Health Department, County Office for the Aging, County Public Transportation, Canadian-Pacific Railroad, New York State Police, Natural Resource Conservation Service, County Soil and Water Conservation Service, Trout Unlimited, New York City Department of Environmental Protection, Pipeline Group Midwest, National Grid, New York State Electric and Gas, Richmondville Power & Light, MidTel, Verizon, Schoharie County Farm Bureau, Schoharie County Chamber of Commerce, State Emergency Management Agency, Federal Emergency Management Agency and the New York Power Authority. Upon adoption of the plan by the County, the above entities and other partners will be asked to sign a Memorandum of Agreement (Appendix B) to participate in hazard mitigation activities and help achieve the goals and objectives of the plan. This includes sending a representative to an annual meeting to work towards this initiative and striving to incorporate the plan requirements into other planning documents.

Adoption by local municipalities demonstrates the commitment of Schoharie County and each municipality to fulfilling the goals and objectives in the plan. Each municipality will proceed with adoption when FEMA provides conditional approval of the draft plan. Following adoption of the plan, each municipality will submit a copy of the resolution showing adoption of the plan to Schoharie County Planning and Development Agency, which will forward the copies to NYSEMO. Following adoption by a municipality, a supervisor or mayor will sign the signature page and Memorandum of Agreement (MOA), or similar MOA located in Appendix B. The Schoharie County Board of Supervisors will also formally adopt the plan before the Chair of the Board signs. Each adopting resolution will be placed in Appendix B. Prior to adoption, the completed plan will be available to the public online, each municipality will make a copy of the plan available to the public, ask for additional public comment, place a public notice in the legal paper, and receive input from the public at a properly advertised meeting. Once adoption has taken place, the signature page and resolution copies will be forwarded to NYSEMO and made a permanent part of the plan.

# RISK ASSESSMENT

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## Hazard Identification

This plan is based on an assessment of the County's vulnerability to hazards performed by the Planning and Development Agency, Emergency Management Office, Hazard Mitigation Committee and meetings with municipal representatives. The following priority rankings were prepared based on the scope (area of impact and potential for cascade effect), frequency, impact, onset (warning time), and duration of each hazard considered using the HAZNY (Hazards New York) interactive spreadsheet program on January 21, 1999 and an update on December 12, 2003. Historic records and knowledge of past events were also used in determining the ranking. A ranking of hazards was completed in 2005 for each individual municipality and the breakdown is provided in the municipal summary section. The County will utilize HAZUS-MH and expects advancement in local GIS technology to greatly improve the risk assessment portion of the plan by the first review in 2010. A detailed inventory of floodplain structures is one of the main goals by the first review.

### Schoharie County Hazard Analysis (Countywide)

#### **Moderately High Hazards:**

Flood  
Dam Failure  
Winter Storm (Severe)

#### **Moderately Low Hazards:**

Severe Storm  
Terrorism  
Oil Spill  
Wildfire  
Fire  
Water Supply Contamination  
Mine Collapse  
Landslide  
Hazardous Material (In Transit)  
Transportation Accident  
Tornado

Utility Failure  
Ice Storm  
Fuel Shortage  
Explosion  
Hazardous Material (Fixed Site)  
Earthquake  
Food Shortage  
Extreme Temperatures  
Radiological (In Transit)

#### **Low Hazards:**

Structural Collapse  
Caving Accident  
Ice Jam  
Drought  
Epidemic  
Air Contamination

The following hazards were eliminated from consideration for the reason stated:

Tsunami/Wave Action	According to the National Weather Service (Philadelphia/Mount Holly), tsunamis have impacted the Atlantic Coast of the northeastern United States in the past. All tsunami/wave damage was confined to the immediate coast. Due to the geographic location of Schoharie County (approximately 150 miles inland from the Atlantic with a lowest point of 525 feet above sea level) the ability of a tsunami to impact Schoharie County is extremely remote, barring a catastrophic event in the Atlantic Ocean.
Radiological Fixed Site	There are three electricity generating nuclear power sites in New York State. Of the three, the Indian Point site located in Westchester County is the closest, located approximately 80 miles from the southern Schoharie County border. The other sites in the Towns of Scriba and Ontario along Lake Ontario are 100+ miles away. The Knolls Atomic Laboratory sites are located in Niskayuna, NY (approximately 15 miles) and the Town of Milton (approximately 20 miles). However, the Knolls sites are not large enough to impact Schoharie County and a major problem at any site is unlikely. The possibility is remote, but Schoharie County could be impacted by low levels of radiation in a major anomaly at one of the six electricity-generating plants. In such a case, considerable time would be available for any necessary actions.
Avalanche	Avalanches in New York State are mainly confined to the higher peaks of the Adirondacks. Any small avalanche that may occur in Schoharie County is likely to be of such small size and power that the damage would be negligible or easily handled by town/village resources.
Hurricane	Hurricane force winds and accompanying rain were not reviewed separately. The impacts were analyzed as Severe Storm.

## Hazards Rated as Moderately High

### **FLOOD:**

**Potential Impact:** Throughout a Large Region

**Cascade Effects:** Highly Likely

**Frequency:** A Frequent Event

**Onset:** Several Hours Warning

**Hazard Duration:** Two to Three Days

**Recovery Time:** More Than Two Weeks

**Impact:**

- Serious Injury or Death is Likely, but not in Large Numbers
- Moderate Damage to Private Property
- Moderate Structural Damage to Public Facilities

**Definition:** Flooding usually is a natural, cyclic occurrence in existing water bodies or drainage ways. When a water body overflows its “normal” banks, a potentially violent and/or destructive waterway can form. A flash flood is a sudden transformation of a small stream into a violent waterway after heavy rain and/or rapid snowmelt. Urban flooding occurs in developed areas where the drainage system is inadequate to safely convey runoff.

**Profile/Vulnerability Assessment:** Flooding can be caused by excessive precipitation, rapid snowmelt, ice jams, beaver dams, or dam failure. Urban or street flooding can result from heavy precipitation, clogged storm sewers, or a ruptured water main. Steep slopes make the area very prone to flash flooding. Slow-moving thunderstorms often produce flash floods, particularly during summer months. Remnants of tropical storm systems can produce both flash floods and river flooding. Rapid thawing in the winter produces runoff from snowmelt and ice jams. Flooding can occur at any time of year.

According to two separate HAZNY reviews, Schoharie County is at high risk for flood potential. HAZNY is a computer based hazard analysis program that analyzes and ranks potential hazards in a county or other municipality, on a scale from low to high.

According to the Flood Insurance Study used to create new 2004 FIRMs for Schoharie County, flooding is by far the most frequent and damaging disaster in Schoharie County. Floods can occur at anytime of the year, but the most significant floods are associated with snowmelt or combined precipitation-snowmelt events. The Schoharie Creek is the largest watershed in the County (entire area of 950 square miles) and most flood problems occur along the creek. Flowing north to the Mohawk River, the creek drains the northwestern Catskill Mountains. Schoharie Creek follows a meandering course, with low to moderate sinuosity and a varying bed gradient. Its tributaries are best characterized as having moderate to steep gradients, low sinuosity, and with high-relief contributory watersheds. A small area in the southwestern part of the County is drained by the Charlotte Creek, which flows into the drainage basin of the Susquehanna River to the west. Sparse development and no significant problems occur on the Charlotte Creek. In the eastern part of the County, a small area near the Hamlet of Franklinton in the Town of Broome is drained by the Catskill Creek that flows into the Hudson River.

The mean annual precipitation for the Schoharie Watershed is 40 inches. Runoff averages 20 inches per year, with more than 50 percent accruing between mid-February and mid-May. The two reservoir dam systems on the creek, Schoharie Reservoir and Blenheim-Gilboa, provide water to New York City and produce hydroelectric power, respectively. The Blenheim-Gilboa reservoir dam is located 4 miles north of the Schoharie Reservoir. The dams are not operated as flood control structures and all peak discharges are passed downstream to Schoharie Creek.

The most recent significant floods in the Schoharie Creek watershed of April 1987 and January 1996 were direct results of snowmelt or combined precipitation-snowmelt events. These floods occurred when unseasonably warm weather melted existing snow pack that was followed by intense rainfall.

An intense storm occurred on April 3-5, 1987. Soils were already saturated, stream discharges were high, and some reservoirs were at or near capacity from snowmelt and previous rainfall. In early March, due to unseasonably warm weather, a 30-inch snow pack had been reduced by nearly half. Rainfall from April 3 to April 6 resulted in more than 9 inches at higher elevations. The peak discharge on the Schoharie Creek reached 72,200 cfs at downstream gauges. Flooding on the Schoharie Creek resulted in the collapse of the New York State Thruway Bridge due to scour. Several deaths were caused as a result of the bridge collapse.

On January 18 and 19, 1996, extensive flooding was caused in the Schoharie Creek watershed when precipitation from a large storm combined with rapidly melting snow brought on by warm temperatures. Snow pack in the Catskills exceeded 45 inches and the January 18-19 storm provided 2.0 – 4.5 inches of rain, varying mainly by elevation. Air temperatures rose above 60 degrees F by midnight of January 19 and remained high for several hours. The January 1996 floods were the most widespread and devastating in Schoharie County since Hurricane Agnes in 1972. With a peak discharge exceeding 80,000 cfs at two downstream gauges, it is currently the flood of record in the Schoharie Creek watershed. Two deaths occurred in the Village of Schoharie and damage to residences, businesses, roads and bridges prompted a new outlook on floodplain management in the County. Over 40 homes were substantially damaged by floods and 2 people drowned in the Village of Schoharie. Damages from this event in Schoharie County exceeded \$1,500,000.00

Other major flood events in the County occurred in 1784, 1858, 1869, 1901, 1903, 1936, 1938, October 1955, October 1977, April 1983, November 1996, September 1999, and June 2000.

Of the 11 largest events of record, all but three were influenced by snowmelt events. Other significant events occurred when air temperatures and evapotranspiration rates were decreasing, causing a simultaneous and rapid increase in soil water content, and resulting in large stream discharges. Many localized events have caused drainage problems, ponding, streambank erosion, road damage, and other problems.

In 2001, storm water drainage problems in the Village of Sharon Springs resulted in flooding along US Route 20 resulting in approximately \$20,000 in property damages. Several businesses along Route 20 had to be closed during the event resulting in business losses.

The National Weather Service recorded "The Great Catskill Toilet Flush" in March 1980. Conditions included 10 inches of rain and nearly bare and frozen ground that led to rapidly developing and severe floods on Schoharie, Catskill, and Esopus creeks.

Table 5 shows high water flows since 1973 at the Blenheim-Gilboa Pumped Storage Power Plant. Minor floods occur in the floodplain of the Schoharie Creek when water flows are around 10,000 cubic feet per second (cfs). Major floods occur when flows exceed 20,000 cfs. Evacuation notices usually are issued at 14,000 cfs. It is important to note that other tributaries and storm water runoff adds significantly to creek water flow amounts as it continues to flow northward from the power plant. Based on this record, it is estimated that 30 major floods and 42 minor floods occur in a 100-year period.

**Table 5: Water Discharge Rates above 9,950 cfs**  
(recorded since 1973 at NYPA Blenheim-Gilboa Pumped Storage Power Plant)

<b>High Flow Dates</b>	<b>Peak Discharge (cfs)</b>	<b>Peak Discharge Date</b>	<b>Time (hour)</b>
December 21-22, 1973	33,000	December 21	1700
December 8-9, 1974	23,700	December 8	2050
April 3-4, 1975	18,050	April 3	1840
March 21-23, 1980	42,000	March 22	2200
April 24-27, 1983	14,610	April 25	1240
April 5-7, 1984	30,000	April 5	2000
April 3-6, 1987	64,800	April 4	2200
May 6, 1989	10,086	May 6	1500
May 11, 1989	10,410	May 11	0920
May 18, 1989	9,957	May 17	0820
November 10-11, 1990	17,070	November 10	2100
March 31-April 1, 1993	11,430	March 31	2020
April 11, 1993	15,477	April 11	0240
April 16-17, 1993	17,940	April 16	0500
November 11-12, 1995	29,070	November 12	0520
January 19-20, 1996	74,677	January 19	1820
January 27, 1996	18,096	January 27	1720
July 13, 1996	20,000+		
November, 1996	20,000+		
March 9-10, 1998	13,470	March 10	0440
May 10-11, 1998	14,100	May 10	2120
June 14, 1998	19,140	June 14	1920
September 16-17, 1999	24,150	September 17	0700
February 28, 2000	12,150	February 28	1000
June 6-7, 2000	23,880	June 6	2340
December 11, 2003	20,018	December 11	1900
September 18, 2004	27,000	September 18	
April 2-3, 2005	55,000		

*-Data provided by New York Power Authority*

According to a Schoharie County GIS query, approximately 1,400 structures are located within a defined floodplain in the County (733 in the 100-yr floodplain A-Zone). Using National Flood Insurance Program data, it was determined that the total number of insurance claims filed in Schoharie County between 1978 and 2002 were 302 with a total value of \$3,203,791. The total number of insured structures in Schoharie County as of December 2002 was 281. Because there are approximately 732 structures located in a special flood hazard area A-Zone in the County and only 215 A-Zone structures are insured, approximately 517 A-Zone structures are at risk throughout the County. Likewise, an undetermined amount of damage could have occurred to these properties. The municipalities that have filed the most numerous claims since 1978, and have thus received a large portion of the money spent on insurance claims, are the Village of Middleburgh with 114 claims, the Town of Esperance with 52, and the Village of Schoharie with 36 claims. There are also approximately 111 bridges in the Schoharie Watershed.

The following is a count of improved structures in the 100-year floodplain by municipality:

Town of Blenheim: 46	Village of Middleburgh: 137
Town of Broome: 4	Town of Middleburgh: 67
Town of Carlisle: 9	Village of Richmondville: 2
Village of Cobleskill: 73	Town of Richmondville: 3
Town of Cobleskill: 36	Village of Schoharie: 106
Town of Conesville: 10	Town of Schoharie: 21
Village of Esperance: 11	Town of Seward: 8
Town of Esperance: 79	Village of Sharon Springs: 28
Town of Fulton: 36	Town of Sharon: 12
Town of Gilboa: 6	Town of Summit: 2
Town of Jefferson: 3	Town of Wright: 33

A review of the new FIRMs indicates that the most vulnerable locations to flooding are the more developed floodplain areas of the Village of Cobleskill, Town of Esperance, Village of Middleburgh, Town of Middleburgh, and Village of Schoharie. The location of flooding and erosion problems in the County (detailed on maps in Appendix F - CD) attests to this. A series of maps indicating a point location of structures in the 100-year (A-Zone) floodplain are also in Appendix F - CD. A list of critical facilities/vulnerable sites and if the location is threatened by being in a special flood hazard area or dam break inundation zone is located in Appendix D. It is within the municipalities with structures in the floodplain and vulnerable sites and critical areas that hazard mitigation efforts need to be focused. Due to previous mitigation projects, municipalities south of the Village of Middleburgh now face less potential losses.

The method used to estimate potential losses for floods will be modified and improved as the data contained within the Schoharie County Geographic Information System (GIS) is further developed and connections between databases are made. For example, a point identifies each structure in a mapped special flood hazard area in Schoharie County but associating the point with an assessed value is currently being developed. This information will make the estimate of potential dollar losses for a flood event more accurate and this portion of the plan will be revised when this new information is available.

Currently a count of residential versus other (commercial/mixed use) properties in the A-Zone regions of Schoharie County is as follows:

A-Zone Res.	A-Zone Other	Avg. Value of Owner Occupied Units*	A-Zone Res. Values	20% of Res. Values	10k per Other
40	6	\$65,700.00	\$2,628,000.00	\$52,560.00	\$60,000.00
3	1	\$68,300.00	\$204,900.00	\$4,098.00	\$10,000.00
9	0	\$79,900.00	\$719,100.00	\$14,382.00	\$0.00
73	36	\$89,050.00	\$6,500,650.00	\$130,013.00	\$360,000.00
9	1	\$65,000.00	\$585,000.00	\$11,700.00	\$10,000.00
86	4	\$75,100.00	\$6,458,600.00	\$129,172.00	\$40,000.00
33	3	\$82,500.00	\$2,722,500.00	\$54,450.00	\$30,000.00
5	1	\$85,600.00	\$428,000.00	\$8,560.00	\$10,000.00
3	0	\$82,500.00	\$247,500.00	\$4,950.00	\$0.00
137	67	\$82,800.00	\$11,343,600.00	\$226,872.00	\$670,000.00
2	3	\$80,350.00	\$160,700.00	\$3,214.00	\$30,000.00
106	21	\$90,900.00	\$9,635,400.00	\$192,708.00	\$210,000.00
8	0	\$79,100.00	\$632,800.00	\$12,656.00	\$0.00
28	12	\$69,000.00	\$1,932,000.00	\$38,640.00	\$120,000.00
2	0	\$67,100.00	\$134,200.00	\$2,684.00	\$0.00
31	2	\$91,200.00	\$2,827,200.00	\$56,544.00	\$20,000.00
<b>575</b>	<b>157</b>	<i>*From 2000 Census</i>	<b>\$47,160,150.00</b>	<b>\$943,203.00</b>	<b>\$1,570,000.00</b>
<b>GRAND TOTAL</b>	<b>732</b>				<b>\$2,513,203.00</b>

Using average housing value for each community, as determined in the 2000 Census, and an estimate of at least 20% of assessed value in damages and \$10,000 in damages to other structures (including downtime) a conservative estimate of potential flood damages to residences and other uses for a widespread 100-year flood in Schoharie County is \$2,513,203.00, but this figure could reach as high as \$75,000,000.00 with agricultural losses and road infrastructure damage added in.

In addition to major flood events, many additional heavy rainfall events have caused localized drainage problems, ponding, stream bank erosion, roadway damage, and other difficulties.

Flooding is the number one weather related killer, causing an average of three to four deaths per year in New York. Approximately half of those deaths involve people trapped in cars. Floods and flash floods also damage or destroy buildings, cars, utility poles, gas lines, roads, bridges, etc. Transportation and communication systems can be interrupted. Drinking water can be contaminated. Electric power and sewage treatment can be disrupted. Floodwaters often carry damaging debris, which can pose a risk to both life and property. Erosion of stream banks and road ditches can cause significant infrastructure damage. Additional hazards that are likely to be triggered by a flood event include: hazardous material release, transportation accident, power failure, fuel shortage, water supply contamination, food shortage, landslide, disease, and dam failure. The damages and consequent recovery time from a major flood can be extensive. Flooding is New York's most consistently damaging natural disaster. Since 1955, New York has recorded more flood events than any other state in the northeast. Millions of dollars of flood losses are sustained each year due to private property damage, infrastructure damage, disruption of commerce, unemployment caused by floods, the expense of disaster relief, and other related costs. Annual economic losses throughout the state are estimated to be as high as \$100 million (source: *Draft*

*New York State All Hazard Mitigation Plan*, prepared by Mitigation Section, New York State Emergency Management Office, April 2003).

Floods have devastated more communities and have caused a greater loss of life and property in the United States than all other natural hazards combined. Many people believe that they are not at risk for flooding. Despite this common misconception nearly 9 out of 10 natural disasters in this country are caused by, or involve flooding. In the United States, 300,000 people a year are forced to leave their homes, 200 people are killed and an estimated \$2 billion worth of property is damaged or destroyed because of flooding. Flood prone areas in the United States cover over 7% of the country (150,000 square miles of land). There are 9.6 million households and \$390 billion in property at risk on those areas today. (According to the Federal Emergency Management Agency and the National Flood Insurance Program).

Since 1954 there have been thirty-eight presidential declared disasters in New York State. Of these thirty-eight presidential declarations, twenty-three involved flooding. The eligible federal losses from flooding events since 1954 have been estimated at more than \$500,000,000. Besides the federally declared disasters there have also been a number of flooding events that were not declared major disaster, but still produced large amounts of damage. The losses from those flood events are unknown, but no doubt substantial.

# DAM FAILURE:

## HAZNY input:

**Potential Impact:** Throughout a Large Region

**Cascade Effects:** Highly Likely

**Frequency:** A Rare Event

**Onset:** No Warning

**Hazard Duration:** One Day

**Recovery Time:** More Than Two Weeks

## **Impact:**

- Serious Injury or Death to Large Numbers
- Severe Damage to Private Property
- Severe Structural Damage to Public Facilities

**Definition:** Structural deterioration, either gradual or sudden, resulting in the facility's inability to control impounded water as designed, resulting in danger to people and/or property in the potential inundation area. Dams may be either man-made or exist because of natural phenomena, such as landslides or beavers.

**Profile/Vulnerability Assessment:** Since 1890, there have been at least 41 dam failures in New York State, resulting 10 deaths. This number may not include failures of small structures, for which damages were minimal.

In the event of a dam failure, the sudden release of enormous amounts of water would cause flash flooding downstream of the dam structure. The damage to private property and infrastructure located within the inundation zone could be extensive. The water surge can cause water supply failure, sewer system failure, hazardous material release, power outage, and other cascade effects.

Dam failure can result from many factors such as natural disasters, structural deterioration, or actions caused by man, including terrorism. According to the International Commission of Large Dams (ICOLD), the three major causes of dam failure are overtopping by flood, foundation defects, and piping.

There have been no dam failures (not including agricultural levees) in Schoharie County. According to an editorial in the April 21, 2004 Times Journal (Appendix E), general flooding in the Town of Cobleskill in 1939 did not result from a dam break as widely rumored and no records to substantiate a dam break were found.

There are approximately 132 dams that could impact Schoharie County, including dams in Greene and Albany County. While seven are classified as High Hazard Dams and 18 are classified as Moderate Hazard Dams (See map in Appendix F - CD), the classification does not imply that failure is likely. According to the NYDEC Dam Safety Division, all high hazard dams are inspected annually and all moderate hazard dams are inspected every other year. Because failure would threaten life and property downstream, the following are high hazard dams:

1. Bear Gulch Pond Dam
2. Blenheim-Gilboa Upper Reservoir Dam
3. Cobleskill Upper Reservoir Dam
4. Village of Cobleskill Holding Pond Dam
5. Blenheim-Gilboa Lower Reservoir Dam
6. Cobleskill Lower Reservoir Dam
7. Gilboa (Schoharie Reservoir) Dam

There are two Emergency Action Plans in the Event of Dam Failure that outline preventative measures and detailed procedures that address three of the high hazard dams located in the southern part of the county on north-flowing Schoharie Creek. Annual reviews and scheduled exercises involve Schoharie County representatives. Schoharie County relies on the expertise of the New York City Department of Environmental Protection and New York Power Authority for maintaining the safe operation of their respective facilities on the Schoharie Creek. Evacuation routes and notification are generally outlined in the EAPs. In 2005-2006, Schoharie County has developed more detailed evacuation routes, shelter locations, and notification procedures are currently being improved.

The NYCDEP Bureau of Water Supply administers the EAP for the Gilboa Dam, which impounds water for about a 6-mile reach between the Towns of Gilboa and Prattsville to create the Schoharie Reservoir located about 120 miles north-northwest of New York City. The Schoharie Reservoir is a municipal water supply facility operated in conjunction with the Ashokan Reservoir that is part of the NYCDEP's Catskill system.

The Schoharie watershed topography includes a portion of rough terrain in the Catskill Mountain region to gentle sloping lowlands in the Schoharie Creek valley. Elevations range from 4,110 feet at the headwaters of Schoharie Creek to about 980 feet near the toe of the dam. The contributory drainage area to the Schoharie Reservoir is approximately 314 square miles. Areas downstream (north) of the dam are characterized by moderately wide floodplains usually greater than 1,000 feet in width.

As shown in the inundation maps taken from the Gilboa Dam (Schoharie Reservoir) Emergency Action Plan (Appendix F - CD) the hamlets of North Blenheim, Breekabeen, Central Bridge and the Villages of Middleburgh, Schoharie, and Esperance would all be significantly impacted by a fair weather or wet weather failure of the Gilboa (Schoharie Reservoir) Dam with over 1,000 structures inundated and over 5,000 people directly impacted. If damages were calculated at 20% of the assessed value for improvements in these communities, a conservative estimate of dollar damages to structures in the event of dam failure would easily exceed \$100 million. Depending on the time of year that a break may occur, the impact to the agricultural industry in the Schoharie Valley can exceed \$8 million (according to Schoharie County Agricultural District Surveys). Appendix D lists critical facilities/vulnerable sites that are located in the potential dam break inundation zone. Because a high hazard dam break would most likely be anticipated in plenty of time for evacuations to take place, injuries/deaths would be unlikely. Although highly remote, multiple deaths/injuries could occur, in the event of a sudden catastrophic dam break. In October 2005, the possibility of a Gilboa Dam failure was revealed to be more likely than once anticipated. Work commenced in 2006 to add siphons to the dam, place a notch in the dam to lower water levels, and to anchor the dam. A hastened dam rehabilitation schedule has been announced. Flood control ability and use of the highest design, construction, operation, maintenance and inspection standards on dams is being pursued by Schoharie County and a local citizen action group, Dam Concerned Citizens of Schoharie County. Schoharie County has added a Dam Failure Annex to its Comprehensive Emergency Management Plan to deal with a dam failure scenario.

The two high hazard dams covered in the EAP from New York Power Authority's Blenheim-Gilboa Pumped-Storage Power Project are the Blenheim-Gilboa Lower Reservoir Dam and the Blenheim-Gilboa Upper Reservoir Dam, which are inspected monthly. The Blenheim-Gilboa Dam is used for power generation and is located approximately 5.0 miles downstream of the Gilboa Dam. The dam is about 80-feet high with a total storage capacity of 16,350 acre-feet. Three taintor gates, each 38 feet wide and 45 feet high control the spillway.

Because beaver dams pose a threat in Schoharie County, the county has started to map and monitor them. As their size increases, the impact of beaver dam failure can be great with their expanded capacity to hold

back a substantial amount of water. Flooded roads and blocked culverts are likely to result upon beaver dam failure. It is rumored a beaver dam aggravated a flood in the Village of Sharon Springs.

## **WINTER STORM (SEVERE):**

**Potential Impact:** Throughout a Large Region

**Cascade Effects:** Some Potential

**Frequency:** A Frequent Event

**Onset:** One Day Warning

**Hazard Duration:** Two to Three Days

**Recovery Time:** Three Days to One Week

**Impact:**

- Serious Injury or Death Unlikely
- Little or No Damage to Private Property
- Little or No Structural Damage to Public Facilities

**Definition:** A storm system that develops in late autumn to early spring and deposits wintry precipitation, such as snow, sleet or freezing rain, with a significant impact on transportation systems and public safety. Ice storm is included as a separate hazard. For this analysis, the following could meet this definition:

- Heavy snow – Snowfall accumulating to 7 inches in 12 hours or snowfall accumulating to 9 inches in 24 hours.
- Blizzard – A winter storm characterized by low temperatures, wind speeds of 35 miles per hour or greater, and sufficient falling and/or blowing snow in the air to frequently reduce visibility to ¼ mile or less for a duration of at least three hours.
- Severe blizzard – A winter storm characterized by temperatures near or below 10 degrees Fahrenheit, winds exceeding 45 mph, and visibility reduced by snow to near zero for duration of at least three hours.

**Profile/Vulnerability Assessment:** Limited primarily to the late autumn through early spring, most severe winter storms impact all of Schoharie County by causing roadway hazards and transportation accidents. In addition, severe storms are capable of costing thousands of dollars, due to damage to structures resulting from the weight of large accumulations of ice/snow and the removal of snow accumulations. Significant losses attributed to these weather events have included widespread interruption of electric-power delivery to thousands of customers as a result of down power lines and utility poles.

Most recently, the December 2002 and January 2003 snow events prompted FEMA to provide approximately \$380,000 in snow emergency assistance funds to aid Schoharie County towns and villages with the cost of snow removal. Although Schoharie County expects to deal with annual snow removal, major snowfall in a short period of time or blizzard conditions can exceed the normal capacity of local highway departments. Emergency response times can be impeded and the ability for all residents, especially those in the most remote locations of the County, may find fuel and food availability is hindered and utility failures can occur. Most residences in the most rural parts of the County have back up wood heat sources. Access to certain homes can take days to clear, especially dead end roads and residents with long driveways.

According to the National Weather Service, other significant past events in the northeast that impacted Schoharie County include:

### **The Blizzard of 1888 (March 11-14, 1888)**

The blizzard by which all others are measured. Light snow began around 3 p.m. on Sunday the 11th, accumulating to near 3" by midnight. The snow intensified overnight and there was 18" on the ground by daybreak on Monday the 12th. Moderate to heavy snow continued throughout the day accumulating to 33" by midnight. Snow continued on and off through Tuesday the 13th, adding roughly another foot, until finally ending around 3 a.m. on the 14th. Total snowfall for the storm was 46.7", but the drifts were significantly higher.

The city of Albany was virtually shut down. There were no coal deliveries, and thus, no heat. Doctors were unable to make house calls, and it took many days to clear the snow off of country roads to make them passable. At the time it was called the "worst storm in living memory," and it still holds the distinction of the worst winter storm on record in many areas of the northeast.

### **The Great Appalachian Storm (November 24-25, 1950)**

A storm rapidly deepened as it tracked inland along the eastern slopes of the Appalachians. While the rain and snow associated with the storm was not significant, the winds were. The storm was situated between two very strong high-pressure centers, one east of Labrador and another over the Mississippi Valley, producing a very tight pressure gradient. In Albany, the strongest wind gust ever of 83 mph was recorded with sustained winds of 50 to 60 mph. Many trees and power lines were blown down across the region, and wind damage was extensive in New York State, totaling \$20 million.

### **The Blizzard of '58 (February 15-16, 1958)**

A coastal storm brought strong winds and heavy snow to the northeast. Over 30" of snow was reported across the Catskills and in western New England, with 17.9" at Albany. Travel of any sort became impossible, and drifting blocked most roads and highways. Operation "Haylift" was instituted, where helicopters dropped food for stranded cattle.

### **The Blizzard of '66 (January 29-31, 1966)**

Beyond its blizzard conditions, this storm is known for its intense lake squalls that developed as arctic air streamed across Lake Ontario on the 30th and 31st. It produced a foot of snow at Albany on the 29th and 30th. Oswego reported 75" inches, with some unofficial reports of around 100" in that vicinity. Rome, which is approximately 75 miles from Lake Ontario, received 41".

### **Post Christmas Snowstorm of 1969 (December 25-28, 1969)**

A foot of snow had already fallen on December 22, 1969, but this was outdone by another storm system that began moving northward along the East Coast Christmas night. On the morning of the 27th, with 18" already on the ground at Albany, the storm stalled off the New England coast. It then began to move inland for a short period before heading back out to sea on the 28th. A total of 26.7" of snow fell at Albany, the third greatest storm total on record. However, Vermont surpassed that, with 30" at Burlington and 44" at Waitsfield, southwest of Montpelier. In and around the Capital District, it was a heavy, wet snowfall, and the snow mixed with freezing rain at times. Snow removal became quite difficult, and some streets were not cleared for 3-4 weeks. The city of Albany public works continued round the clock snow removal for over a month before things returned near normal. Two million dollars were spent on snow removal, a record at the time.

### **Thanksgiving Snowstorm of 1971 (November 24-25, 1971)**

Heavy snow began on the day before Thanksgiving and continued into Thanksgiving Day. Albany received 22.5", the greatest November snowfall on record, and elsewhere reported 30". This storm created many stranded holiday travelers.

### **Blizzard of 1978 (February 6-7, 1978)**

This storm is better known for its impact on coastal New England and Long Island, but it also impacted eastern New York and western New England. The Green Mountains of Vermont were hit hard, with the Rutland vicinity reporting 30". The Catskills also had quite a bit, with Prattsville reporting 25". Wind also caused significant snow drifting.

On the coast, Boston received 26.7" of snow, their largest storm total on record. The storm also produced strong winds: Logan Airport reported an 83 mph gust and Cape Cod reported 92 mph.

### **January Snowstorm of 1983 (January 15-16, 1983)**

Although well predicted, this classic nor'easter raised havoc across eastern New York and New England. Albany reported 24.5" (5th largest on record) with amounts of just less than 30" reported in Saratoga County. The heavy snow brought travel to a standstill across many locations, and many injuries were reported due to auto accidents.

### **Surprise October Snowstorm (October 4, 1987)**

The earliest measurable snowfall at Albany, where 6.5" inches fell, with as much as 20" reported in parts of the Catskills. The storm wreaked havoc on the area because it was a heavy, extremely wet snow, which fell on fully leafed trees. Numerous branches and trees were felled...taking down power lines with them, blocking roads and damaging houses. Albany was described as "looking like a war zone." Hundreds of thousands of people were without power...some for up to two weeks. It was the most snow that ever fell during the month of October in Albany.

### **The Downslope Nor'easter (December 10-12, 1992)**

This storm produced incredible snowfall totals across many mountainous locations while barely affecting valley locations. Strong east winds caused the air to "downslope" off the Berkshires and Taconics, and "dry it out." Snowfall totals in the Berkshires ranged from 30 to 48 inches with drifts up to 12 feet. Schools were closed for a week and the National Guard had to bring in heavy equipment to remove the snow. The Catskills and Helderbergs also got their share of snow with 18 to 39 inches reported.

On the contrary, the city of Albany received one half-inch of snow with temperatures in the middle 30's on Friday, December 11, which was the height of the storm. Albany received most of its 6" from this storm toward the end of the storm, Saturday the 12<sup>th</sup> when the winds turned more northerly.

### **Superstorm of 1993 (March 13-14, 1993)**

It was called a superstorm because it affected the entire eastern third of the U.S. with flooding and snow in the Mid-Atlantic States and blizzard conditions in the northeast.

An intense area of low pressure moved out of the Gulf of Mexico and northward along the east coast, dropping the pressure to record levels at many locations along the eastern seaboard. Albany reported 28.68 inches of mercury, the fifth lowest pressure on record.

The storm dumped 26.6" at Albany, the second highest storm total on record, while other areas received as much as 40", with Halcott Center reporting 40" and Prattsville receiving 36". During the peak of the storm, snow was falling at the rate of 5 or 6 inches an hour in some locations. Strong winds compounded the problem, as there was significant blowing and drifting of the snow, as well as structural damage. Travel was extremely difficult and a state of emergency was declared across most of eastern and central New York State.

## Hazards Rated as Moderately Low

### **SEVERE STORM:**

**Potential Impact:** Throughout a Large Region

**Cascade Effects:** Some Potential

**Frequency:** A Frequent Event

**Onset:** Several Hours Warning

**Hazard Duration:** Less Than One Day

**Recovery Time:** One to Two Days

**Impact:**

- Serious Injury or Death Unlikely
- Little or No Damage to Private Property
- Little or No Structural Damage to Public Facilities

**Definition:** Severe storms include hailstorms, windstorms, and severe thunderstorms (with associated severe wind events such as derechos, gustnados, and downbursts). A thunderstorm is a local storm produced by a cumulonimbus cloud and is accompanied by lightning and thunder. Thunderstorms are often accompanied by gusty winds, heavy rain, and occasionally by hail. Although all thunderstorms are potentially hazardous, the National Weather Service classifies a thunderstorm as severe if it produces winds greater than 57 mph or hail  $\frac{3}{4}$  inch in diameter or larger.

The damaging winds of thunderstorms include:

- Straight-line winds – high winds across a wide area.
- Downbursts – localized currents of air blasting down from a thunderstorm, which induce and outward burst of damaging wind on or near the ground.
- Micro bursts – minimized downbursts covering an area of less than 2.5 miles across. They induce a strong wind shear (a rapid change in the direction of wind over a short distance) near the surface. Microbursts may or may not include precipitation and can produce winds over 150 miles per hour.

**Profile/Vulnerability Assessment:** New York experiences an average of 323 severe thunderstorms each year. According to the National Severe Storms Laboratory, Schoharie County experiences approximately 4 days per year with thunderstorms capable of producing winds of 50 knots or more and 2 days per year with small hail. National Weather Service records indicate that from 1983 to 2003, Schoharie County experienced severe weather reports an average of 3.7 times per year and hail occurred 0.65 times per year. Nine to ten people per year die in New York State from thunderstorm winds, usually due to trees falling on a house or car. New York State ranks fourth in the nation for lightning deaths (an average of 3 per year) and fifth for lightning injuries (an average of 13 per year). The County Public Works and Town/Village Highway Departments must clean up debris from a severe storm at least once a season.

Although tornadoes grab headlines due to their swift and destructive nature, flash floods, lightning, straight-line winds, and hail are more common by-products of thunderstorms and result in many more deaths and millions of dollars in damage each year. Large hail can impact surfaces at speeds greater than 100 mph, causing injury and property damage. Thunderstorms have the potential to spawn tornadoes or trigger utility failures, transportation accidents, flash flooding, and fires. Most thunderstorms occur during the late afternoon and evening hours of spring and summer, which coincides with the season of outdoor activities. The impacts of severe thunderstorms and hailstorms are usually localized.

Windstorms involve sustained, potentially damaging, high winds. Straight-line thunderstorm winds occasionally exceed 100 mph. Major high-wind events can extend horizontally for hundreds of miles. The duration of the event ranges from about 4 hours up to 2 to 3 days, usually with nocturnal lulls. The greatest dangers from high winds are roof failure, breaking glass, and flying debris (airborne missiles). Strong winds can knock down trees, utility poles, and power lines. They can damage or destroy buildings, vehicles, and crops. Blowing dust can impair visibility. Debris can block transportation routes. If the strong wind occurs in conjunction with a winter storm, it can create wind-driven snow, severe drifting, and dangerous wind chill. Starting in January 2003, the New York State Building Code currently requires construction for a design wind speed of 90 mph in Schoharie County. The building code also includes higher wind standards for structures that represent a higher hazard to human life in the event of failure.

The entire County is vulnerable to damage from thunderstorms, hail, or wind. Those most at risk from lightnings are people who are outdoors, especially under or near tall trees, in or on water, and on or near hilltops. Severe storms occasionally produce strong winds that exceed the design speeds of building codes and can thus impact the entire County. The most severe damage from wind would be expected in mobile homes, farm buildings, and other structures that may not have been constructed to withstand high wind speeds. Agricultural areas may experience financial losses associated with crop damage. According to the NWS, since 1962, almost \$9,000,000.00 in damages has been caused by severe storms in Schoharie County. A high wind event on December 12, 2000 resulted in \$1,000,000 in damages. Average events cause between \$5,000 and \$50,000 in damages.

The most devastating damages from severe storms (in addition to the potential to trigger tornadoes and floods) are likely to result from high winds. Wind speeds in excess of 100 mph can cause damages comparable to those from a moderate-intensity tornado.

# TERRORISM:

**Potential Impact:** Throughout a Large Region

**Cascade Effects:** Highly Likely

**Frequency:** A Rare Event

**Onset:** No Warning

**Hazard Duration:** Two to Three Days

**Recovery Time:** More Than Two Weeks

**Impact:**

- Serious Injury or Death to Large Numbers
- Moderate Damage to Private Property
- Moderate Structural Damage to Public Facilities

**Definition:** The threat or use of violence to achieve political/social ends usually associated with community disruption and/or multiple injuries or deaths. School violence or threat of violence within a public school.

**Profile/Vulnerability Assessment:** Schoharie County has no history of terrorist incidents. Past threats of school violence in Schoharie County have included bomb threats in the Cobleskill-Richmondville School District and Middleburgh School District but the motivations for these threats were such that they are not considered to be terrorist incidents. Following anthrax poisoning in 2001, the nation experienced copycat mailing of white powder and widespread paranoia. Schoharie County did have one event of “powder in a letter” in the Village of Richmondville that did not result in an actual terrorist incident.

Computer viruses or hacking can cause damages, but are unlikely to disrupt essential services. The most likely terrorist incidents to impact Schoharie County are those that actually occur elsewhere. Events of September 11, 2001 require Schoharie County to focus more attention on terrorist incidents. Although it is unlikely that a high profile, sudden impact terrorist event would occur in a rural county, the presence of 2 dams on Schoharie Creek and their relation to the water supply for New York City, the energy supply of New York State, and the potential for large property and human loss makes them potential targets. Although high profile terrorist attacks are more likely to occur in major population centers, a change in terrorist tactics cannot be ignored. For example, if terrorists simultaneously attack numerous small “soft” targets around the United States, such targets in Schoharie County could include SUNY Cobleskill, school buildings, government offices, hospitals, local water supplies, and places likely to have large concentrations of people, including shopping centers.

Terrorist activity will more likely come in the form of insidious, not readily detected illness related to infectious disease exposure or biological, chemical and radiological events. Such an event in other areas could require resources in Schoharie County to be utilized. The municipalities in Schoharie County need to be as prepared as possible to deal with the unexpected attack on either soft or higher profile targets and/or help prevent terrorist attacks. The September 11, 2001 terrorist attacks had emotional and economic impacts on the entire County. Schoharie County has a list of potential targets, a plan to protect the targets, and a plan for bioterrorism prevention/response that are not for public viewing.

A terrorist incident in Schoharie County could have significant human costs, with community-wide impacts. Terrorists often seek to maximize destruction, so their intent may very well be to trigger other hazards, such as air/water contamination, utility failure, civil unrest, fire, hazardous material release, structural collapse, or explosion. Dollar damages are difficult to estimate, as human ways to maximize destruction are seemingly limitless.

## OIL SPILL:

**Potential Impact:** Throughout a Large Region

**Cascade Effects:** Some Potential

**Frequency:** A Regular Event

**Onset:** No Warning

**Hazard Duration:** Two to Three Days

**Recovery Time:** Less Than One Day

**Impact:**

- Serious Injury or Death Unlikely
- Little or No Damage to Private Property
- Little or No Structural Damage to Public Facilities

**Definition:** The uncontrolled or accidental discharge of petroleum into water and/or onto land or sea.

**Profile/Vulnerability Assessment:** Approximately 95% of the spill events that require response by the NYDEC involve petroleum products. Most of these incidents involve leaking underground storage tanks or the release of fuel due to a motor vehicle crash. The most frequent fixed site petroleum spill incidents responded to by Spills Engineers from the NYDEC involve the releases from abandoned underground storage tanks. The cleanup costs for these incidents typically range from a minimum of \$10,000 to \$50,000 or more if groundwater is contaminated. The most frequent transit-related petroleum spills involve the release of fuel due to traffic accidents. A tractor-trailer accident can result in a surface spill of 50 to 300 gallons of diesel oil, which requires a response from the NYDEC and contractor work to clean up the site. The typical cost for this type of incident is \$2,500 to 10,000 (estimate from NYDEC Spills Engineer). Smaller releases can be managed by fire departments. Ruptured pipelines can release large volumes of material, particularly if the rupture is not detected. The resulting environmental contamination can take years and millions of dollars to clean up. Although a transportation accident resulting in a petroleum spill could occur on county and municipal roads, the provability of significant releases is greatest along the state highways, which carry more truck traffic.

Agway has large storage facilities in Schoharie County. Large oil storage locations in the County have been mapped along with hazardous material storage locations. The Schoharie County Sheriff and/or County Fire Coordinator can grant access to the maps for emergency response use only. Some oil spill events have occurred in the County at the County Office Building in Schoharie, Camp Summit in Fulton, and MacArthur Avenue in Cobleskill. The oil spill in the County Office Building disrupted operations for several days and the cleanup exceeded \$150,000.00.

## WILDFIRE:

**Potential Impact:** Throughout a Large Region

**Cascade Effects:** Some Potential

**Frequency:** A Regular Event

**Onset:** No Warning

**Hazard Duration:** Two to Three Days

**Recovery Time:** Less Than One Day

**Impact:**

- Serious Injury or Death Unlikely
- Little or No Damage to Private Property
- Little or No Structural Damage to Public Facilities

**Definition:** An uncontrollable combustion of trees, brush, or grass involving a substantial land area that may have the potential for threatening human life and property.

**Profile/Vulnerability Assessment:** Most wildfires are started by people through negligent behavior or by downed power lines. The risk of wildfire is greatest during drought conditions, when the moisture content of forests and grasslands is low. The National Weather Service uses the term fire weather for the meteorological conditions that promote the spread of fire. Those weather conditions that promote the ignition and rapid spread of fires include: low humidity, high winds (over 10-20 mph), dry thunderstorms (i.e., lightning without rain), unstable air, and dry antecedent conditions. Other factors that contribute to the spread and severity of fires include the available fuel, terrain (fire spreads faster uphill than downhill), and the urban-wildland interface.

Development patterns in the towns of Schoharie County are such that a wildfire is not likely to impact a large number of structures. Most buildings in the rural and developed parts of the community are surrounded by lawns, which protect against the spread of fires from wooded areas. The use of asphalt shingles also protects against the spread of fire. All fires pose a risk to the firefighters who work to control the blaze. A 2004 spring wildfire required two firefighters to be treated for heat exhaustion. Heavy rains following a wildfire may induce landslides, mudflows, and floods due to the inability of the burned areas to absorb water because of the absence of foliage and groundcover. In addition, fires may cause power failures, air contamination, hazardous material releases, structural collapse, or transportation accidents.

The risk of wildfires is greatest in the southern part of the County (Town of Blenheim, Broome, Conesville and Fulton, Gilboa, and Jefferson) where densely wooded areas and steep slopes exist. The majority of forested land is managed by the NYDEC and undergrowth is managed to not become a hazardous fuel source. The Town of Fulton has the largest forested acreage with approximately 13,467 acres (See Table 2). Although the County recognizes the potential for wildfire in the County, the densely wooded rural hillsides of Schoharie County contain only scattered residential development usually with lawns, which is the at the main risk from wildfires. Large population centers (villages) in Schoharie County are located in agricultural areas where dense forest or grasslands do not abut.

According to the County Fire Coordinator, past wildfires have been small in size, usually impacting less than 10 acres and no structures are usually threatened. A cluster of residential homes near forested areas includes the Hamlet of Eminence in Towns of Blenheim, Jefferson, and Summit (see map in Appendix F - CD).

The spring 2004 Town of Fulton wildfire impacted 6 acres near Patria. 14 fire departments responded, two firefighters were injured, but no structures were threatened. In the 1950s, a forest fire in the Town of Conesville burned several hundred acres. Damages to single-family homes could range from \$50,000 to \$200,000.

## **FIRE:**

**Potential Impact:** Throughout a Large Region

**Cascade Effects:** Some Potential

**Frequency:** A Regular Event

**Onset:** No Warning

**Hazard Duration:** One Day

**Recovery Time:** Less Than One Day

**Impact:**

- Serious Injury or Death is Likely, but not in Large Numbers
- Little or No Damage to Private Property
- Little or No Structural Damage to Public Facilities

**Definition:** The uncontrolled burning in residential, commercial, industrial, institutional, or other properties in developed areas.

**Profile/Vulnerability Assessment:** people through negligent behavior start most fires. Although house fires are a regular occurrence in Schoharie County, they rarely spread to adjacent properties. Fires impacting larger facilities are possible. The largest building in the County is the Wal-Mart Distribution Center in the Village of Sharon Springs with approximately 1.5 million square feet. The SUNY-Cobleskill campus buildings are mostly masonry construction. The 1971 Olsen's Newbury building fire in the Village of Cobleskill was a significant event for Schoharie County. The Schoharie County Courthouse burned down in 1845 and was damaged by fire in 1870. In 1874 a section of the downtown Village of Cobleskill burned. More recently, fires are usually confined to single-family residences in part due to more stringent building and fire code requirements in commercial, industrial, and public buildings.

A major fire outside the villages in Schoharie County is expected to be confined to a single structure or building complex. Development patterns are such that most buildings are surrounded by lawns or parking areas, which protect against the spread of fires to adjacent structures. The use of asphalt shingles also protects against the spread of fire. All fires pose a risk to occupants of the buildings involved and to the firefighters who work to control the blaze. Fires may cause power failures, air contamination, hazardous material releases, structural collapse, or transportation accidents.

The areas most vulnerable to multi-structure fires are those with closely spaced older buildings. Mobile home parks have closely spaced trailers. Many church buildings are vulnerable due to the wide expanses within which it would be unsafe for firefighters to combat a blaze. Elderly residents are more likely to be injured or killed by a fire, due to limited mobility and susceptibility to respiratory problems from the smoke. There are several deaths or injuries from fires treated at the hospital each year. Recently, two deaths occurred in a mobile home fire in the Town of Cobleskill. The structure had no working smoke detectors.

A fire in a large structure could result in millions of dollars in damages. Single-family homes range from \$50,000 to \$200,000 (average housing value in Schoharie County - \$82,500).

## WATER SUPPLY CONTAMINATION:

**Potential Impact:** Throughout a Small Region

**Cascade Effects:** Some Potential

**Frequency:** A Regular Event

**Onset:** No Warning

**Hazard Duration:** More Than One Week

**Recovery Time:** Less Than One Day

**Impact:**

- Serious Injury or Death Unlikely
- Little or No Damage to Private Property
- Little or No Structural Damage to Public Facilities

**Definition:** The contamination or potential contamination of surface or subsurface public water supply by chemical or biological materials that results in restricted or diminished ability to use the water source.

**Profile/Vulnerability Assessment:** The New York State Department of Health is currently evaluating the susceptibility of public water supplies to potential contamination as part of the Source Water Assessment Program. Protective measures will be implemented as warranted.

Schoharie County has five reservoirs and seven community water suppliers. The County receives many complaints about the water. It is anticipated that any contamination problem to a public water supply would be identified and resolved quickly. It is unlikely that public health impacts would occur due to testing procedures and prior notification to consumers. Private well water could go undetected and untreated for a long period.

## MINE COLLAPSE:

**Potential Impact:** Throughout a Small Region

**Cascade Effects:** Some Potential

**Frequency:** A Rare Event

**Onset:** No Warning

**Hazard Duration:** Less Than One Day

**Recovery Time:** One to Two Days

**Impact:**

- Serious Injury or Death Unlikely
- Little or No Damage to Private Property
- Little or No Structural Damage to Public Facilities

**Definition:** The folding, caving in or sudden implosion of an underground cavity. Such an event would threaten persons inside the cavity and/or persons, property and structures on the surface.

**Profile/Vulnerability Assessment:** A small mine exists in the Town of Cobleskill under the former Howes Cave Cement Plant (see map in Appendix F - CD). The mine is no longer active, but is used for educational purposes by area colleges. Planned quarrying and a proposed mining museum and educational facility are planned for the site and the integrity of the mine is such that such development should not compromise stability and complete collapse is unlikely. A small collapse is more likely to occur inside the mine; therefore exploration inside should be undertaken only under the instruction of experienced people.

# LANDSLIDE:

**Potential Impact:** Throughout a Small Region

**Cascade Effects:** Some Potential

**Frequency:** An Infrequent Event

**Onset:** No Warning

**Hazard Duration:** Less Than One Day

**Recovery Time:** One to Two Days

**Impact:**

- Serious Injury or Death Unlikely
- Little or No Damage to Private Property
- Moderate Structural Damage to Public Facilities

**Definition:** The downward and outward movement of slope-forming materials reacting to the force of gravity. Slide material may be composed of natural rock, soil, artificial fill, or combinations of these materials. The term landslide is generalized and includes rock-falls, rockslides, creep, block glides, debris slides, earth-flow, mudflow, slump, and other similar terms.

**Profile/Vulnerability Assessment:** Schoharie County is located in an area of New York State that is classified as having a low susceptibility for landslides (source: *New York State All Hazards Mitigation Plan*). In fact, there has been no significant landslide damage in Schoharie County. Robert Fickies, Associate Scientist in Geology for NYS, also reports that the landslide possibility for Schoharie County is very low. His NYS Landslide Inventory Map shows only 5 landslides for Schoharie County, all of which were human induced slides. Most were due to improper slope and cut designs during road construction. They occurred at the intersection of Rte 7 and Rte. 10 in Richmondville, on Rte. 7 in Warnerville, in Middleburgh, and on Rte. 30 north of North Blenheim.

The steep topography in some parts of the County, combined with the presence of poorly consolidated glacial deposits, may pose landslide hazards in some areas. The risk of landslides increases if clear cutting occurs on steep slopes (greater than 15%).

Most of the steep slopes in Schoharie County that might be subject to slope failure are in undeveloped or sparsely developed areas. A landslide could destroy buildings and infrastructure in a localized area. Injury or death of people in the affected area is possible, but unlikely. In addition, a landslide that blocks a stream or drainage way could back up water and cause flood damage.

The steep areas that pose the highest risk for landslides are on rural hillsides where development is unlikely to be impacted. However, it is advisable that any development or timber harvesting on steep slopes include an evaluation of the potential to destabilize the slope and induce landslides.

The potential consequences of a landslide in Schoharie County could include destruction of one or two rural buildings and adjacent infrastructure (roads, utilities, pipelines). These losses could cost several hundred thousand dollars.

A landslide associated with stream bank erosion exists in the Town of Seward off of Patrick Road and the West Creek. This slide has required Patrick Road to become one lane near the slide. Further failure could result in the loss of the use of the road or a transportation accident.

## HAZMAT (IN TRANSIT):

**Potential Impact:** Throughout a Large Region

**Cascade Effects:** Some Potential

**Frequency:** An Infrequent Event

**Onset:** No Warning

**Hazard Duration:** One Day

**Recovery Time:** Three Days to One Week

**Impact:**

- Serious Injury or Death to Large Numbers
- Little or No Damage to Private Property
- Little or No Structural Damage to Public Facilities

**Definition:** The uncontrolled release of material during transport, which when released can result in death or injury to people and/or damage to property and the environment through the material's flammability, toxicity, corrosiveness, chemical instability and/or combustibility.

**Profile/Vulnerability Assessment:** Schoharie County occasionally has transportation crashes that result in the release of hazardous materials. Fortunately, these incidents generally involve small quantities of material. The potential also exists for a more serious incident involving a pipeline failure, train derailment, or tank truck crash that releases large volumes of hazardous materials. At certain times of the year, the agricultural industry uses quantities of fertilizer that have explosive or other dangerous qualities.

The packaging used to ship hazardous material generally prevents catastrophic releases of highly toxic substances. However, transportation accidents resulting in the release hazardous materials can result in fire, explosion, release of toxic fumes, water supply contamination, agricultural damage, or environmental contamination. If an acutely toxic substance is dispersed in the atmosphere, the area of concern can extend as far as 10 miles from the site of the release. Rupture of a natural gas pipeline can cause an explosive force sufficient to level buildings (an event that occurred in North Blenheim - detailed in "Explosion"). An overturned tanker or derailed tank car may take a week or more to mitigate. If contaminants are dispersed into the environment, the cleanup can take years.

The transportation routes through the County and the areas that have historically been vulnerable to transportation accidents are shown on the Transportation Accidents Map in Appendix F - CD. Although a transportation accident involving hazardous material could occur on county and municipal roads, the probability is greatest along the railroad line and the state highways. These principal transportation routes pass through more densely populated areas of the County. The three main natural gas transmission pipelines and distribution lines are also vulnerable. The erosive nature of the area's streams poses a threat to shallow pipelines in the valleys or at stream crossings. Most of the residents and businesses in the County are located within one mile of a railroad, state highway or pipeline.

A credible worst-case hazardous material incident could result from an accident that ruptures a railroad car containing hazardous materials. If the released material is subject to atmospheric dispersion, the radius of concern could be as much as 10 miles (for example, ammonia, chlorine, or nitric acid). If a release occurs along the railroad near the Villages and requires evacuation of a 5-mile radius, approximately 10,000 residents would be displaced. The estimated cost of these residents would be at least \$250,000 (based on a Red Cross estimate that expenses are a minimum of \$25.00 - \$100.00 per person per day). In addition to emergency response expenses, casualties, and medical expense, the

property damage and environmental cleanup costs resulting from a hazardous material release could be hundreds of thousands of dollars. The assessed value of property within one mile of this potential derailment site is in excess of 100 million dollars.

## **TRANSPORTATION ACCIDENT:**

**Potential Impact:** Throughout a Large Region

**Cascade Effects:** Some Potential

**Frequency:** An Infrequent Event

**Onset:** No Warning

**Hazard Duration:** Less Than One Day

**Recovery Time:** Three Days to One Week

**Impact:**

- Serious Injury or Death to Large Numbers
- Little or No Damage to Private Property
- Little or No Structural Damage to Public Facilities

**Definition:** A mishap involving one or more conveyances on land, sea, and/or in the air that results in mass casualties and/or substantial loss of property.

**Profile/Vulnerability Assessment:** Schoharie County experienced a large transportation accident with injuries involving a school bus and a dump truck in the Town of Schoharie. According to the National Transportation Safety Board website, about 10:30 a.m. on October 21, 1999, a Kinnicutt Bus Company school bus was transporting 44 students, 5 to 9 years old, and 8 adults on an Albany City School No. 18 field trip. The bus was traveling north on State Route 30A as it approached the intersection with State Route 7, which is about 1.5 miles east of Central Bridge, New York. Concurrently, an MVF Construction Company dump truck, towing a utility trailer, was traveling west on State Route 7. The dump truck was occupied by the driver and a passenger. As the bus approached the intersection, it failed to stop as required and was struck by the dump truck. Seven bus passengers sustained serious injuries; 28 bus passengers and the truck driver received minor injuries. Thirteen bus passengers, the bus driver, and the truck passenger were uninjured. Bassett Hospital of Schoharie County treated 42 victims, including 37 children and five adults. Two of the victims were transferred to Albany Medical Center.

Students were wearing seat belts at the time of the accident. By state law, school buses manufactured after July 1, 1987, must be designed to include seat belts and increased seat padding on the passenger seats.

No major air or rail crashes have occurred in the County; however, such an accident cannot be ruled out. A major air crash could quickly overwhelm local resources and mitigating such an event can only be addressed through proper emergency response training. The most vulnerable area for a rail accident is in the Village of Cobleskill. A freight rail accident in the Village of Cobleskill could potentially cause damage to buildings. (Add more information about structures along rail).

# TORNADO:

**Potential Impact:** Throughout a Large Region

**Cascade Effects:** Highly Likely

**Frequency:** An Infrequent Event

**Onset:** No Warning

**Hazard Duration:** Less Than One Day

**Recovery Time:** Three Days to One Week

**Impact:**

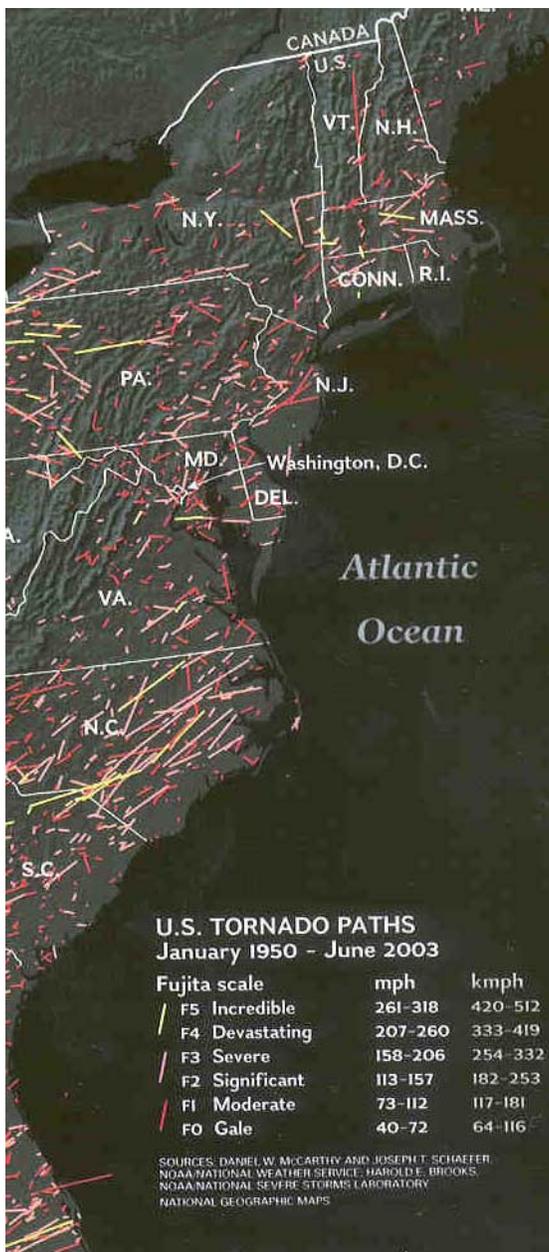
- Serious Injury or Death Unlikely
- Moderate Damage to Private Property
- Moderate Structural Damage to Public Facilities



*Damage to Schoharie County home resulting from July 1989 F3 tornado*

**Definition:** A tornado is a violently rotating column of air that extends from the base of a thunderstorm and comes in contact with the ground. The vortex, up to several hundred yards wide, is visible to the

observer as a whirlpool-like column of winds rotating about a hollow cavity or funnel. Tornadoes are the most violent storms on earth, with estimated winds speeds of 200-300 miles per hour.



**Profile/Vulnerability Assessment:** Contrary to most beliefs, hills and mountains offer no protection from tornadoes. New York State has an average of five tornadoes a year, which can occur in any region. Compared with other states, New York ranks number 30 for frequency of tornadoes, 27 for number of deaths, 30 for injuries and 26 for cost of damages. The risk of death in any one year is 1 in 39,088,695. These figures come from the New York Disaster Center web page.

The map at left indicates the paths and intensity of tornadoes in the eastern U.S. from 1950 – June 2003. The entire County is vulnerable to tornado damage. Damage paths for tornadoes can be in excess of 1 mile wide and 50 miles long. There are reports of at least 3 tornadoes in Schoharie County since 1830. The most destructive occurred on July 10, 1989. A F3 tornado moved across Schoharie County causing a 12-mile line of destruction from Carlisle to Schoharie. 20 homes sustained damage and approximately 20 people were injured. Damages were estimated to be near 25 million. A F1 tornado occurred on May 2, 1992. Damages were estimated to be near \$250,000.00.

Despite improved weather forecasting capability, tornadoes can occur with little or no warning (NWS national average on tornado warning lead time is approximately 12 minutes). A tornado is a great threat to life and usually causes catastrophic damage to property within its path. The winds in the strongest tornadoes are the fastest winds experienced anywhere on earth, with rotation velocities up to 300 mph. They can result in the total destruction of homes (especially

mobile homes), businesses, cars, etc. and cause many deaths. Extensive damage to electric and telephone lines is likely. Extensive tree damage along roadways may inhibit or block access. Damaged or destroyed radio and television towers can impede communication. Because tornadoes are associated with thunderstorms, they may be preceded or followed by heavy rainfall or hail. This violent path of destruction caused by a tornado is likely to result in serious injury or death and moderate to severe damage to public and/or private property. Tornadoes can trigger many other hazards, including power outages, structural collapse, fires, and hazardous chemical releases.

According to the “Taking Shelter from the Storm” guide published by FEMA, Schoharie County is in a low risk wind zone with less than 1 tornado per 1,000 square miles and a 160 mph – 200 mph wind zone. Tropical storms can impact the County, but hurricane force winds are rare. The NYS Building Code requires structures to be built to withstand 90 mph winds in the County. Beginning in January 2003, the building code includes higher wind standards for structures that represent a higher hazard to human life in the event of failure. Buildings constructed in compliance with this code should be able to withstand lower intensity tornadoes, but may be unable to withstand the design wind speed recommended by the ASCE, American Society of Civil Engineers. The NY State Emergency Management Office reports that the vast majority of tornadoes are within the design speeds of building codes (85% have wind speeds of less than 112 miles per hour).

Following the 1998 tornadoes, building officials in Stillwater, NY observed that new and old construction was damaged equally. However, in Mechanicville, NY, building officials indicated that old construction seemed to fair better than new construction. Stonewall and concrete block foundations performed worse than poured concrete foundations. Houses with plywood sheathing held up better than those with cheaper materials, such as chipboard. Some strap braces failed. Many homes were punctured with flying debris. This was less of a problem with homes that had plywood sheathing rather than cheaper materials. Trusses in modular home construction were observed to have failed in the center at the gusset plate even though the remainder of the truss was intact. (Source: NY State Emergency Management Office).

Potential dollar damages are difficult to estimate for a tornado event in Schoharie County. Damages exceeded \$25,000,000.00 from the 1989 and 1992 tornadoes. A F3 tornado impacting any of the Villages could devastate several structures, result in multiple deaths/injuries and result in millions of dollars in damages. On the other hand, a tornado impacting an undeveloped area could result in far less damage to agricultural crops, forest, or some single-family housing. Mitigation efforts should focus on advance warning and proper building construction.

## UTILITY FAILURE:

**Potential Impact:** Throughout a Large Region

**Cascade Effects:** Some Potential

**Frequency:** An Infrequent Event

**Onset:** No Warning

**Hazard Duration:** Four Days to One Week

**Recovery Time:** One to Two Days

**Impact:**

- Serious Injury or Death Unlikely
- Moderate Damage to Private Property
- Little or No Structural Damage to Public Facilities

**Definition:** Loss of electric and/or natural gas supply, telephone service, or public water supply as a result of an internal system failure and as a secondary effect of another disaster agent.

**Profile/Vulnerability Assessment:** A widespread and prolonged utility outage is most likely to occur as a cascade effect of another hazard (severe winter storm, ice storm, flood, etc.). These incidents are evaluated elsewhere under this plan. The loss of power generally results from damage to power lines (due to high wind, ice, traffic accidents, etc.) or transmission equipment (often resulting from animal damage). Telephone service can be lost due to overloaded systems, mechanical problems, or damage to phone lines. The ongoing maintenance and operational procedures of each utility provider are intended to minimize the risk of service disruption.

Due to our widespread reliance on electricity, telephones, and potable water, the loss to these services can disrupt many ordinary activities. Emergency communications may be impaired if it becomes necessary to rely on radio communications. A water supply failure can result in an increased fire hazard if it becomes necessary to transport water to areas normally served by fire hydrants. A prolonged power failure can impact heating, food (spoilage, inability to cook), water supplies, industrial processes, and businesses. The most likely cause of injury or death is from unsafe use of alternate fuel sources for heating, cooking and lighting.

The entire community is vulnerable to the potential impacts of an electricity or telephone outage. An extended utility outage in the County would represent an inconvenience for most residents, with economic losses for some businesses. The greatest economic loss would be for the utility itself, which must provide the crews and equipment to restore service. The northeast blackout in August 2003 affected  $\frac{3}{4}$  of the County. Commercial grocery businesses with generators were positively impacted whereas, businesses without generators were harmed.

## ICE STORM:

**Potential Impact:** Throughout a Large Region

**Cascade Effects:** Highly Likely

**Frequency:** An Infrequent Event

**Onset:** Several Hours Warning

**Hazard Duration:** One Day

**Recovery Time:** One to Two Weeks

**Impact:**

- Serious Injury or Death Unlikely
- Moderate Damage to Private Property
- Moderate Structural Damage to Public Facilities

**Definition:** Freezing rain that accumulates in a substantial glaze layer of ice resulting in serious disruptions of normal transportation and possible downed power lines.

**Profile/Vulnerability Assessment:** When ice encases exposed surfaces, hazardous road conditions disrupt transportation. The weight of the ice can knock down trees and power lines, disrupting power and communication for days. Additional hazards that can be triggered by an ice storm include: transportation accidents, power failure, fuel shortage, and food shortage. Normal emergency operations, such as police, fire and ambulance service, can also be impeded. Since the same conditions may occur over a large area, aid from neighboring jurisdictions may not be available. The entire County is vulnerable to the impact of ice storms.

On December 4-5, 1964, freezing rain caused ice accumulations of up to 1.5 inches and crippled east central New York. Many residents lost power for up to two weeks and schools had to be shut down for a week. Damage estimates approached \$5,000,000 dollars.

A January 1998 ice storm impacting six counties in northern New York was one of the most severe in the State's history. Nine people were killed, most by carbon monoxide poisoning associated with heating devices. Damage was widespread and more than 320,000 people were without electricity. Power was not completely restored for 23 days. Many dairy farmers lost their cows. Documented damages of about \$56,000,000 were recorded by NYSEMO.

The National Weather Service reports that New York has one of the highest incidences of ice storms in the U.S., with freezing rain and icing occurring somewhere about 10 days per year. An ice storm as severe as the 1964 and 1998 disasters could also occur in Schoharie County. In recent years Schoharie County experienced slight ice accumulations an average of 2 times per year. These events have typically lasted for less than one day.

The 1998 North Country ice storm resulted in power outages for 320,000 people in seven counties and documented disaster assistance totaling \$55,950,736 (source: New York State Emergency Management Office). This corresponds to average damages of about \$175.00 per person. These statistics do not include all damages and the average is much lower than the damages incurred in the most severely impacted areas. If the Schoharie County (2000 census population of 31,582) experiences an ice storm with damages of \$174.00 per person, countywide losses would exceed \$5,500,000.

## FUEL SHORTAGE:

<b><u>Potential Impact:</u></b>	Throughout a Large Region
<b><u>Cascade Effects:</u></b>	Some Potential
<b><u>Frequency:</u></b>	An Infrequent Event
<b><u>Onset:</u></b>	More Than One Week Warning
<b><u>Hazard Duration:</u></b>	More Than One Week
<b><u>Recovery Time:</u></b>	One to Two Days

**Impact:**

- Serious Injury or Death Unlikely
- Little or No Damage to Private Property
- Little or No Structural Damage to Public Facilities

**Definition:** A situation in which the normal quantity and/or timely delivery of fuel supplies to distributors and retail establishments are interrupted for a substantial period of time.

**Profile/Vulnerability Assessment:** There have been no fuel shortages in Schoharie County since the OPEC oil crisis in the early 1970's. A local fuel shortage could result from a prolonged disruption of transportation, which might be caused by a winter storm, flood or other major event. Supply shortages can occur as a result of trade, transmission difficulties, or unexpectedly high demand. The probability of a severe fuel shortage is considered to be low.

The primary impact of the oil shortage in the 1970's was economic, with customers experiencing long lines and high prices. A wintertime shortage of heating oil or natural gas could lead to injuries and deaths due to an inability to provide adequate heat or inappropriate use of alternate heat sources.

Because a fuel shortage would result in higher prices, lower income residents and businesses with high fuel use (such as truckers and farmers) would be most vulnerable.

## EXPLOSION:

<b><u>Potential Impact:</u></b>	Throughout a Small Region
<b><u>Cascade Effects:</u></b>	Highly Likely
<b><u>Frequency:</u></b>	An Infrequent Event
<b><u>Onset:</u></b>	No Warning
<b><u>Hazard Duration:</u></b>	Less Than One Day
<b><u>Recovery Time:</u></b>	Three Days to One Week

**Impact:**

- Serious Injury or Death is Likely, but not in Large Numbers
- Little or No Damage to Private Property
- Little or No Structural Damage to Public Facilities

**Definition:** The threat or actual detonation of an explosive device or material with the potential of inflicting serious injury to people or damage to property

**Profile/Vulnerability Assessment:** A liquid propane gas explosion destroyed 10 homes, killed two men and injured four others in the center of the hamlet of North Blenheim on March 13, 1990. The gas had escaped from an eight-inch Texas Eastern Transmission Corp. line that ran beneath the Westkill Road about a third of a mile above the hamlet. The pressurized liquid gas vaporized when it hit the air and

because it was heavier than the air, it clung to the land and crept down the Westkill Creek cleft that the road follows to a T intersection with NYS Route 30. It then spread out over the middle of the hamlet of about 100 people.

At 7:30 am, the Blenheim Assistant Fire Chief realized something was wrong and tried to alert passers-by and residents. He was killed when the gas ignited. A Central Bridge resident died of burns later in the day at the Albany Medical Center. The victim sustained second and third-degree burns over most of his body.

The leaky line burned in a bright orange plume of fire that continued to burn 100 feet into the air hours afterwards. Hundreds of firefighters from 20 fire companies in a 20-mile radius responded and the fire took out both telephone and electrical services for several miles around.

Dominion Transmission, Inc., Iroquois Pipeline Company, Tennessee Gas Pipeline Company, and Texas Eastern Products Pipeline Company operate the pipeline. They have an Emergency Response Manual for Emergency Response Personnel of Montgomery, Schenectady and Schoharie Counties.

An explosion generally occurs with little or no warning. It can cause serious injury or death to those in the immediate vicinity of the explosion and damage to the surrounding property. If it occurs in a building, that structure is likely to be extensively damaged or destroyed. An explosion can trigger a fire, transportation accident, hazardous material release, or other event.

## HAZMAT (FIXED SITE):

**Potential Impact:** Throughout a Large Region

**Cascade Effects:** Some Potential

**Frequency:** An Infrequent Event

**Onset:** No Warning

**Hazard Duration:** One Day

**Recovery Time:** Less Than One Day

**Impact:**

- Serious Injury or Death is Likely, but not in Large Numbers
- Little or No Damage to Private Property
- Little or No Structural Damage to Public Facilities

**Definition:** The uncontrolled release of material from a stationary facility, which when released can result in death or injury to people and/or damage to property and the environment through the material's flammability, toxicity, corrosiveness, chemical instability and/or combustibility.

**Profile/Vulnerability Assessment:** A propane gas leak did occur in the Village of Richmondville with no injuries or damage reported.

Twenty-one facilities in Schoharie County report hazardous material inventories to the EMO under SARA Title III. Additional facilities file 209-U reports with local fire departments. These legal businesses are believed to be in compliance with reporting and safety requirements. The NY Building Code sets higher standards for seismic, snow loading, and wind for buildings that contain "sufficient quantities of toxic or explosive substances to be dangerous to the public if released." The agricultural industry uses fertilizers that have harmful or explosive capabilities if misused or stored improperly on a farm. Clandestine drug manufacturing sites are a potential risk for hazardous material releases.

Incidents involving hazardous materials may result in fire, explosion, release of toxic fumes, water supply contamination, or other environmental contamination. An air or water contamination could cause a problem for miles from the release site. Emergency responders need to be aware of what hazardous materials are being stored in the County.

# EARTHQUAKE:

**Potential Impact:** Throughout a Large Region

**Cascade Effects:** Some Potential

**Frequency:** A Rare Event

**Onset:** No Warning

**Hazard Duration:** Less Than One Day

**Recovery Time:** Three Days to One Week

**Impact:**

- Serious Injury or Death is Likely, but not in Large Numbers
- Moderate Damage to Private Property
- Moderate Structural Damage to Public Facilities

**Definition:** A sudden motion of the ground caused by release of subterranean strain energy, due to plate tectonics, resulting in surface faulting (ground rupture), ground shaking, or ground failure (collapse).

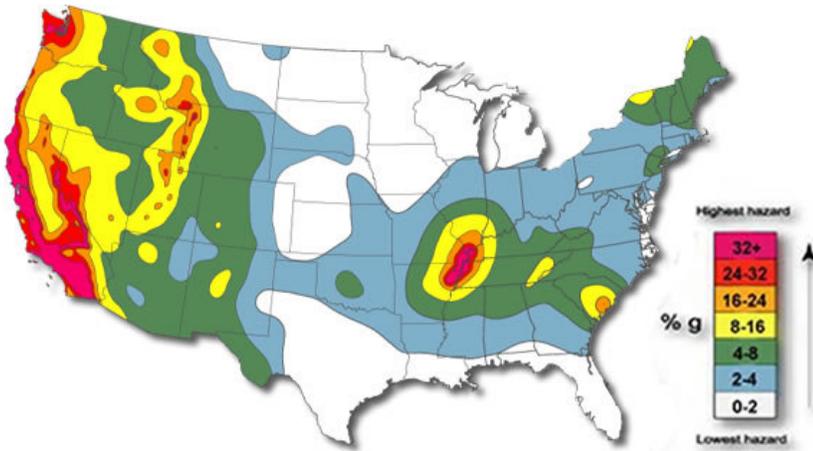
**Profile/Vulnerability Assessment:** There have been no recorded earthquakes with damage in Schoharie County. However, there have been earthquakes in other New York counties, some of which have been felt in Schoharie County. For example, some County residents felt a magnitude 5.3 earthquake near AuSable Forks, NY in April 2002.

An earthquake can occur anywhere in New York State; however an eastern earthquake is different than those occurring in the west. The ground motions associated with earthquakes in the eastern U.S. differ distinctly from ground motions in the western U.S. in several important ways. Eastern earthquakes tend to release higher rock stresses compared to their western counterparts, thereby causing the ground motions to contain more high-frequency energy. The ground motion shaking is felt more intensely in the eastern U.S. over larger distances because the Earth's crust and its rocks transmit seismic waves more efficiently, especially at high frequencies. This stronger shaking, especially at shorter periods and over larger distances is caused by the fact that the crustal rocks in the eastern U.S. tend to be older, more competent, and less riddled with seismically active faults.

The most seismically active regions in the New York lie in the Adirondacks and near the Canadian border along the St. Lawrence River followed by the New York City and Buffalo/Niagara/Attica regions. The possibility of a Richter magnitude 6 or greater earthquakes exists despite the fact that in the short historic record (about 300 years), no larger earthquakes have occurred in the state. Larger events have historically occurred along the Atlantic coast both north and south of New York and in adjacent Canada. The greater New York City area can expect, on average, one Richter magnitude 5 earthquake about once every 100 years (the last such event occurred in 1884).

According to the HAZNY program, in 1993 the New York State Earthquake Code Advisory Committee recommended seismic provisions for building codes in New York State. The basis for their recommendations was an assessment of the earthquake risk in New York State. The Committee divided New York State into four earthquake zones. Each zone is assigned a Peak Ground Acceleration Value. This value is the basic determinant of the earthquake risk for each county in the State. It is a measure of the horizontal force of an earthquake in terms of a percentage of gravity. Thus, it is expressed as "g" (e.g., 0.1g means 10% of gravity).

The Peak Ground Acceleration Value earthquake has a 10% probability of occurring over a 50-year period or a 100% probability over 500 years. It becomes more probable of occurring than not occurring (51% probability) over a period of 255 years. For planning purposes it is believed to be the appropriate choice for a credible worst-case event. The Peak Ground Acceleration Values range from 0.09g to 0.18g



in New York State. The higher the value, the greater the risk. . The Peak Ground Acceleration Value for Schoharie County is 0.15g. This means Schoharie County could have an earthquake with a Richter Scale magnitude of greater than 5.5, but this would be a rare event. The map at left indicates that Schoharie County is at a low risk for earthquakes. Extreme northern New York State has a higher risk. The April 2002 earthquake exceeded \$2,000,000 in damages to infrastructure and buildings. The total

structure assessed value by municipality is listed at the end of the plan by jurisdiction. It is highly unlikely that a total loss of structures would be experienced in Schoharie County, but an estimate of major earthquake damage to 20% of structures and infrastructure in the county is approximately 250 million dollars.

Earthquakes can damage buildings and infrastructure and disrupt utilities. In addition, an earthquake can trigger landslides, fire, flash floods, levee failure, dam failure, transportation accidents, and hazardous material releases. Prior to January 2003, the New York State Building Code did not address seismic design. In the current building code, structures that represent a higher hazard to human life in the event of failure must meet minimum seismic requirements. Such requirements are not necessary for most construction in Schoharie County.

## FOOD SHORTAGE:

- Potential Impact:** Throughout a Large Region
- Cascade Effects:** Some Potential
- Frequency:** A Rare Event
- Onset:** Several Days Warning
- Hazard Duration:** Two to Three Days
- Recovery Time:** One to Two Days
- Impact:**
  - Serious Injury or Death is Likely, but not in Large Numbers
  - Little or No Damage to Private Property
  - Little or No Structural Damage to Public Facilities

**Definition:** A situation where the normal distribution pattern and/or the timely delivery of foodstuffs to retail establishments for normal consumer demand is interrupted for a substantial period of time.

**Profile/Vulnerability Assessment:** A food shortage is most likely to occur as a result of a prolonged disruption of transportation, which could be caused by a winter storm, flood or other major event. Widespread crop failures could also contribute to a shortage of some types of food products. The probability of a prolonged or severe food shortage is considered to be low.

A food shortage is unlikely to persist long enough to cause any serious problems. Possible cascade effects could include looting and civil unrest. Although the entire population of Schoharie could be vulnerable to a food shortage, high prices for limited food supplies would be expected to have the greatest impact on low-income residents. Individuals with specific dietary requirements (such as formula-fed babies) would also be vulnerable.

## **EXTREME TEMPERATURES:**

**Potential Impact:** Throughout a Large Region

**Cascade Effects:** Some Potential

**Frequency:** An Infrequent Event

**Onset:** Several Days Warning

**Hazard Duration:** More Than One Week

**Recovery Time:** Less Than One Day

**Impact:**

- Serious Injury or Death is Likely, but not in Large Numbers
- Little or No Damage to Private Property
- Little or No Structural Damage to Public Facilities

**Definition:** Extended periods of excessive cold or hot and humid weather with a serious impact on human and/or animal populations, particularly elderly and/or persons with respiratory ailments.

**Profile/Vulnerability Assessment:** Extreme temperature conditions generally impact only a few isolated individuals. However, compounding circumstances, such as severe winter weather that strands motorists or an extended power failure, can increase the number of people affected. U.S. Centers for Disease Control estimates that an average of 384 people per year die from excessive heat, but few of these occur in upstate New York. Excessive heat or cold that impacts a significant portion of the population is an infrequent occurrence.

National Weather Service records for Schoharie County indicate that extreme cold (minimum temperature – 10 degrees F or below) occurred once in the twenty years from 1983 to 2003 and extreme heat (maximum temperature 100 degrees F or above) occurred once in the same period. The NWS is typically able to provide 12 to 24 hours of advanced warning for these events.

Freezing temperatures can cause problems with burst pipes, ruptured water mains, and automobiles that will not start, but the greatest danger is to people. Prolonged exposure to extreme cold can lead to frostbite, hypothermia, and death. New York statistics for deaths attributed to exposure to cold indicate that 50% are people over 60 years old, over 75% are males, and about 20% occur in the home (source: National Weather Service). If extreme cold conditions do not occur in combination with a power failure or other hazard, the greatest impact will be on low-income residents who do not have access to adequate heating. If a prolonged power outage occurs during cold weather the entire population will be impacted. Injury and deaths can result from fires or carbon monoxide poisoning that result from unsafe use of alternate sources for heating. Extreme cold can also cause damage to livestock, crops, landscaping, and other property.

There are practical problems that can result from high temperatures, such as overheated car engines, “brown-outs” from overuse of electricity for air conditioning, and changes in airplanes’ performance. However, as with extreme cold, the major danger of extreme heat is to humans and animals. Heat-related ailments can range from annoying conditions to life-threatening situations, such as heat cramps, fainting,

heat exhaustion, and heatstroke. Those most at risk are those with health conditions (respiratory ailments, overweight, alcohol problems, etc.) or those on certain medications or drugs.

The people most often affected by extreme temperatures are elderly people and infants. At any one time, Schoharie County may have a few homeless people mainly in the Village of Cobleskill, who would also be vulnerable to extremely cold conditions. Low-income residents may be unable to adequately heat their homes or be in danger of carbon monoxide poisoning. Other residents who are vulnerable to extreme temperature conditions, due to limited income or health concerns, are scattered throughout the community.

Although extreme temperatures can result in serious injury or death, the number of people impacted is typically small. Frozen pipes and ruptured water mains can cause thousands of dollars in property damage.

## **RADIOLOGICAL (IN TRANSIT):**

**Potential Impact:** Throughout a Small Region

**Cascade Effects:** Some Potential

**Frequency:** A Rare Event

**Onset:** No Warning

**Hazard Duration:** Two to Three Days

**Recovery Time:** Three Days to One Week

**Impact:**

- Serious Injury or Death is Likely, but not in Large Numbers
- Little or No Damage to Private Property
- Little or No Structural Damage to Public Facilities

**Definition:** A release or threat of release of radioactive material from a transportation vehicle (including truck, rail, air, and marine vehicle) or other mechanism.

**Profile/Vulnerability Assessment:** No radiological release in transit has ever occurred in Schoharie County. The possibility of a low level release exists, especially near the I-88 corridor or along other major roads. Any storage of radioactive material in Schoharie County is in small quantities of low levels. Packing requirements for transportation of radioactive materials would most likely prevent release, even in the event of a transportation accident. If a transportation accident involving radioactive materials were to occur, unnecessary panic by residents in the immediate area would be the greatest concern. Clean up costs would most likely be small and public health would most likely not be threatened any more than natural radiation affects living things.

## Hazards Rated as Low

### **STRUCTURAL COLLAPSE:**

**Potential Impact:** Throughout a Large Region

**Cascade Effects:** Some Potential

**Frequency:** A Rare Event

**Onset:** No Warning

**Hazard Duration:** Less Than One Day

**Recovery Time:** One to Two Days

**Impact:**

- Serious Injury or Death is Likely, but not in Large Numbers
- Little or No Damage to Private Property
- Little or No Structural Damage to Public Facilities

**Definition:** A sudden structural failing, partially or fully, of buildings, bridges or tunnels, threatening human life and health.

**Profile/Vulnerability Assessment:** Structural collapse in Schoharie County is usually the result of improper construction methods, improper structure maintenance, heavy snow weight, transportation accident, or fire. Barns have collapsed in the County during winter months usually due to a combination of heavy snow pack with subsequent rain. Barring collapse of a structure due to another hazard (tornado, flood, fire, explosion, etc...), the likelihood of structural collapse of residential structures or new commercial structures is low, especially with the present New York State Building Code. The collapse of a residential structure could result in approximately \$75,000 in damages per structure. Collapse of a large commercial structure or bridge could result in several hundred thousand dollars in damages. Collapse of occupied structures can result in deaths/injuries. The collapse of the I-90 Bridge in Montgomery County caused several deaths. Proper building methods and monitoring of snow load/bridge scour can help reduce this hazard.

### **CAVING ACCIDENT:**

**Potential Impact:** Several Locations

**Cascade Effects:** Highly Unlikely

**Frequency:** A Rare Event

**Onset:** No Warning

**Hazard Duration:** One to Two Days

**Recovery Time:** Less Than One Day

**Impact:**

- Serious Injury or Death is Likely, but not in Large Numbers
- Little or No Damage to Private Property
- Little or No Structural Damage to Public Facilities

**Definition:** An incident inside a cave requiring response by emergency personnel. Incidents can involve inability of a caver to leave a cave due to illness, broken bones, inability to move (getting stuck), or exposure to carbon monoxide or other dangerous gases that may build up in a cave.

**Profile/Vulnerability Assessment:** Schoharie County has over 170 caves located mainly in the northern towns of Carlisle, Cobleskill, Esperance, Schoharie, Seward, Sharon, Seward, and Wright. According to Emily Davis of the National Speleological Society, caving is not a hobby that actively seeks out more participants and should not be attempted by inexperienced and/or untrained people. In the 1960s, there were two hypothermia related cave deaths in Schoharie County. In the last 35 years, there has only been one caving death in New York State in Albany County. Two recent cave rescues in Schoharie County occurred on July 18-20, 1998 and October 7, 2001. Both incidents involved stuck cavers that required rescue personnel to enter the cave and free the accident victim. Training in cave rescues for emergency personnel is key to mitigation; however, proper education/training of the public and cavers is also essential. Locations of accessible caves are not widely distributed. Caving needs to be performed with landowner permission and proper notifications and equipment. Cave accidents, although very rare, can require considerable resources to be expended by local emergency personnel and can be quite costly. Attempts can be made for reimbursing rescuing expenses from the accident victim.

## ICE JAM:

<b><u>Potential Impact:</u></b>	Several Locations
<b><u>Cascade Effects:</u></b>	Some Potential
<b><u>Frequency:</u></b>	An Infrequent Event
<b><u>Onset:</u></b>	Several Hours Warning
<b><u>Hazard Duration:</u></b>	Two to Three Days
<b><u>Recovery Time:</u></b>	Less Than One Day

### **Impact:**

- Serious Injury or Death is Unlikely
- Little or No Damage to Private Property
- Little or No Structural Damage to Public Facilities

**Definition:** Large accumulation of ice in rivers or streams interrupting the normal flow of water and often leading to flooding conditions and/or damage to structures.

**Profile/Vulnerability Assessment:** An ice jam in a river or stream effectively forms a hanging dam that can block flow and cause water to back up. The flooding caused by an ice jam will persist until the ice breaks up, either naturally or as a result of human intervention. The resulting flood damages would be localized.

Areas along streams where debris jams have developed at bridges and culverts could experience similar flooding and erosion problems due to ice jams.

Ice jam flooding in Schoharie County is not likely to impact more than a few houses. The maximum expected losses would be less than a major flood and most likely be less than \$200,000.00.

Large ice jams in Schoharie County are rare. Small ice jam flooding occurs annually along Warnerville Cut-off Road (County Route 23A) in the Town of Richmondville requiring closure of the road for several hours (pictures at left).

In March 1979, severe ice jamming caused flooding of many rivers including the Hudson, Mohawk, Susquehanna, and Chenango Rivers, as well as the Schoharie Creek, but little damage resulted.



*March 2003 ice jam flood – Warnerville Cut-off Road*



*March 2004 ice jam – Warnerville Cut-off Road*

# DROUGHT:

<b><u>Potential Impact:</u></b>	Throughout a Large Region
<b><u>Cascade Effects:</u></b>	Some Potential
<b><u>Frequency:</u></b>	An Infrequent Event
<b><u>Onset:</u></b>	More Than One Week Warning
<b><u>Hazard Duration:</u></b>	More Than One Week
<b><u>Recovery Time:</u></b>	Less Than One Day

## **Impact:**

- Serious Injury or Death is Unlikely
- Moderate Damage to Private Property
- Little or No Structural Damage to Public Facilities

**Definition:** A prolonged period of limited precipitation affecting the supply and quality of water.

**Profile/Vulnerability Assessment:** Schoharie County has minor droughts every couple years. Most recently there were drought warnings issued by the National Weather Service in 1999, 2000, and 2001. Drought conditions severe enough to impair the ability of the County to provide water for essential uses are unlikely. However, droughts that impact private well supplies, agriculture, and wildfire risks are likely to occur, on the average of every 2 years. Recent droughts in Schoharie County that required assistance from the County mainly impacted the dairy industry and the piping of water to ponds to provide water for cows.

Schoharie County has an average annual precipitation of 39 to 40 inches in the western and southern extremes of the County, but it decreases to 34 to 36 inches in the east-central and northeastern parts. Yearly fluctuations are within 3 inches of the average. Even though New York normally possesses an adequate water supply with sufficient annual precipitation to replenish surface- and ground-water resources, the region is still susceptible to periods of drought. In Schoharie County, all private and some public water supplies are from wells and springs. Ground water is the source of water for a majority of public water supplies.

Drought periods progress through stages and drought intensity may vary considerably during the drought period. The time of occurrence and duration can cause significant variations in drought impacts. The initial impact of drought is likely to be felt by agriculture and by those relying on private wells. Agriculture faces major losses when adequate soil moisture cannot be maintained and when sufficient water is not available for livestock. If it becomes necessary to impose mandatory water use restrictions or import water, additional economic impacts will occur. Some businesses and industry may be affected by reduce revenues resulting from increasingly severe restrictions on nonessential water uses. Dry conditions increase the potential for water supply contamination. Parched lands are more susceptible to wildfires during a period of drought. Structural fires also present a problem if there is not sufficient water available for fire fighting needs or if the time required to transport the water is significantly increased. If dry conditions are so severe and widespread that the region is unable to obtain adequate potable water, a drought can cause serious threats to public health and sanitation. However, the NY State Emergency Management Office reports that the historical record lacks instances of serious injury or death due to drought conditions. Additional impacts can include wildlife mortality, loss of ornamental vegetation, and damage to fish and wildlife habitat.

The potential costs associated with a severe drought include the cost of replacing private wells with deeper wells and agricultural damages.

# EPIDEMIC:

<b><u>Potential Impact:</u></b>	Throughout a Large Region
<b><u>Cascade Effects:</u></b>	Highly Unlikely
<b><u>Frequency:</u></b>	A Rare Event
<b><u>Onset:</u></b>	More Than One Week Warning
<b><u>Hazard Duration:</u></b>	More Than One Week
<b><u>Recovery Time:</u></b>	More Than Two Weeks

## **Impact:**

- Serious Injury or Death is Likely, but not in Large Numbers
- Little or No Damage to Private Property
- Little or No Structural Damage to Public Facilities

**Definition:** An epidemic is an occurrence or outbreak of disease to an unusual number of individuals or proportion of the population, human or animal.

**Profile/Vulnerability Assessment:** The U.S. Centers for Disease Control and Princeton (CDC) reports that in most years, influenza-related complications are responsible for 10,000-40,000 deaths, 50,000-300,000 hospitalizations and approximately \$1 --3 billion in direct costs for medical care in the United States. Flu pandemics have occurred in the United States in 1918, 1957, and 1968. Although death rates associated with the recent pandemics of 1957 and 1968 were confined primarily to the elderly and chronically ill, both pandemics were associated with high rates of illness and social disruption, with combined economic losses of approximately \$32 billion (in 1995 dollars).

- The Spanish Influenza pandemic in 1918 is the catastrophe against which all modern pandemics are measured. It is estimated that approximately 20 to 40 percent of the worldwide population became ill and over 20 million people died. Between September 1918 and April 1919, approximately 500,000 deaths from the flu occurred in the U.S. alone. The attack rate and mortality was highest among adults 20 to 50 years old.
- Although the Asian influenza pandemic in 1957-58 was not as devastating as the Spanish Flu, about 69,800 people in the U.S. died. The elderly had the highest rates of death. The virus that caused this pandemic was quickly identified and limited supplies of vaccine were available.
- The 1968 Hong Kong influenza pandemic was the mildest pandemic in the 20<sup>th</sup> century. The number of deaths between September 1968 and March 1969 was 33,800. The reasons cited for the lower death rate include: partial immunity due to similarities with the Asian flu virus, reduced transmission by school children due to school holidays, and improved medical care and antibiotics to treat those who became ill.

Immunizations and sanitary practices have decreased the prevalence of what most people would classically think of as epidemics. However, the human population remains susceptible to influenza outbreaks, Hepatitis B, Hepatitis A, HIV, meningitis, or vector borne diseases such as West Nile Encephalitis and Lyme Disease. In addition, rabies and other diseases may affect the animal population (both wild and domestic). Recent concerns have focused on the possible use of anthrax or another biological agent by terrorists. Flooding could also trigger an epidemic, since floodwater can carry bacteria that are harmful to both humans and animals.

Although an epidemic could impact the entire population of Schoharie County, it is generally the young, old and those with existing medical conditions who are at the greatest risk. Depending on the disease, the mechanism of transmission can result in greater risks for some segments of the population than for others.

The impact of the next pandemic could have a devastating effect on the health and well being of Schoharie County residents. The CED estimates of the possible impact in the United States are:

- Up to 200 million persons may be infected;
- Between 40 and 100 million persons may become clinically ill;
- Between 18 and 45 million persons may require outpatient care;
- Between 300,00 and 800,000 persons may be hospitalized;
- Between 88,000 and 300,000 persons may die.

According to Dr. Jeffrey Huse, DVM, Assistant Director with the NYS Department of Agriculture and Markets, since 1984, there have been no major outbreaks in the Schoharie County animal populations. In the 1950's 1960's, cattle were destroyed but it was in response to the Brucellosis Iradication Program in New York State. West Nile Virus has been detected in Schoharie County, but has not resulted in any known human cases in the area. Chronic Wasting Disease has impacted deer populations in other parts of the country, but there have been no reported cases in New York.

## **AIR CONTAMINATION:**

**Potential Impact:** Throughout a Large Region

**Cascade Effects:** Highly Unlikely

**Frequency:** An Infrequent Event

**Onset:** Several Hours Warning

**Hazard Duration:** Less Than One Day

**Recovery Time:** Less Than One Day

**Impact:**

- Serious Injury or Death is Unlikely
- Little or No Damage to Private Property
- Little or No Structural Damage to Public Facilities

**Definition:** Pollution caused by atmospheric conditions (as opposed to a chemical spill or release), such as a temperature inversion induced smoggy condition sufficiently serious to create some danger to human health.

**Profile/Vulnerability Assessment:** All of Schoharie County can be impacted by air contamination, but such an event is uncommon in non-urban areas. Health problems can be aggravated due to increased ozone levels, mainly asthma. Schoharie County does not expect any major health or dollar damages due to air contamination.

# MITIGATION GOALS AND OBJECTIVES

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Schoharie County has analyzed natural and human-caused hazards and has devised this plan to protect life and property from such events. Schoharie County has outlined the following approach to reduce the impact of the highest priority hazards that were identified previously. Lower priority hazards may have additional specific goals and objectives, but are primarily covered under the “All Hazards” goals. The action plan following this section will explain how the goals/objectives are to be accomplished.

## Multi-Hazard Mitigation

### *All Hazards*

#### GOAL ONE: Continue ongoing efforts and increase public awareness about hazards

- **OBJECTIVE 1.1** – Improve education program about hazards and family disaster planning, emergency supplies, evacuation procedures, transportation safety, hazard mitigation. Education program can include video, County web site, printed material for general circulation, direct mailing, training sessions, and organized events.
- **OBJECTIVE 1.2** – Improve dissemination of emergency warnings and weather information to residents, businesses, and institutions by increasing use of NOAA Weather Radios and increasing use of National Weather Service – Albany Forecast Office web site for latest weather information. If duplication does not exist, work with SEMO on Emergency Alert System.
- **OBJECTIVE 1.3** – Make the Schoharie County All-Hazard Mitigation Plan available to the public on the County website and at town/village offices, public libraries, Emergency Management Office, and Planning and Development Agency.
- **OBJECTIVE 1.4** – Encourage local official participation in hazard related training offered at County, State, Federal levels.
- **OBJECTIVE 1.5** – Appropriate local staff will be available to assist schools with fire, weather hazard, and terrorism drills.

#### GOAL TWO: Provide emergency services in a timely and effective manner

- **OBJECTIVE 2.1** – Provide municipal officials with periodic training in the Incident Command System and National Incident Management System and other responsibilities during hazard events.
- **OBJECTIVE 2.2** – Periodically test all emergency communication equipment and upgrade/replace as appropriate.
- **OBJECTIVE 2.3** – Periodically verify that schools, Summit Shock Facility, nursing homes, hospitals and businesses that handle hazardous materials have current emergency response plans in effect.
- **OBJECTIVE 2.4** – Improve/maintain communication among highway departments to enable coordinated maintenance of emergency transportation routes.

- **OBJECTIVE 2.5** – Participate in the review of emergency response plans to verify that they are current and consistent with the County Comprehensive Emergency Plan.

**GOAL THREE: Maintain the viability of all critical facilities and operations**

- **OBJECTIVE 3.1** – Periodically review and update the list of critical facilities serving the County (Appendix D).
- **OBJECTIVE 3.2** – Ensure that critical facilities are able to provide essential services during a power outage.
- **OBJECTIVE 3.3** – Develop and implement strategies to mitigate risks to critical facilities. New critical facilities should be located in areas of low hazard potential and properly constructed.
- **OBJECTIVE 3.4** – Expand and improve the alternate County Emergency Operations Center and County computer server backup locations in Cobleskill.

**GOAL FOUR: Maintain support (political and private sector) for hazard mitigation and emergency response**

- **OBJECTIVE 4.1** – Invite municipal elected officials to meetings of the Schoharie County Hazard Mitigation Committee to guide implementation of this plan and the revision of the plan.
- **OBJECTIVE 4.2** – Encourage Schoharie County Flood Committee to broaden past view from one of flood response to include education, mitigation and response for all water related hazards (flood, ice jam, dam failure, drought, and water supply contamination).
- **OBJECTIVE 4.3** – Maintain and expand public/private sector coordination through organizations that are actively involved in hazard reduction activities.
- **OBJECTIVE 4.4** – Encourage public/private sector organizations (tourist facilities) to prioritize and implement hazard mitigation objectives. Facilities with outdoor exposure should be equipped with NOAA Weather Radio.

## Flood (Flood, Ice Jam, Dam Failure)

**GOAL ONE:** Educate public about flood dynamics, flood hazards, flood insurance, flood safety, and flood mitigation measures

- **OBJECTIVE 1.1** – Improve existing flood awareness video and air on local cable channels during spring of each year. Video will be distributed to all schools in the County and all libraries. Video should be aired annually at County Fair.
- **OBJECTIVE 1.2** – Annually check location of “flood zone regulations in effect” signs and keep locations up to date in accordance with existing Special Flood Hazard Areas as indicated on the Flood Insurance Rate Map.
- **OBJECTIVE 1.3** – Disseminate and improve flood informational pamphlets (“Before You Buy or Build” and “Early Warning System”) for new buyers of property and general public.
- **OBJECTIVE 1.4** – Target property owners with structures in floodplain with education material and increase flood awareness locally (especially with early warning procedures).
- **OBJECTIVE 1.5** – Educate property owners adjacent to streams about proper stream maintenance.
- **OBJECTIVE 1.6** – Increase flood insurance coverage for vulnerable structures and encourage municipalities to apply for Community Rating System to lower flood insurance premiums.
- **OBJECTIVE 1.7** – Improve evacuation routes and maintain shelters to use in the event of a dam failure. Annually check signage for the routes and maintain as necessary.

**GOAL TWO:** Minimize stream bank erosion and improve water quality

- **OBJECTIVE 2.1** – Study, develop, and implement projects for stabilizing stream channels in locations where erosion threatens development or agricultural resources. Priority streams identified with ongoing problems include: Town of Broome – Catskill Creek, Town of Esperance – Fly Creek, Town of Esperance – Schoharie Creek, Town of Fulton – Pleasant Valley Creek, Town of Schoharie – Schoharie Creek, Town of Middleburgh – Schoharie Creek, Town of Middleburgh – Little Schoharie Creek, Village of Middleburgh – Little Schoharie Creek, Town of Conesville – Manor Kill, Village of Cobleskill – Mill Creek, Town of Wright – Fox Creek, Town of Wright – King Creek
- **OBJECTIVE 2.2** – Expand on 1/3 Stream Maintenance Pilot Project started in 2004 and encourage County and municipal funding for the program. Priority projects include erosion problems that threaten multiple property owners, development, and /or prime agricultural land.
- **OBJECTIVE 2.3** – Explore creating flood-taxing districts for properties bordering waterways with repetitive flooding problems. Pilot area may be the Village of Cobleskill – Mill Creek.

**GOAL THREE: Decrease flooding/ice jam impact on roads with repetitive events**

- **OBJECTIVE 3.1** – Encourage NYSDOT and County Department of Public Works to commence relocation of and improvements to roads that are often closed due to ice jams and flooding. Priority area is the Town of Richmondville – Warnerville Cut-off Road.

**GOAL FOUR: Streams, drainage ways, and drainage structures are maintained to minimize the potential for obstruction of flow**

- **OBJECTIVE 4.1** – Expand on New York City Watershed monitoring pilot program funded in 2004 on a Countywide scale for routine inspection and maintenance of streams, roadside ditches, and drainage ways in order to reduce the potential for flooding caused by debris obstructions/sedimentation.
- **OBJECTIVE 4.2** – Develop and implement a strategy for maintenance of privately owned storm water drainage systems and secondary stream channels.

**GOAL FIVE: Mitigate flood risks for existing and new development**

- **OBJECTIVE 5.1** – Evaluate opportunities (and implement as appropriate) to alleviate flooding problems by retaining or retarding water upstream through wetland creation/retention structures during high flow. Possible projects include: Village/Town of Cobleskill – Mill Creek, Village/Town of Middleburgh – Stoney Creek
- **OBJECTIVE 5.2** – Develop and implement a strategy for replacing undersized bridges and culverts on public roadways and on private property. Possible projects include: Town of Jefferson – Mill Creek/Porter Road.
- **OBJECTIVE 5.3** – Inventory all floodplain structures and educate/assist floodplain property owners with implementing measures that will protect existing development from flood risks (elevation of utilities, sewer backup protection, flood-proofing measures, extension of municipal sewer and water, structure elevation, property acquisition). Priority areas identified for elevation/acquisition projects include: Town of Esperance – Priddle Camp, Town of Esperance – U.S. Route 20 along Schoharie Creek, Village of Esperance – Steuben Street, Town of Fulton – Pleasant Valley Road, Town of Schoharie – Karkendorf Road along Schoharie Creek, Village of Schoharie – Sunset Drive and Bridge Street, Town of Sharon – Engleville Road, Town of Middleburgh – Mill Lane, Village of Middleburgh – Baker Avenue, Dexter Avenue, Middlefort Road and River Street, Town of Blenheim – North Blenheim.
- **OBJECTIVE 5.4** - Work with NYDOT to elevate roads that routinely flood.
- **OBJECTIVE 5.5** – Incorporate and cross reference local flood damage prevention laws in all new/revisions to local comprehensive plans and zoning laws.

**GOAL SIX: Dams are routinely checked and maintained for safety**

- **OBJECTIVE 6.1** – Improve communication with private dam owners and encourage better dam inspection by NYDEC.
- **OBJECTIVE 6.2** – If nonexistent, develop Emergency Action Plans for all municipal water reservoir dams.
- **OBJECTIVE 6.3** – Participate in review and exercises in relation to Emergency Action Plans in Event of Dam Failure with New York Power Authority and City of New York.
- **OBJECTIVE 6.4** – Encourage NYCDEP to implement flood control measures on repairs to Gilboa Dam.
- **OBJECTIVE 6.5** – Help Dam Concerned Citizens achieve their goal of use of highest design, construction, operation, maintenance, and inspection standards on dams. Independent oversight of the design, construction, operation and maintenance of dams by qualified dam engineers. Dam owners' indemnification of downstream residents and local governments for financial costs and losses attributable to dams. Increased media awareness and the quality of media reporting on dam and flood issues.
- **OBJECTIVE 6.6** – Develop mapping and inspection procedure for monitoring beaver dams in the County.

## Severe Weather

*(Severe Storm, Severe Winter Storm, Ice Storm, Tornado, Extreme Temperatures)*

### GOAL ONE: Minimize damage from trees to utilities, structures, and other utilities

- **OBJECTIVE 1.1** – Maintain trees along municipal right-of-ways
- **OBJECTIVE 1.2** – Support/encourage utility companies to maintain trees near telephone and power lines.
- **OBJECTIVE 1.3** – Locate/create educational information about maintenance of trees adjacent to structures.
- **OBJECTIVE 1.4** – Explore providing brush pickup services and/or designated drop off locations (chip/mulch/compost) to encourage tree maintenance and to discourage improper disposal of yard debris in drainage ways.
- **OBJECTIVE 1.5** – Land use regulations should recommend, encourage, or require underground utilities in new developments if feasible. Utility companies should be encouraged to use underground construction methods if feasible

### GOAL TWO: Buildings are able to withstand high wind and heavy snow

- **OBJECTIVE 2.1** – Code Enforcement Officers receive annual training and political support in order to effectively enforce the structural standards in the New York State Building Code.
- **OBJECTIVE 2.2** – Code Enforcement Officers should be encouraged to inspect older buildings that may not conform to the structural standards in the New York State Building Code to identify vulnerabilities for owners.

### GOAL THREE: Transportation routes are reopened as quickly as possible following a severe weather event

- **OBJECTIVE 3.1** – Highway Departments improve monitoring of weather conditions and forecasts (on-line information) to enable timely response to snow, ice, and high water conditions.
- 
- **OBJECTIVE 3.2** – Highway Departments periodically review and revise plowing schedules and hazardous weather response procedures to minimize time required to restore safe roadways.
- **OBJECTIVE 3.3** – Highway Departments and emergency service providers' work together to provide emergency service transportation during inclement weather.

## Terrorism

GOAL ONE: Facilities identified as potential terrorist targets address such threats in their operating policies

- **OBJECTIVE 1.1** – Develop/improve protection plans and public response plans at identified terrorist targets.
- **OBJECTIVE 1.2** – Vulnerability of public water supplies shall be assessed and public water suppliers shall prepare and periodically review emergency action plans.
- **OBJECTIVE 1.3** – Work with Iroquois Gas Transmission System, Tennessee Gas Pipeline, and Texas Eastern Products to improve public education about how to report suspicious activity near natural gas/propane lines.
- **OBJECTIVE 1.4** – Work with owners of public mass gathering locations to explore means to decrease terrorism vulnerability.

GOAL TWO: Potential terrorist events at schools or other public facilities are responded to in a timely, safe, effective manner

- **OBJECTIVE 2.1** – First responders cooperate with schools in the planning and implementation of the Safe Schools Against Violence in Education (S.A.V.E) program.
- **OBJECTIVE 2.2** – Municipal officials annually meet with the safety officer of each school to review the S.A.V.E. plan and verify consistency with municipal emergency operations.
- **OBJECTIVE 2.3** – School officials receive training in the Incident Command System and the operations procedures specified in the S.A.V.E. plan.

GOAL THREE: Municipal facilities are better protected against terrorist events

- **OBJECTIVE 3.1** – Analyze municipal facilities for vulnerability to terrorism.
- **OBJECTIVE 3.2** – Explore the use of barrier construction methods/security checks in vulnerable locations. Work with County Safety Committee to identify County vulnerabilities and methods to reduce vulnerabilities.
- **OBJECTIVE 3.3** – Improve identification methods for County employees.

## Transportation Accident

**GOAL ONE:** Promote transportation safety and maintain and upgrade roads in a manner that promotes transportation safety

- **OBJECTIVE 1.1** – Raise public awareness about traffic safety issues by participating in outreach efforts and disseminating safety information through County Traffic Safety Board.
- **OBJECTIVE 1.2** – Highway departments periodically survey approved traffic control devices (signs, markers, signals, etc...) and upgrade as needed.
- **OBJECTIVE 1.3** – In conjunction with the NYSDOT, develop Access Management Plans for major travel corridors in the County. Priority: NYS Route 7/10.
- **OBJECTIVE 1.4** – Provide municipal personnel with opportunities to participate in current defensive driving programs in County.
- **OBJECTIVE 1.5** – Work with NYDOT to fix locations with accidents above the statewide average.
- **OBJECTIVE 1.6** – Target law enforcement efforts at high accident locations and times.
- **OBJECTIVE 1.7** – Complete MacArthur Avenue Extension in Village of Cobleskill.
- **OBJECTIVE 1.8** – Install alternate power sources for 13 County intersection traffic lights (Villages given first priority).

**GOAL TWO:** New development projects are designed and located to promote transportation safety

- **OBJECTIVE 2.1** – Municipal comprehensive plans and land use regulations should promote development patterns in which major transportation routes are located away from major population areas, schools, and gathering areas.
- **OBJECTIVE 2.2** – Comprehensive plans and land use regulations should encourage interconnection of commercial properties in order to reduce use of major arterials.
- **OBJECTIVE 2.3** – When road upgrades or other construction projects are developed, plan to eliminate at-grade railroad crossings on State Routes and County Roads.

GOAL THREE: Emergency response personnel respond quickly and effectively to a major transportation accident

- **OBJECTIVE 3.1** – Emergency personnel periodically evaluate the need for alternate access routes to areas that may become isolated if a bridge, railroad crossing, or other transportation route becomes blocked. If problem areas are identified, find alternative solutions for gaining access.

**OBJECTIVE 3.2** – Annually update County and hospital plans that relate to transportation events.

### Hazardous Materials/Fire

*(Hazardous Material release in Transit, Hazardous Material Release at a Fixed Site, Oil Spill, Explosion, Fire, Radiological Release In Transit)*

GOAL ONE: Educate the public with information about how to respond to a hazardous material incident

- **OBJECTIVE 1.1** – In areas near major transportation routes/facilities that use or store hazardous materials, educate the residents on evacuation procedures and shelter locations. Improve Early Warning System for use during a hazardous material incident.

GOAL TWO: Emergency response personnel respond quickly and safely to a hazardous material incident

- **OBJECTIVE 2.1** – First responders periodically obtain hazardous material training.
- **OBJECTIVE 2.2** – First responders annually inventory their equipment and supplies for hazardous material response and fix/replace/obtain equipment as necessary.
- **OBJECTIVE 2.3** – Fire departments maintain up-to-date information about hazardous materials stored and used within their response area and are familiar with the layout of the facilities.
- **OBJECTIVE 2.4** – Work with Schoharie County Farm Bureau to encourage safe and consistent storage practices for hazardous materials on agricultural operations. Improve communication with agricultural operations and fire departments about storage of hazardous materials. Obtain signage for agricultural hazardous material locations.
- **OBJECTIVE 2.5** – Work with Bassett Hospital to ensure that medications and equipment needed to treat exposure to hazardous materials are accessible.

GOAL THREE: New development is designed and located in such a manner as to minimize risks associated with the transport and use of hazardous materials

- **OBJECTIVE 3.1** – Highway construction projects need to consider drainage, site access, and other conditions that might impact the dissemination of hazardous materials and the ability of emergency personnel to respond.
- **OBJECTIVE 3.2** – Work with owners of facilities that store and/or utilize hazardous materials to safely store and handle such materials.

- **OBJECTIVE 3.3** – Comprehensive plans and land use regulations should promote development patterns in which major transportation routes and industrial facilities are located away from schools, day cares, churches, waterways, and municipal water sources.

## Ground Movement

*(Earthquake, Landslide, Mine Collapse, Structural Collapse)*

GOAL ONE: Protect structures and people from ground movement events

- **OBJECTIVE 1.1** – Code Enforcement Officers shall be offered annual training and political support in order to effectively enforce the structural standards in the New York State Building Code.
- **OBJECTIVE 1.2** – Ensure that road/development projects involving slope steepening are designed with proper slopes to reduce landslide and slump potential.
- **OBJECTIVE 1.3** – Work with owners of Howes Cave Quarry to ensure that new development does not jeopardize the integrity of the former mine and area caves. Support proposed mining museum on site for protection and safe development of the area.
- **OBJECTIVE 1.4** – NYSDOT should be encouraged to reduce rockslides that routinely impact state routes.
- **OBJECTIVE 1.5** – Secure funding and design projects to eliminate existing landslides in the County.

## Non-Hazardous Material Fire, Explosion, Wildfire

GOAL ONE: Lessen chances and impacts of fire related damage, injuries, and deaths

- **OBJECTIVE 1.1** – Continue ongoing education of public on use of carbon monoxide detectors, fire detectors, fire extinguishers and fire prevention/safety.
- **OBJECTIVE 1.2** – Identify, create and maintain firebreaks near structures close to forested areas with steep slopes. Priority areas: Hamlet of Eminence in Towns of Blenheim, Jefferson, and Summit. Large forested areas in Towns of Blenheim, Broome, Conesville, Fulton, Gilboa, and Jefferson.
- **OBJECTIVE 1.3** - Install protection for existing dry hydrants.
- **OBJECTIVE 1.4** – Work with fire departments to inventory accessible water supplies for fire protection and develop a dry hydrant program to make water more accessible in rural areas.
- **OBJECTIVE 1.5** – Work with fire departments to develop written, shared fire-fighting tactics for areas where large or multiple structure fires are possible.

## Water Supply Contamination

GOAL ONE: Municipal water supply is better protected from contamination

- **OBJECTIVE 1.1** – Educate property owners about applicable restrictions in municipal water supply watersheds
- **OBJECTIVE 1.2** – Explore use of more stringent land use regulations to protect watershed of municipal water supplies.
- **OBJECTIVE 1.3** - Ensure that public water supplies vulnerability assessments and emergency response plans are kept up to date.

## Drought

GOAL ONE: Lessen drought impacts on private wells and agriculture

- **OBJECTIVE 1.1** – Identify back-up wells in the County to be used for alternative water supply and to monitor water levels for early detection and arrange agreement for use of such wells.
- **OBJECTIVE 1.2** – Work with Schoharie County Farm Bureau to encourage coordination with farmers during drought to assist each other with water supply issues.
- **OBJECTIVE 1.3** - Continue work with SEMO to provide water pumps and water line for emergency use if County owned pumps and water line is being utilized at a time of need.

## Epidemic

GOAL ONE: Protect human and non-human populations from infectious diseases

- **OBJECTIVE 1.1** – Obtain equipment, use of facilities, personnel training, or other necessary items as needed by the Schoharie County Department of Health to help respond to human disease outbreaks (including bioterrorism).
- **OBJECTIVE 1.2** – Work with Schoharie County Farm Bureau to educate agriculture and non-agriculture community on methods to decrease spread of infectious diseases.
- **OBJECTIVE 1.3** – Work with Schoharie County Animal Disease Response Team to obtain necessary materials to protect/respond to a disease outbreak and to identify and arrange for animal carcass burial locations

## Caving Accident

GOAL ONE: Respond to caving accidents in a timely, safe and effective manner

- **OBJECTIVE 1.1** – Provide emergency response officials with periodic training in cave rescue techniques (especially responders in the northern section of the County).

GOAL TWO: Reduce the possibility of caving accidents

- **OBJECTIVE 1.1** – Work with the National Speleological Society to educate the public about the safe means to access and explore caves.

## Utility Failure

GOAL ONE: Reduce possibility/impact of utility failure

- **OBJECTIVE 1.1** – Explore means to help offset costs to obtain and maintain generators for schools, commercial businesses, and agriculture industry.
- **OBJECTIVE 1.2** – Explore means to help offset costs to upgrade existing sewer, water and communications infrastructure in the County.

# ACTION PLAN

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To begin meeting the goals and objectives identified in the previous section, Schoharie County, towns, and villages agree to implement the following actions. Although the County is prepared to assist all municipalities with any hazard mitigation efforts, the proposed actions that will be lead solely through the County are listed separately from actions where town/village lead may be taken with County assistance.

This action plan only includes those items that can be accomplished over the next twenty years by the County, towns, and villages. Fully achieving the goals and objectives set forth in this plan will necessitate additional study and activities in future years, as well as the active participation of additional partners. The Hazard Mitigation Committee recognizes that, although several communities have identified potential mitigation projects, a lack of engineering expertise hinders attaching a proposed cost to many of the actions and that hiring engineer firms or staff in the next four years would help better define several projects in the County. Initially, those actions that are the most cost effective and/or appear to be the most urgent due to potential impacts to life and property have determined priority. High priority actions are also those that educate the public about hazards and those actions needed to further refine, improve, and implement the hazard mitigation plan. On an annual basis, the Hazard Mitigation Committee will be responsible for prioritizing new projects using a method such as STAPLEE or another useful prioritization method. Each planned construction action will undergo a benefit-cost analysis (FEMA Benefit/Cost software) before undertaking to ensure that the most cost-effective projects are considered first. HMGP will also undergo benefit-cost analysis by NYSEMO.

## *MEASURES TO BE IMPLEMENTED BY SCHOHARIE COUNTY*

Many hazard mitigation activities can be implemented on the County level and have positive impacts for every municipality. Municipal support for the actions is key for successful implementation, but County resources and employees can be utilized for the work. The County desires to continue or initiate each of the following activities using existing or anticipated resources. Schoharie County is a rural, sparsely populated region and unforeseen fiscal constraints limit the staff and financial resources that can be devoted to these activities and may delay or preclude full implementation of some of these proposed measures. Grant funding (mainly through NYDEC, NYSEMO, NRCS, and NYSDOT) will be pursued by the County to help supplement any of the strategies/projects that arise through the mentioned actions. Funding sources identified in the New York State Multi-Hazard Mitigation Plan will also be pursued.

For each action the following is identified as best as possible - priority and/or projected time per year, potential funding source, lead agency, and support agency (if needed). Actions are given either a high priority or a moderate priority. High priority actions will take place annually or in the next five years. Moderate priority actions will take place over the next decade to twenty years. Potential funding sources are labeled as local, State, or Federal as specific sources can change.

### **Multi-Hazard Mitigation**

**Hold an annual special hazard information meeting:** This event will be the main yearly event to achieving success in mitigating hazards in Schoharie County. This event is envisioned to bring this plan “off the shelf” each March starting in 2007 and to get people thinking about hazard mitigation. The County shall host this hazard information meeting to discuss strategies to ensure implementation of the objectives outlined in this plan. This meeting will be in addition to regular meetings of the Hazard Mitigation Committee. All municipal representatives, key County Departments, applicable State

Agencies, and the public will be invited to attend. Revisions and improvements to this plan can be proposed for changes to take place at the four-year review. Potential funding sources for the year can be more defined and individuals assigned the task of funding procurement for the year. Committees can be established to concentrate on achieving certain objectives in the plan.

**Priority/Time:** High/Once annually

**Funding:** Local

**Lead:** Schoharie County (Planning Agency and Emergency Management Office)

**Support Agency:** NYSEMO

**Distribute hazard information:** At the annual hazard information meeting and throughout the year, the Hazard Mitigation Committee will review brochures that are available in the County offices and evaluate the need for additional information/revisions about hazards, emergency preparedness, warning system, hazard mitigation, storm water management, and tree maintenance. Appropriate brochures will be procured and maintained on the display racks. The maps of hazards that are included in this plan will be displayed in the corresponding municipal offices. Copies of the Schoharie County All-Hazards Mitigation Plan will be available at the Planning and Development Agency, Emergency Management Office, local libraries, town halls and village halls. A public information committee was formed in 2005 in response to the Gilboa (Schoharie Reservoir) Dam emergency situation, and this group will continue to work.

**Priority/Time:** High/Once annually and as needed

**Funding:** Local/State/Federal

**Lead:** Schoharie County (Planning Agency and Emergency Management Office), Public Information Task Force

**Support Agency:** NYSEMO, County Department of Public Works, Village/Town Clerks

**Articles in local newspapers:** The County will continue to print articles about flooding and other hazards whenever possible and appropriate in the Times Journal, Mountain Eagle, and Schenectady Daily Gazette. Newspaper articles will inform residents about what is being done to protect the County from hazards; the measures people can take to prepare for disasters and how people can mitigate potential hazard impacts. The Planning and Development Agency and Emergency Management Office will be the key departments to draft and issue such articles.

**Priority/Time:** High/at least twice annually

**Funding:** Local

**Lead:** Schoharie County (Planning Agency and Emergency Management Office)

**Supporting:** All Agencies that deal with hazards can provide source material

**Include hazard information on the County website:** At the annual hazard information meeting, the Hazard Mitigation Committee will review the hazard information available on the County website, additional information about hazards and emergency response will be incorporated directly or by linking to other sites. Topics will include hazard information, family disaster planning, emergency supplies, how to obtain current warnings and weather forecasts, how to shelter-in-place, evacuation procedures, "good neighbor" policies, transportation safety, mitigation measures, etc.

**Priority/Time:** High/Once annually/Updates as needed

**Funding:** Local

**Lead:** Schoharie County (Planning Agency and Emergency Management Office)

**Support Agency:** Schoharie County Central Data Processing

**Support education efforts:** The County will continue to participate in and support County, regional, and state education efforts that address: natural hazards, flood mitigation, storm water management, emergency preparedness, wetland protection, and related topics. At the annual hazard information meeting, a discussion of needed training courses for the year will be discussed and planned. Municipal and County officials will be encouraged and/or required to participate in Incident Command System training and National Incident Management System training. Elected and appointed officials as well as paid and volunteer staff that deal with emergency situations will be informed of training opportunities.

The Schoharie County Flood Committee meets at least quarterly and will be encouraged to continue education of members through invited speakers and printed material. Through continued discussions by members of the public, Planning and Development advisors, Emergency Management Office advisors, and Natural Resource Conservation Service advisors, a broadened view of the role of the committee will be continued.

**Priority/Time:** High/Once annually/As needed

**Funding:** Local

**Lead:** Schoharie County (Planning Agency and Emergency Management Office)

**Review and update emergency plans:** The County Comprehensive Emergency Management Plan documents procedures that enable the County and municipalities to provide leadership and coordination during an emergency. This plan will be periodically reviewed (minimum of every 4 years) and updated to ensure that the information is current and accurate. At a minimum, contact information (for municipal officials, emergency personnel, utilities, etc.) will be updated annually. A complete review of the plan will be conducted periodically or after any event that triggers activation of the plan. Municipal representatives will be involved in this planning process in order to insure consistency with any local Emergency Plans. In addition, each fire department and police department that serves the County will be asked to participate in the plan review process in order to insure their familiarity with the plan.

Issues that will be evaluated as part of the plan review process, include:

- Verify that the equipment identified in the plan is available and in good condition.
- Test emergency communication equipment; upgrade as appropriate.
- Review and update the list of critical facilities serving the County (Appendix D).
- Evaluate each critical facility to identify potential vulnerabilities, such as: structural problems, outdated emergency operation plan, lack of an identified safety zone within the structure (areas that offer the greatest protection from roof failure, broken glass, flying debris, etc.), inability to function during a power outage, accessibility, etc. Develop strategies/projects that will mitigate or compensate for any identified risks to critical facilities. Continue to pursue generator purchase program for all County schools started in 2006.
- Evaluate alternate County Emergency Operations Center and computer server backup location that was established in 2006 in a low hazard risk area. Input by the County Central Data Processing Office will be required. Suggested improvements will be presented to the Schoharie County Board of Supervisors.
- Identify local animal hospitals, kennels, and other places where pets and farm animals can be housed during an evacuation and enter into agreements with these facilities. Include a list of these resources in the plan. Identify possible locations and conditions for mass burial of animals. The County Health Department and Farm Bureau will provide input.
- Assemble a list of key equipment that may be available from neighboring municipalities to assist with operations during an emergency. Include a list of these resources in the plan.
- Review and document procedures for highway departments to assist with the transportation needs of emergency service providers when the roads are not generally passable.

- Meet with the safety officer of each school and daycare center (Department of Social Services has updated list of daycares) to review the school's Safe Schools Against Violence in Education (S.A.V.E.) plan or emergency plan and verify consistency with the County Comprehensive Emergency Plan. Schools in the County include: Cobleskill-Richmondville High School, Golding Middle School, Radez Elementary, Ryder Elementary, Jefferson Central, Gilboa-Conesville Central, Middleburgh Central School, Schoharie Central School, Sharon Springs Central School. Daycares in the County include: Cobleskill Campus Child Care Center, Cobleskill-Richmondville Children's Center, Morning Star Learning Center, Schoharie Career/Teen Parenting Program, Clover Patch Day Care, Schoharie County Child Development Council (Blenheim, Sharon Springs, Cobleskill, Schoharie), Whispering Pines, Kathy Brayton, Marie Cater, Julie Cousin, Dana Devlin's Family Day Care, Grandma's House, Andrea Hall, Beth Hanna, Lois Hughes, Heather Kelly, Pamela Lawyer, Susan Maxwell, Meghan Mazzariello, Joan Oliver, Theresa Pricolo, Dawn Schell, Pamela Standhart, Talena Treadwell, Anna Mae Young, Linda Holmes, Lenora Piragnoli, Sunny Days, Tiny Steps, Helen Van Arsdal, Laurel Williams.
- Contact key industries and businesses (nursing homes, health care facilities, businesses/large farms that handle hazardous materials, etc.) to verify that they have emergency response plans, that those plans are consistent with the local emergency response plans, and that up-to-date 209-U reports are on file with the fire department.
- Update the existing list of potential terrorist targets; develop target protection plans and public response plans. Meet with owners/employees of identified targets, if deemed necessary, to assist in the process.
- Meet with NYS Department of Transportation staff to review risk and response issues related to potential transportation accidents and hazardous material in transit incidents.
- Meet with NYSDEC Dam Safety Bureau and private dam owners to discuss Dam Safety Plans for dams in the County.
- Evaluate the need for alternate access routes to areas that may become isolated if a bridge, Canadian Pacific Railroad crossing, or other transportation route becomes blocked.

**Priority/Time:** High

**Funding:** Local

**Lead:** Schoharie County Emergency Management Office

**Support Agency:** All County Agencies that deal with hazards

**Provide NOAA weather radios to residents and businesses:** Continue NOAA weather radios purchase program initiated in 2005 and provide radios to residents and businesses in locations that are prone to flooding or other hazards (or opportunity to purchase radios at a discounted price). Establish system for keeping radios maintained and inventoried. Assist municipalities (highway superintendents) with internet access for weather reports.

**Priority/Time:** High/Started in 2005 and is ongoing

**Funding:** Local/NYC

**Lead:** Schoharie County (Sheriff, Fire Coordinator, Emergency Management Office)

**Support:** Schoharie County Central Data Processing

**Improve Early Warning Systems:** Schoharie County has several early warning systems in place include automated calling systems and is undertaking (2006) installation of an advanced audible warning system in the Schoharie Valley. These systems will continue to be improved and tested and discussed at the annual hazard information meeting.

**Priority/Time:** High/Started in 2005 and is ongoing

**Funding:** Local/NYC

**Lead:** Schoharie County (Sheriff, Fire Coordinator, Emergency Management Office)

**Support:** Schoharie County Central Data Processing

**Improve GIS:** Schoharie County does not have a true Geographic Information System (GIS) and this can be a hindrance to emergency planning and hazard mitigation planning. Schoharie County is currently digitizing tax maps countywide and the GIS needs to be continually updated with data, equipment, and staff training. The status of GIS and activities to be undertaken shall be discussed at the annual hazard information meeting. Staff needs training in HAZUS MH software.

**Priority/Time:** High

**Funding:** Local State

**Lead:** Schoharie County (Real Property Tax, Central Data Processing, Planning and Development)

**Support:** all County Agencies

## **Flood**

**Direct mailing to owners of flood prone areas:** The County will continue to distribute flood information to owners of property in special flood hazard areas and other flood prone areas and local realtors. Each year, the Planning and Development Agency and Emergency Management Office will review the current informational pamphlets and the distribution list. Revisions will be made and new printed material created as appropriate. GIS will be utilized to help update the distribution list.

**Priority/Time:** High

**Funding:** Local

**Lead:** Schoharie County (Planning Agency and Emergency Management Office)

**Support Agency:** Schoharie County (Real Property Tax Office, Central Data Processing)

**Update and improve flood video:** At the annual hazard information meeting, the Hazard Mitigation Committee will review the current flood video that airs on local cable (each spring) and at the County Fair to evaluate the need for additional information/revisions about riverine dynamics, flood hazards, emergency preparedness, flood early warning system, hazard mitigation, storm water management, wetlands, and the National Flood Insurance Program. Additional funding may be needed to edit the video. Any new update videos will be redistributed to local libraries and schools.

**Priority/Time:** High/Once annually

**Funding:** Local/State

**Lead:** Schoharie County (Planning Agency and Emergency Management Office)

**Support:** SCHOPEG, NYDEC, NYSEMO

**Maintain flood zone and flood evacuation signs:** Every two years or when substantial changes are made to Flood Insurance Rate Maps or evacuation routes, the Planning and Development Agency and Emergency Management Office will confer with municipal highway superintendents and NYDOT to review the location of the 61 flood zone notification signs placed in the County. If it is determined that signs need to be replaced or moved, the assistance of NYDOT and the County Department of Public Works will be utilized.

**Priority/Time:** High/Once annually

**Funding:** Local

**Lead:** Schoharie County (Planning Agency and Emergency Management Office)

**Support Agency:** Municipal Highway Superintendents, NYDOT, County Department of Public Works

**Replace/install stream gauges:** The Emergency Management Office will continue to work with the Mohawk-Schoharie Hydro Committee to address the stream gauge information for waterways in the County.

**Priority/Time:** High

**Funding:** Local

**Lead:** Schoharie County Emergency Management Office

**Support Agency:** NYSEMO, USGS

**Inventory storm water infrastructure:** The County has commenced a program in the New York City Watershed (Conesville, Gilboa, and Jefferson) for inventorying, establishing routine inspection and maintenance of road ditches, culverts, and other drainage infrastructure. Grant funds will be pursued to expand the program countywide. Improved documentation procedures and communication with highway superintendents will be developed to improve the effectiveness of these inspection and maintenance activities and to qualify communities for increased Community Rating System credit. The Hazard Mitigation Committee will begin outreach to private landowners to educate them about stream channel and drainage ditch maintenance. It is anticipated that identification of mitigation projects on the municipal level will be aided by identifying undersized bridges and culverts through the program.

**Priority/Time:** High

**Funding:** Local/State

**Lead:** Schoharie County Planning Agency

**Support Agency:** NYDOS, Municipal Highway Superintendents

**Improve private dam safety/inspections:** The Hazard Mitigation Committee will identify and commence communication with private dam owners about proper maintenance and inspection of dams. The help of the NYDEC Bureau of Dam Safety will be key to the education process. Any dams identified as needing repair will be reported to the corresponding municipality as a possible grant application to NYDEC and/or NYSEMO.

**Priority/Time:** High/Once annually

**Funding:** Local/State/Federal

**Lead:** Schoharie County (Planning Agency and Emergency Management Office)

**Support Agency:** NYSEMO, NYDEC

**Work with dam owners to improve dam safety:** The Schoharie County Board of Supervisors and local citizen groups must continue to lobby for increased dam safety. It is a priority (especially for Gilboa (Schoharie Reservoir) Dam to use highest design, construction, operation, maintenance, and inspection standards on dams. Also pursue independent oversight of the design, construction, operation and maintenance of dams by qualified dam engineers, dam owners' indemnification of downstream residents and local governments for financial costs and losses attributable to dams, and increased media awareness and the quality of media reporting on dam and flood issues. Dam Concerned Citizens should be supported in this cause.

**Priority/Time:** High

**Funding:** Local

**Lead:** Schoharie County Board of Supervisors

**Support Agency:** Dam Concerned Citizens

**Commence beaver dam inventory/monitoring:** Using equipment procured through SARA funds, the Planning and Development Agency will initiate countywide beaver dam identification and monitoring

program. With the assistance of local municipalities, known beaver dams will be identified, photographed, and mapped providing a description of each dam and the condition of the dam. A timeline for inspection will be established using local people as the inspectors. The assistance of the NWS will be sought before initiating the project and data collected will be provided to the NWS – Albany.

**Priority/Time:** Moderate

**Funding:** Local/State

**Lead:** Schoharie County (Planning Agency and Emergency Management Office)

**Support Agency:** NWS, Municipalities

**Assist property owners with flood hazard mitigation measures:** The Planning and Development Agency will continue to provide technical assistance for elevation of utilities and other measures for flood proofing existing structures. If property owners are interested in implementing flood protection measures that are beyond their financial means, the County and the municipality will evaluate the desirability of applying for financial assistance for flood proofing, elevation or property acquisition. Municipal approval of projects is required and some are listed in the municipal section of this plan.

**Priority/Time:** High

**Funding:** Local/State/Federal

**Lead:** Schoharie County (Planning Agency and Emergency Management Office)

**Support Agency:** NYSEMO, Municipalities

**Upgrade existing drainage structures:** When roads, ditches, and culverts are damaged due to drainage and flooding problems, the County will make every effort to mitigate the problem when repairs are made. The municipalities will also continue the ongoing efforts to upgrade existing drainage structures as the need and funding permit.

**Priority/Time:** High

**Funding:** Local/State

**Lead:** County Department of Public Works, Municipal Highway Superintendents

**Support Agency:** Schoharie County Planning

**Make sure local plans/laws consider proper flood plain development:** When comprehensive plans or new local land use laws are created or updated, review for recognition of flood damage prevention laws and other means to protect new and existing development from floods.

**Priority/Time:** High/As needed

**Funding:** Local

**Lead:** County Planning Commission

## Severe Weather

**Explore providing brush pickup or disposal locations with municipalities:** The availability of a program providing brush pickup and/or designated drop off locations encourages residents to conduct periodic maintenance, which can reduce damages from an ice storm or wind storm. At the annual hazard mitigation meeting, a discussion of this service can be initiated and proposed projects developed.

**Priority/Time:** High/Once annually

**Funding:** Local

**Lead:** County Department of Public Works

**Support Agency:** County Planning Agency, Municipalities

*Schoharie County All-Hazards Mitigation Plan – May 2006*

**Make sure local plans/laws/projects consider severe weather mitigation:** When comprehensive plans/new local land use laws or newly proposed projects are reviewed, educate about underground construction of utilities to reduce severe storm impacts.

**Priority/Time:** High/As needed

**Funding:** Local

**Lead:** County Planning Commission

## **Terrorism**

Starting in 2007, the Hazard Mitigation Committee shall work with the owners of gas pipelines in the County to determine the best means to improve public education about pipeline in general and how to report suspicious activity near the lines. The owners of mass gathering locations will also begin to be contacted to determine the extent of means to decrease vulnerability to terrorism at specific sites.

**Priority/Time:** High

**Funding:** Local

**Lead:** Schoharie County (Planning Agency and Emergency Management Office)

**Assess the vulnerability of County facilities to a terrorist attack:** The Hazard Mitigation Committee and the County Safety Committee should hold a special meeting every 2 years commencing in 2007 dedicated to discussing vulnerability of County owned facilities and security/identification at County facilities. Funding could be pursued for recommended construction projects at County facilities. (i.e. security check stations, barrier construction in vulnerable locations)

**Priority/Time:** High/Once every 2 years

**Funding:** Local

**Lead:** Schoharie County Sheriff, Safety Officer, Schoharie County Safety Committee

**Support Agency:** Schoharie County Fire Coordinator, NYS Police

*NOTE: Other confidential actions to be undertaken by County Sheriff and NYS Police.*

## **Transportation Accident**

**County Safety Board:** The County Traffic Safety Board will continue to meet and periodically disseminate traffic safety information as appropriate.

**Priority/Time:** High/Once annually

**Funding:** Local

**Lead:** Schoharie County Sheriff, Traffic Safety Board

**Support Agency:** NYDOT, County Department of Public Works

**Access Management Plans:** The Planning and Development Agency will meet with NYSDOT to discuss Access Management Plans for major State Routes in the County. NYS Route 7 in Cobleskill and Richmondville would be a priority. Grant funding to develop such plans should be pursued.

**Priority/Time:** High

**Funding:** Local/State/Federal

**Lead:** Schoharie County Planning Agency

**Support Agency:** NYDOT

**Defensive Driving:** Defensive driving programs will continue to be offered to County and municipal staff/officials.

**Priority/Time:** High

**Funding:** Local

**Lead:** Schoharie County Safety Committee

**High Accident Area Identification:** The County Sheriff and NYS Police will annually review County accident incidents and times and target enforcement efforts at necessary locations to help reduce problems.

**Priority/Time:** High/Once annually

**Funding:** Local

**Lead:** Schoharie County Sheriff, NYS Police

**NYSDOT Plans for rail crossings:** The County will encourage NYSDOT to eliminate at-grade railroad crossings when reviewing new construction projects involving such crossings. Such actions will be incorporated into corridor plans as appropriate.

**Priority/Time:** High

**Funding:** Local

**Lead:** Schoharie County Planning Agency

**Support Agency:** NYDOT, County Department of Public Works

**Make sure local plans/laws/projects consider pedestrian and traffic safety:** When comprehensive plans/new local land use laws or newly proposed projects are reviewed, educate about pedestrian and traffic safety design.

**Priority/Time:** High/As needed

**Funding:** Local

**Lead:** County Planning Commission

## **Hazardous Materials/Fire**

**Early Warning System:** The County should expand the flood early warning system to include uses for other hazards (especially hazardous material events). The Hazard Mitigation Committee will invite the County Central Data Processing Office to assist with this project.

**Priority/Time:** High/Started in 2006

**Funding:** Local/NYC

**Lead:** Schoharie County Sheriff

**Support Agency:** County Planning Agency, County Emergency Management, NYCDEP, County Central Data Processing

**Agricultural Operations:** At the annual hazard mitigation meeting, invite Schoharie County Farm Bureau members to discuss ways to improve hazardous material storage/handling at large agricultural operations. Devise a method for farms to notify local fire departments of the time/type/quantity of hazardous material being stored.

**Priority/Time:** Moderate/Once Annually

**Funding:** Local

**Lead:** Schoharie County (Planning Agency and Emergency Management Office)

**Support Agency:** Schoharie County Farm Bureau, Schoharie County Agriculture and Farmland Protection Board

**Local official training:** The County should provide hazardous material awareness training for appropriate municipal officials and staff. The Schoharie County Fire Coordinator will offer this training periodically and invite participation from the municipalities.

**Priority/Time:** High

**Funding:** Local/State/Federal

**Lead:** Schoharie County Fire Coordinator

### **Non-Hazardous Material Fire, Explosion, Wildfire**

The County Fire Coordinator shall work with local fire departments to inventory accessible water supplies for fire fighting and determine where new dry hydrants should be installed in the County. Such information can be included in this plan at the first revision.

**Priority/Time:** High

**Funding:** Local/State

**Lead:** Schoharie County Fire Coordinator

**Support Agency:** Local Fire Departments

### **Water Supply Contamination**

The County Health Department and Planning and Development Agency will identify and assemble information to inform residents/property owners in municipal water supply watersheds about applicable land use regulations.

**Priority/Time:** High

**Funding:** Local

**Lead:** Schoharie County Planning Agency, Schoharie County Health Department

**Support Agency:** Schoharie County Planning Commission

### **Drought**

The Emergency Management Office will work with Planning and Development to inventory and map monitoring wells countywide. The Schoharie County Farm Bureau will be consulted to assist with methods to improve cooperation amongst farmers to help with lack of water problems on neighboring farms.

**Priority/Time:** Moderate

**Funding:** Local

**Lead:** Schoharie County Emergency Management Office

**Support Agency:** NYSEMO, County Department of Public Works, Schoharie County Farm Bureau

## **Epidemic**

Work shall continue to implement the plans developed by the County Health Department and the Animal Disease Response Team.

**Priority/Time:** High/Once annually

**Funding:** Local

**Lead:** Schoharie County Health Department

## **Caving Accident**

The Fire Coordinator, Sheriff, and EMO shall work with the National Speleological Society to set up and advertise training for performing cave rescues. The County shall contact all fire departments to encourage training even if no caves are located in the department's response zone in order to increase the pool of trained, available cave rescuers. Maps of known caves should not be widely distributed.

**Priority/Time:** High/Once annually

**Funding:** Local

**Lead:** Schoharie County Sheriff, Fire Coordinator, Emergency Management Office

**Support Agency:** National Speleological Society

The Hazard Mitigation Committee and the National Speleological Society shall meet to determine ways to distribute information to the public about accessing and exploring caves.

**Priority/Time:** High/Once annually

**Funding:** Local

**Lead:** Schoharie County (Planning Agency and Emergency Management Office)

**Support Agency:** National Speleological Society

## **Utility Failure**

The Hazard Mitigation Committee will continue work to establish a program to provide generators to needed facilities. The County shall continue to provide information and recommend upgrading of sewer, water and communications infrastructure in the County. Grant funds should be applied for whenever possible.

**Priority/Time:** High/Once annually

**Funding:** Local

**Lead:** Schoharie County Planning Agency

**Support Agency:** School Districts, Schoharie County Planning Commission

## **MEASURES TO BE IMPLEMENTED BY EACH MUNICIPALITY WITH COUNTY ASSISTANCE**

### **Multi-Hazard Mitigation**

**Periodically review and revise comprehensive plans and land use regulations:** The status of land use regulations in the County is listed on page 7, Table 4. To comply with this plan, the following must be evaluated as part of the development/review of a comprehensive plan or the development/major revision of land use regulations by municipalities:

- Is the town/village effectively promoting development patterns in which major transportation routes and industrial facilities are located away from population centers schools, gathering places, groundwater recharge areas, etc.? Are major transportation routes and industrial facilities planned to be located away from schools, day cares, churches, waterways, and municipal water sources? If not, have mitigation measures been considered?
- Does the town/village encourage interconnection of subdivision roads and commercial properties in order to diffuse traffic patterns and minimize single access roads?
- Do local regulations include adequate stream setbacks and standards to protect buildings and private bridges from damage due to stream bank erosion?
- Do the Town/Village floodplain development regulations (all municipalities adopted new flood damage prevention laws in April 2004) provide adequate flood protection for new development in areas with known flood risks? With the new updated digital Flood Insurance Rate Maps, each municipality should consider the desirability of additional construction standards or regulation of additional areas not identified on the Flood Insurance Rate Maps.
- Do the storm water management and erosion control standards provide adequate protection against increased flood damages?
- Are there areas where underground utilities should be required if feasible?
- Are municipal water supply watershed areas adequately protected by land use regulations?

New York Law requires any adopted plans of the County to be considered and incorporated into local plans as appropriate. The County Planning Commission can help keep local municipalities aware of this provision.

**Priority/Time:** High

**Funding:** Local

**Lead:** Municipalities, Schoharie County Planning Agency

**Support Agency:** Schoharie County Planning Commission

**Hazard mitigation training for municipal officials:** When offered, municipal officials (planning board members, code enforcement officer) should attend training/meetings to learn/discuss hazards that relate to site planning, transportation patterns, and development standards. Knowledge of the New York State Building Code needs to be a priority. County sponsored training/meeting may be held at or soon after annual hazard mitigation meeting. Training may include: NYDEC National Flood Insurance Program training, NYDEC storm water training, USACOE wetlands training. Building Code training should be pursued annually.

**Priority/Time:** High

**Funding:** Local

**Lead:** Municipalities

**Support Agency:** County Agencies

**Address municipal staffing needs:** Hazard mitigation, emergency preparedness, storm water management, public outreach, and the National Flood Insurance Program, will continue to require more and more time of municipal staff. Municipalities would benefit from additional staff resources to enable effective implementation of their hazard mitigation, flood mitigation, drainage system maintenance, and storm water management programs. Cooperative ventures could be sought. Municipal budgets are always tight and additional funding is needed to fully implement and expand these programs.

**Priority/Time:** High

**Funding:** Local/State

**Lead:** Municipalities, Schoharie County (Planning Agency and Emergency Management Office)

## **Flood**

**Assist property owners with flood proofing measures:** The Planning and Development Agency will continue to provide technical assistance for elevation of utilities and other measures for flood proofing existing structures. If property owners are interested in implementing flood protection measures that are beyond their financial means, the County and the municipality will evaluate the desirability of applying for financial assistance for flood proofing, elevation or property acquisition. Several municipalities have already identified possible projects that are listed under the project list for the specific community.

**Priority/Time:** High

**Funding:** Local/State/Federal

**Lead:** Schoharie County (Planning Agency and Emergency Management Office)

**Support Agency:** NYSEMO, NYDEC

**Upgrade existing drainage structures:** When roads, ditches, and culverts are damaged due to drainage and flooding problems, the County make every effort to mitigate the problem when repairs are made. The municipalities will continue the ongoing efforts to upgrade existing drainage structures as the need and funding permit. Highway departments shall participate when requested with the countywide storm water infrastructure inventory. Several municipalities have already identified possible projects that are listed under the project list for the specific community.

**Priority/Time:** High

**Funding:** Local/State

**Lead:** Highway Superintendents

**Support Agency:** NYDOT, County Department of Public Works

**Encourage Community Rating System application:** With the mitigation measures already initiated in the County and on the municipal level, application to the CRS should be pursued. The Planning and Development Agency can provide assistance to municipalities in the application process. Each municipality will be educated on the process and status of the CRS at the annual hazard information meeting.

**Priority/Time:** High

**Funding:** Local

**Lead:** Schoharie County (Planning Agency and Emergency Management Office)

## Severe Weather

**Improve monitoring of weather conditions:** Highway Departments should open communication with the NWS and, when feasible, highway departments should contact NWS with snowfall data and to advise NWS when forecast is not in synch with observations. Efforts should be made to provide Highway Departments with access to the NWS – Albany forecast page on the Internet, which provides the most up to date forecast available. Funding for Internet access may be necessary.

**Priority/Time:** High

**Funding:** Local

**Lead:** Highway Superintendents, Schoharie County (Planning Agency and Emergency Management Office)

**Support Agency:** NWS, Schoharie County Central Data Processing

**Improve conditions of roads during extreme weather events:** At the annual hazard information meeting, a discussion to improve communication with highway departments and emergency service providers will occur. Highway Superintendents should periodically review and revise plowing schedules to achieve optimal safe roadway conditions.

**Priority/Time:** High

**Funding:** Local

**Lead:** Highway Superintendents

**Support Agency:** County Department of Public Works

## Terrorism

**Assess the vulnerability of County water systems to a terrorist attack:** Each municipality with a public water system (Sharon Springs, Richmondville, Cobleskill, Schoharie, Esperance, Jefferson, and Conesville) needs to prepare a vulnerability assessment, including an evaluation of terrorist threats. The assistance of the Hazard Mitigation Committee can be requested for such assessment.

**Priority/Time:** High

**Funding:** Local/State

**Lead:** Municipalities

**Support Agency:** County Health Department

**Assess the vulnerability of municipal facilities to a terrorist attack:** Each municipal facility needs to be investigated for potential vulnerabilities to terrorist attack. A representative from each municipality should work with the Hazard Mitigation Committee to assess municipal property and to find ways to improve security. The review should include vulnerability to domestic terrorism, which is a more likely scenario in Schoharie County.

**Priority/Time:** High

**Funding:** Local

**Lead:** Municipalities

**Support Agency:** NYS Police, County Sheriff

## Transportation Accident

**Maintain communication with the NYS Department of Transportation/DPW:** The municipalities will continue to communicate with these agencies to ensure that new projects are designed to mitigate hazards. Municipalities will consider access management plans if deemed necessary. Municipal representatives and emergency response personnel will review draft plans to evaluate drainage, site access, and other conditions that might impact the dissemination of hazardous materials and the ability of emergency personnel to respond.

**Priority/Time:** High

**Funding:** Local

**Lead:** Highway Superintendents

**Support Agency:** NYDOT, County Department of Public Works

**Provide municipal personnel with defensive driving training:** Municipal staff that drives private or municipally owned vehicles as part of their jobs will be provided the opportunity to attend defensive driving classes through the County. The cost to the municipality is reduced by participation in the training. The municipalities should offer staff the opportunity to participate periodically.

**Priority/Time:** High/at least once annually

**Funding:** Local

**Lead:** Municipalities

**Traffic Control Devices:** Traffic control devices should continue to be checked and replaced when necessary. Lighted intersections should be equipped with alternate power sources in case of power failure. Such devices would limit constraints on emergency responders and improve traffic safety during power outages. This can be especially helpful because power outages tend to be the result of other events where emergency personnel are needed. A grant application may be pursued on the County level for such equipment and municipalities shall provide assistance to the County for such application.

**Priority/Time:** High

**Funding:** Local/State

**Lead:** Highway Superintendents

**Support Agency:** NYDOT, County Department of Public Works

## Hazardous Materials/Fire

Local fire departments shall continue to work with the County to achieve the objectives in this plan. Training and equipment acquisition/upgrades will continue to be offered by the County.

**Priority/Time:** High

**Funding:** Local/State

**Lead:** Municipalities

**Support Agency:** County Fire Coordinator

## **Caving Accident**

Local fire departments shall encourage participation of personnel in cave rescue training when offered, even if no caves are located in the normal response area.

**Priority/Time:** High

**Funding:** Local

**Lead:** Municipal Fire Departments, National Speleological Society, Fire Coordinator

**MUNICIPAL INFORMATION  
AND  
PROPOSED PROJECTS FOR SPECIFIC MUNICIPALITIES FOR WHICH ADDITIONAL  
RESOURCES ARE NEEDED**

Each municipality in Schoharie County is impacted by the same hazards, but the Hazard Mitigation Committee recognizes that different hazards may have more of an impact than others. For example, Schoharie Creek flooding has a large impact in the village of Middleburgh with little or no impact in the Town of Summit. The following additional actions are recommended for specific municipalities, but cannot be accomplished with existing resources. The municipalities, with County assistance through the Hazard Mitigation Committee and Flood Committee, will pursue funding for the following actions and projects. Benefit-Cost-Analysis can be used to prioritize construction projects.

**Town of Blenheim**

Total structure assessed value:	\$15,667,042.00
Number of structures in 100-year floodplain:	46
Assessed value:	\$ 3,000,000.00+

**Hazard Analysis (T. of Blenheim)**

**Moderately High Hazards:**

Flood  
Dam Failure  
Winter Storm (Severe)  
Ice Storm

Ice Jam  
Fuel Shortage  
Explosion  
Hazardous Material (Fixed Site)  
Earthquake  
Food Shortage  
Extreme Temperatures  
Radiological (In Transit)

**Moderately Low Hazards:**

Severe Storm  
Terrorism  
Oil Spill  
Wildfire  
Fire  
Landslide  
Hazardous Material (In Transit)  
Transportation Accident  
Tornado  
Utility Failure

**Low Hazards:**

Structural Collapse  
Drought  
Epidemic  
Air Contamination  
Water Supply Contamination  
Caving Accident  
Mine Collapse

**High priority potential mitigation projects (first 5 years):**

The 46 structures located in a special flood hazard area need to be evaluated to determine if elevation of structure/utilities is warranted. One structure is currently being reviewed for acquisition under the HMGP.

**Lead:** Town, Schoharie County Planning

Work with County to educate/assist property owners with implementation of measures that will protect existing development from flood risks (elevation of utilities, sewer backup protection, flood-proofing

measures, extension of municipal sewer and water, structure elevation, property acquisition) especially in North Blenheim area.

**Lead:** Town, Schoharie County Planning

Work with County to inventory all floodplain structures and educate/assist floodplain property owners with implementing measures that will protect existing development from flood risks (elevation of utilities, sewer backup protection, flood-proofing measures, extension of municipal sewer and water, structure elevation, property acquisition). Priority areas identified for elevation/acquisition projects include: North Blenheim.

**Lead:** Town, Schoharie County Planning

**Moderate priority potential mitigation projects (first 10 – 20 years):**

Demolish existing highway garage and construct new garage in non-floodplain location. Grant funding would be sought for \$200,000.00+ cost.

**Lead:** Town, Highway Superintendent

Work with NYDOT to elevate NYS Route 30 at cliffs at the Town of Blenheim/Fulton line. If NYDOT provides project design and cost estimate, grant funds could be sought.

**Lead:** Town, Schoharie County Planning

**Support Agency:** NYDOT

Work with County and NYSDOT to reduce rockslides on NYS Route 30 at the Town of Blenheim/Town of Fulton line. Project design and estimate could be provided by NYSDOT.

**Lead:** Town, Schoharie County Planning

**Support Agency:** NYDOT

Work with County to identify, create and maintain firebreaks near structures close to forested areas with steep slopes. Priority areas: Hamlet of Eminence and large steep slope, forested areas located near structures (map in Appendix F - CD).

**Lead:** Town, County Fire Coordinator

## Town of Broome

Total structure assessed value: \$36,082,050.00

Number of structures in 100-year floodplain: 4

Assessed value: \$ 200,000.00+

### Hazard Analysis (T. of Broome)

#### Moderately High Hazards:

Flood

Wildfire

Winter Storm (Severe)

Ice Storm

Fuel Shortage

Explosion

Hazardous Material (Fixed Site)

Earthquake

Food Shortage

Extreme Temperatures

Radiological (In Transit)

#### Moderately Low Hazards:

Dam Failure

Severe Storm

Oil Spill

Fire

Landslide

Hazardous Material (In Transit)

Transportation Accident

Tornado

Utility Failure

Ice Jam

#### Low Hazards:

Structural Collapse

Terrorism

Drought

Epidemic

Air Contamination

Water Supply Contamination

Mine Collapse

#### High priority potential mitigation projects (first 5 years):

The four residences located in a special flood hazard area need to be evaluated to determine if elevation of structure/utilities is warranted. No major flooding problems have been reported to date with the structures.

**Lead:** Town, Schoharie County Planning

Work with County to educate/assist property owners with implementation of measures that will protect existing development from flood risks (elevation of utilities, sewer backup protection, flood-proofing measures, extension of municipal sewer and water, structure elevation, property acquisition) especially along Catskill Creek.

**Lead:** Town, Schoharie County Planning

Work with County to inventory all floodplain structures and educate/assist floodplain property owners with implementing measures that will protect existing development from flood risks (elevation of utilities, sewer backup protection, flood-proofing measures, extension of municipal sewer and water, structure elevation, property acquisition). Priority areas identified for elevation/acquisition projects include: Catskill Creek floodplain.

**Lead:** Town, Schoharie County Planning

*Schoharie County All-Hazards Mitigation Plan – May 2006*

**Moderate priority potential mitigation projects (first 10 – 20 years):**

Work with County to identify, create and maintain firebreaks near structures close to forested areas with steep slopes. Priority areas: Large steep slope, forested areas located near structures such as Livingstonville. (map in Appendix F -CD).

**Lead:** Town, County Fire Coordinator

Study, develop, and implement projects for stabilizing stream channels in locations where erosion threatens development or agricultural resources. Priority streams identified with ongoing problems include: Town of Broome – Catskill Creek.

**Lead:** Town, Schoharie County (Planning Agency and Emergency Management Office)

**Support Agency:** Soil and Water Conservation District, NRCS

## Town of Carlisle

Total structure assessed value:	\$79,640,771.00
Number of structures in 100-year floodplain:	9
Assessed value:	\$ 700,000.00

### Hazard Analysis (T. of Carlisle)

#### Moderately High Hazards:

Winter Storm (Severe)  
Ice Storm

Fuel Shortage  
Explosion  
Hazardous Material (Fixed Site)  
Earthquake

#### Moderately Low Hazards:

Flood  
Dam Failure  
Severe Storm  
Oil Spill  
Wildfire  
Fire  
Landslide  
Hazardous Material (In Transit)  
Transportation Accident  
Tornado  
Utility Failure  
Ice Jam

Food Shortage  
Extreme Temperatures  
Radiological (In Transit)  
Caving Accident

#### Low Hazards:

Structural Collapse  
Terrorism  
Drought  
Epidemic  
Air Contamination  
Water Supply Contamination  
Mine Collapse

#### High priority potential mitigation projects (first 5 years):

The nine residences located in a special flood hazard area need to be evaluated to determine if elevation of structure/utilities is warranted. No major flooding problems have been reported to date with the structures.

**Lead:** Town, Schoharie County Planning

#### Moderate priority potential mitigation projects (first 10 – 20 years):

In cooperation with the Town of Esperance and the County, a stream stabilization study needs to be performed on Fly Creek.

**Lead:** Town, Schoharie County (Planning Agency and Emergency Management Office)

**Support Agency:** Soil and Water Conservation District, NRCS, Town of Esperance



**Moderate priority potential mitigation projects (first 10 – 20 years):**

Work with County to perform stream stabilization studies/project identification for Schoharie Creek and Cobleskill Creek.

**Lead:** Town, Schoharie County (Planning Agency and Emergency Management Office)

**Support Agency:** Soil and Water Conservation District, NRCS

**Village:**

**High priority potential mitigation projects (first 5 years):**

Develop an Emergency Action Plan for the Village of Cobleskill water reservoir dams.

**Lead:** Village of Cobleskill, County Health Department

Purchase and install alternative power sources for lighted intersections.

**Lead:** Village of Cobleskill, Schoharie County Planning

**Support Agency:** NYDOT

**Moderate priority potential mitigation projects (first 10 – 20 years):**

Mill Creek through the center of the Village has bank stabilization and flooding problems. Explore creating a flood-taxing district for properties bordering Mill Creek.

**Lead:** Village of Cobleskill, Schoharie County Planning

**Support Agency:** Soil and Water Conservation District

Evaluate opportunities (and implement as appropriate) to alleviate flooding problems by retaining or retarding water upstream through wetland creation/retention structures during high flow. Possible projects include: Village/Town of Cobleskill – Mill Creek. Grant funds for wetlands creation can be pursued.

**Lead:** Village of Cobleskill, Schoharie County Planning

**Support Agency:** Soil and Water Conservation District

Install protection for dry hydrant in Village of Cobleskill Veteran's Park pond

**Lead:** Village of Cobleskill, Fire Department

Study, develop, and implement projects for stabilizing stream channels in locations where erosion threatens development or agricultural resources. Priority streams identified with ongoing problems include: Village of Cobleskill – Mill Creek

**Lead:** Village of Cobleskill, Schoharie County (Planning Agency and Emergency Management Office)

**Support Agency:** Soil and Water Conservation District, NRCS

## Town of Conesville

Total structure assessed value:	\$29,622,058.00
Number of improved structures in 100-year floodplain:	10
Assessed value:	\$ 580,000.00+

### Hazard Analysis (T. of Conesville)

#### Moderately High Hazards:

Winter Storm (Severe)  
Ice Storm  
Flood

Fuel Shortage  
Explosion  
Hazardous Material (Fixed Site)  
Earthquake  
Food Shortage  
Extreme Temperatures  
Radiological (In Transit)

#### Moderately Low Hazards:

Dam Failure  
Severe Storm  
Oil Spill  
Wildfire  
Fire  
Landslide  
Hazardous Material (In Transit)  
Transportation Accident  
Tornado  
Utility Failure  
Ice Jam

#### Low Hazards:

Caving Accident  
Structural Collapse  
Terrorism  
Drought  
Epidemic  
Air Contamination  
Water Supply Contamination  
Mine Collapse

#### High priority potential mitigation projects (first 5 years):

The ten residences located in a special flood hazard area need to be evaluated to determine if elevation of structure/utilities is warranted. No major flooding problems have been reported to date with the structures.

**Lead:** Town, Schoharie County Planning

#### Moderate priority potential mitigation projects (first 10 – 20 years):

Study, develop, and implement projects for stabilizing stream channels in locations where erosion threatens development or agricultural resources. Priority streams identified with ongoing problems include: Town of Conesville – Manor Kill

**Lead:** Town, Schoharie County Planning

**Support Agency:** Soil and Water Conservation District, Catskill Watershed, NYDOS

Work with County to identify, create and maintain firebreaks near structures close to forested areas with steep slopes. Priority areas: Large steep slope, forested areas located near structures (map in Appendix F - CD).

**Lead:** Town, County Fire Coordinator

## Town of Esperance/Village of Esperance

Total structure assessed value:	Village:	\$ 9,496,297.00
	Town:	\$49,802,879.00
Number of improved structures in 100-year floodplain:		90
Town:		79
Village:		11
Assessed value:		\$ 6,500,000.00+

### Hazard Analysis (T. of Esperance/Village of Esperance)

#### Moderately High Hazards:

Flood  
Dam Failure  
Winter Storm (Severe)

Ice Storm  
Fuel Shortage  
Explosion  
Hazardous Material (Fixed Site)  
Earthquake

#### Moderately Low Hazards:

Severe Storm  
Terrorism  
Oil Spill  
Wildfire

Food Shortage  
Extreme Temperatures  
Radiological (In Transit)

Fire

#### Low Hazards:

Landslide

Structural Collapse

Hazardous Material (In Transit)

Caving Accident

Transportation Accident

Drought

Tornado

Epidemic

Utility Failure

Air Contamination

Ice Jam

Water Supply Contamination

Mine Collapse

#### Town:

#### High priority potential mitigation projects (first 5 years):

Work with County to educate/assist property owners with implementation of measures that will protect existing development from flood risks (elevation of utilities, sewer backup protection, flood-proofing measures, extension of municipal sewer and water, structure elevation, property acquisition) especially along Schoharie and Fly Creeks.

**Lead:** Town, Schoharie County Planning

Work with County to inventory all floodplain structures and educate/assist floodplain property owners with implementing measures that will protect existing development from flood risks (elevation of utilities, sewer backup protection, flood-proofing measures, extension of municipal sewer and water, structure elevation, property acquisition). Priority areas identified for elevation/acquisition projects include: Priddle Camp along Schoharie Creek consists of a cluster of single-family homes that were originally constructed as seasonal camps. Over the past few decades a majority of the camps have been improved into year round residences. After the January 1996 floods, several homes were elevated above the base

*Schoharie County All-Hazards Mitigation Plan – May 2006*

flood elevation. Elevation of residences and utilities, especially those adjacent to Schoharie Creek must be continued. The Town does not desire acquisition of Priddle Camp structures at the present time. Several residences adjacent to Schoharie Creek at the closest approach to US Route 20 should be elevated. A project is being considered for HMGP funding in 2006.

**Lead:** Town, Schoharie County Planning

**Moderate priority potential mitigation projects (first 10 – 20 years):**

Study, develop, and implement projects for stabilizing stream channels in locations where erosion threatens development or agricultural resources. Priority streams identified with ongoing problems include: Town of Esperance – Schoharie Creek (near Cripplebush Creek and Fly Creek).

**Lead:** Town, Schoharie County Planning

**Support Agency:** Soil and Water Conservation District

**Village:**

**High priority potential mitigation projects (first 5 years):**

The eleven residences located in a special flood hazard area need to be evaluated to determine if elevation of structure/utilities is warranted. Some flooding problems have been reported to date with one of the structures on Steuben Street.

**Lead:** Village, Schoharie County Planning

## Town of Fulton

Total structure assessed value:	\$40,224,802.00
Number of improved structures in 100-year floodplain:	36
Assessed value:	\$ 2,700,000.00

### Hazard Analysis (T. of Fulton)

#### Moderately High Hazards:

Flood	Ice Jam
Dam Failure	Fuel Shortage
Winter Storm (Severe)	Explosion
Ice Storm	Hazardous Material (Fixed Site)
	Earthquake
	Food Shortage

#### Moderately Low Hazards:

Severe Storm	Extreme Temperatures
Terrorism	Radiological (In Transit)

Oil Spill

Wildfire

Fire

Landslide

Hazardous Material (In Transit)

Transportation Accident

Tornado

Utility Failure

#### Low Hazards:

Structural Collapse

Drought

Epidemic

Air Contamination

Water Supply Contamination

Mine Collapse

### High priority potential mitigation projects (first 5 years):

The 36 structures located in a special flood hazard area need to be evaluated to determine if elevation of structure/utilities is warranted. No major flooding problems have been reported to date with the structures.

**Lead:** Town, Schoharie County Planning

Inventory all floodplain structures and educate/assist floodplain property owners with implementing measures that will protect existing development from flood risks (elevation of utilities, sewer backup protection, flood-proofing measures, extension of municipal sewer and water, structure elevation, property acquisition). Priority areas identified for elevation/acquisition projects include: Town of Fulton – Pleasant Valley Road. The estimate cost of a home relocation is \$80,000.00. This project is underway in 2006.

**Lead:** Town, Schoharie County Planning

### Moderate priority potential mitigation projects (first 10 – 20 years):

Study, develop, and implement projects for stabilizing stream channels in locations where erosion threatens development or agricultural resources. Town of Fulton – Pleasant Valley Creek.

**Lead:** Town, Schoharie County Planning

**Support Agency:** Soil and Water Conservation District

*Schoharie County All-Hazards Mitigation Plan – May 2006*

Work with County to identify, create and maintain firebreaks near structures close to forested areas with steep slopes. Priority areas: Hamlet of Eminence and large steep slope, forested areas located near structures (map in Appendix F - CD).

**Lead:** Town, County Fire Coordinator

## Town of Gilboa

Total structure assessed value:	\$44,908,412.00
Number of improved structures in 100-year floodplain:	6
Assessed value:	\$ 420,000.00+

### Hazard Analysis (T. of Gilboa)

#### Moderately High Hazards:

Flood

Dam Failure

Winter Storm (Severe)

Ice Storm

Ice Jam

Fuel Shortage

Explosion

Hazardous Material (Fixed Site)

Earthquake

Food Shortage

#### Moderately Low Hazards:

Severe Storm

Terrorism

Oil Spill

Wildfire

Fire

Landslide

Hazardous Material (In Transit)

Transportation Accident

Tornado

Utility Failure

Extreme Temperatures

Radiological (In Transit)

#### Low Hazards:

Structural Collapse

Drought

Epidemic

Air Contamination

Water Supply Contamination

Mine Collapse

#### High priority potential mitigation projects (first 5 years):

The six residences located in a special flood hazard area need to be evaluated to determine if elevation of structure/utilities is warranted. No major flooding problems have been reported to date with the structures.

**Lead:** Town, Schoharie County Planning

#### Moderate priority potential mitigation projects (first 10 – 20 years):

Design project and secure funding to eliminate existing landslides on Flat Creek Road in Town of Gilboa.

**Lead:** Town, County Department of Public Works

Work with County to identify, create and maintain firebreaks near structures close to forested areas with steep slopes. Priority areas: Large steep slope, forested areas located near structures (map in Appendix F - CD).

**Lead:** Town, County Fire Coordinator

## Town of Jefferson

Total structure assessed value:	\$48,593,244.00
Number of improved structures in 100-year floodplain:	3
Assessed value:	\$ 240,000.00

### Hazard Analysis (T. of Jefferson)

#### Moderately High Hazards:

Wildfire  
Winter Storm (Severe)  
Ice Storm

Fuel Shortage  
Explosion  
Hazardous Material (Fixed Site)  
Earthquake  
Food Shortage

#### Moderately Low Hazards:

Flood  
Dam Failure  
Severe Storm  
Oil Spill  
Fire  
Landslide  
Hazardous Material (In Transit)  
Transportation Accident  
Tornado  
Utility Failure  
Ice Jam

Extreme Temperatures  
Radiological (In Transit)

#### Low Hazards:

Structural Collapse  
Terrorism  
Drought  
Epidemic  
Air Contamination  
Water Supply Contamination  
Mine Collapse

#### High priority potential mitigation projects (first 5 years):

The three residences located in a special flood hazard area need to be evaluated to determine if elevation of structure/utilities is warranted. No major flooding problems have been reported to date with the structures.

**Lead:** Town, Schoharie County Planning

Develop and implement a strategy for replacing undersized bridges and culverts on public roadways and on private property. Possible projects include: Town of Jefferson – Mill Creek/Porter Road.

**Lead:** Town Highway Superintendent, County Department of Public Works

#### Moderate priority potential mitigation projects (first 10 – 20 years):

Work with County to identify, create and maintain firebreaks near structures close to forested areas with steep slopes. Priority areas: Hamlet of Eminence and large steep slope, forested areas located near structures (map in Appendix F - CD).

**Lead:** Town, County Fire Coordinator

## Town of Middleburgh/Village of Middleburgh

Total structure assessed value:	Village:	\$54,935,053.00
	Town:	\$60,582,791.00
Number of improved structures in 100-year floodplain:		204
Town:		64
Village:		140
Assessed value:		\$24,024,800.00

### Hazard Analysis (T. of Middleburgh/Village of Middleburgh)

#### Moderately High Hazards:

Flood  
Dam Failure  
Winter Storm (Severe)

Ice Storm  
Fuel Shortage  
Explosion  
Hazardous Material (Fixed Site)  
Earthquake

#### Moderately Low Hazards:

Severe Storm  
Terrorism  
Oil Spill  
Wildfire  
Fire  
Landslide  
Hazardous Material (In Transit)  
Transportation Accident  
Tornado  
Utility Failure  
Ice Jam

Food Shortage  
Extreme Temperatures  
Radiological (In Transit)  
Water Supply Contamination

#### Low Hazards:

Structural Collapse  
Caving Accident  
Drought  
Epidemic  
Air Contamination  
Mine Collapse

#### Town:

#### High priority potential mitigation projects (first 5 years):

The structures located in a special flood hazard area need to be evaluated to determine if elevation of structure/utilities is warranted.

*Lead:* Town, Schoharie County Planning

#### Village:

#### High priority potential mitigation projects (first 5 years):

The structures located in a special flood hazard area need to be evaluated to determine if elevation of structure/utilities is warranted.

*Lead:* Village, Schoharie County Planning

Inventory all floodplain structures and educate/assist floodplain property owners with implementing measures that will protect existing development from flood risks (elevation of utilities, sewer backup protection, flood-proofing measures, extension of municipal sewer and water, structure elevation, property acquisition). Priority areas identified for elevation/acquisition projects include: Town of Middleburgh – Mill Lane, Village of Middleburgh – Baker Avenue, Dexter Avenue, Middlefort Road and River Street.

**Lead:** Village, Schoharie County Planning

**Moderate priority potential mitigation projects (first 10 – 20 years):**

Evaluate opportunities (and implement as appropriate) to alleviate flooding problems by retaining or retarding water upstream through wetland creation/retention structures during high flow. Possible projects include: Village/Town of Middleburgh – Stoney Creek

**Lead:** Town, Village, Schoharie County Planning

**Support Agency:** Soil and Water Conservation District

Study, develop, and implement projects for stabilizing stream channels in locations where erosion threatens development or agricultural resources. Priority streams identified with ongoing problems include: Town of Middleburgh – Schoharie Creek, Town of Middleburgh – Little Schoharie Creek, Village of Middleburgh – Little Schoharie Creek.

**Lead:** Town, Village, Schoharie County Planning

**Support Agency:** Soil and Water Conservation District

## Town of Richmondville/Village of Richmondville

Total structure assessed value:      Town:      \$20,592,440.00  
   Village:      \$73,349,768.00

Number of structures in 100-year floodplain:      5  
Town:      4  
Village:      1

Assessed value:      \$    160,000.00+

### Hazard Analysis (T. of Richmondville/Village of Richmondville)

#### Moderately High Hazards:

Dam Failure

Winter Storm (Severe)

Fuel Shortage

Explosion

Hazardous Material (Fixed Site)

Earthquake

#### Moderately Low Hazards:

Flood

Severe Storm

Oil Spill

Wildfire

Fire

Landslide

Hazardous Material (In Transit)

Transportation Accident

Tornado

Utility Failure

Ice Jam

Ice Storm

Food Shortage

Extreme Temperatures

Radiological (In Transit)

Water Supply Contamination

#### Low Hazards:

Terrorism

Structural Collapse

Caving Accident

Drought

Epidemic

Air Contamination

Mine Collapse

#### Town:

#### High priority potential mitigation projects (first 5 years):

The residences located in a special flood hazard area need to be evaluated to determine if elevation of structure/utilities is warranted. No major flooding problems have been reported to date with the structures.

**Lead:** Town, Schoharie County Planning

Encourage NYSDOT to commence relocation of and improvements (identified in Route 7 Corridor Transportation Plan) to Warnerville-Cut-off Road to eliminate road closure due to ice jams and flooding and to eliminate an at-grade railroad crossing.

**Lead:** Village, Schoharie County Planning, NYDOT

#### Village:

**High priority potential mitigation projects (first 5 years):**

Due to close proximity of I-88 to the Village of Richmondville Reservoir, the Village should periodically check that a hazardous material incident could be contained before impacting the reservoir.

**Lead:** Village, Fire Department, County Fire Coordinator

Landslide on NYS Route 10 needs to be monitored, fixed, and/or controlled.

**Lead:** Town, Village, NYSDOT

Improvements to and inspection of Bear Gulch Lake Dam in the Town of Summit is critical to the safety of the Village residents. Talks should commence with Bear Gulch Lake Homeowners Association to ensure the dam is safe.

**Lead:** Schoharie County Emergency Management, Town of Summit, Town and Village of Richmondville, NYDEC, Bear Gulch Homeowners Association

## Town of Schoharie/Village of Schoharie

Total structure assessed value:	Village:	\$60,320,903.00
	Town:	\$74,059,043.00
Number of improved structures in 100-year floodplain:		126
Town:		21
Village:		106
Assessed value:		\$54,760,900

### Hazard Analysis (T. of Schoharie/Village of Schoharie)

#### Moderately High Hazards:

Flood  
Dam Failure  
Winter Storm (Severe)

Fuel Shortage  
Explosion  
Hazardous Material (Fixed Site)  
Earthquake  
Food Shortage  
Extreme Temperatures  
Radiological (In Transit)  
Mine Collapse  
Water Supply Contamination  
Caving Accident

#### Moderately Low Hazards:

Severe Storm  
Terrorism  
Oil Spill  
Wildfire  
Fire  
Landslide  
Hazardous Material (In Transit)  
Transportation Accident  
Tornado  
Utility Failure  
Ice Jam  
Ice Storm

**Low Hazards:**  
Structural Collapse  
Drought  
Epidemic  
Air Contamination

#### Town:

#### High priority potential mitigation projects (first 5 years):

Projects proposed in the Howes Cave Quarry shall be reviewed for potential impacts to underlying mines/caves. Continued support for a mining museum on site will help educate and protect the existing mines/caves.

**Lead:** Town, Schoharie County Planning\

**Support Agency:** Cave House

The structures located in a special flood hazard area need to be evaluated to determine if elevation of structure/utilities is warranted.

**Lead:** Town, Schoharie County Planning

**Village:****High priority potential mitigation projects (first 5 years):**

The structures located in a special flood hazard area need to be evaluated to determine if elevation of structure/utilities is warranted. No major flooding problems have been reported to date with the structures. Inventory all floodplain structures and educate/assist floodplain property owners with implementing measures that will protect existing development from flood risks (elevation of utilities, sewer backup protection, flood-proofing measures, extension of municipal sewer and water, structure elevation, property acquisition). Priority areas identified for elevation/acquisition projects include: Town of Schoharie – Karkendorf Road along Schoharie Creek, Village of Schoharie – Sunset Drive and Bridge Street

**Lead:** Town, Village, Schoharie County Planning

**Moderate priority potential mitigation projects (first 10 – 20 years):**

Study, develop, and implement projects for stabilizing stream channels in locations where erosion threatens development or agricultural resources. Priority streams identified with ongoing problems include: Town of Schoharie – Schoharie Creek

**Lead:** Town, Village, Schoharie County Planning

**Support Agency:** Soil and Water Conservation District

## Town of Seward

Total structure assessed value:	\$43,428,304.00
Number of improved structures in 100-year floodplain:	8
Assessed Value:	\$ 600,000.00+

### Hazard Analysis (T. of Seward)

#### Moderately High Hazards:

Winter Storm (Severe)  
Ice Storm

Fuel Shortage  
Explosion  
Hazardous Material (Fixed Site)  
Earthquake

#### Moderately Low Hazards:

Flood  
Dam Failure  
Severe Storm  
Oil Spill  
Wildfire  
Fire  
Landslide  
Hazardous Material (In Transit)  
Transportation Accident  
Tornado  
Utility Failure  
Ice Jam

Food Shortage  
Extreme Temperatures  
Radiological (In Transit)  
Caving Accident

#### Low Hazards:

Structural Collapse  
Terrorism  
Drought  
Epidemic  
Air Contamination  
Water Supply Contamination  
Mine Collapse

#### High priority potential mitigation projects (first 5 years):

The five residences located in a special flood hazard area need to be evaluated to determine if elevation of structure/utilities is warranted. No major flooding problems have been reported to date with the structures.

**Lead:** Town, Schoharie County Planning

#### Moderate priority potential mitigation projects (first 10 – 20 years):

Secure funding and design project to eliminate existing landslide on Patrick Road.

**Lead:** Town, Schoharie County Planning

## Town of Sharon/Village of Sharon Springs

Total structure assessed value:	Village:	\$77,134,790.00
	Town:	\$40,512,738.00
Number of improved structures in 100-year floodplain:		40
Town:		9
Village:		31
Assessed value:		\$ 1,900,000.00+

### Hazard Analysis (T. of Sharon/Village of Sharon Springs)

#### Moderately High Hazards:

Flood  
Winter Storm (Severe)

#### Moderately Low Hazards:

Dam Failure  
Severe Storm  
Oil Spill  
Wildfire  
Fire  
Landslide  
Hazardous Material (In Transit)  
Transportation Accident  
Tornado  
Utility Failure  
Ice Jam  
Ice Storm  
Fuel Shortage

Explosion  
Hazardous Material (Fixed Site)  
Earthquake  
Food Shortage  
Extreme Temperatures  
Radiological (In Transit)  
Structural Collapse  
Water Supply Contamination

#### Low Hazards:

Terrorism  
Caving Accident  
Drought  
Epidemic  
Air Contamination  
Mine Collapse

#### Town:

#### High priority potential mitigation projects (first 5 years):

The fourteen residences located in a special flood hazard area need to be evaluated to determine if elevation of structure/utilities is warranted. No major flooding problems have been reported to date with the structures.

**Lead:** Town, Schoharie County Planning

Inventory all floodplain structures and educate/assist floodplain property owners with implementing measures that will protect existing development from flood risks (elevation of utilities, sewer backup protection, flood-proofing measures, extension of municipal sewer and water, structure elevation, property acquisition). Priority areas identified for elevation/acquisition projects include: Town of Sharon – Engleville Road

**Lead:** Town, Schoharie County Planning

**Village:**

**High priority potential mitigation projects (first 5 years):**

Past flooding problems along US Route 20 may have been rectified by a NYSDOT project to divert water from Bomaker Pond to West Creek. The 25 structures located in the floodplain have not had flooding problems in the recent past. However, elevation of structures/utilities needs to be evaluated.

*Lead:* Village, Schoharie County Planning

**Moderate priority potential mitigation projects (first 10 – 20 years):**

Village water infrastructure needs to be updated.

*Lead:* Village, Schoharie County Planning

## Town of Summit

Total structure assessed value:	\$36,254,278.00
Number of improved structures in 100-year floodplain:	2
Assessed value:	\$ 130,000.00+

### Hazard Analysis (T. of Summit)

#### Moderately High Hazards:

Wildfire  
Winter Storm (Severe)  
Ice Storm

Fuel Shortage  
Explosion  
Hazardous Material (Fixed Site)  
Earthquake  
Food Shortage  
Extreme Temperatures  
Radiological (In Transit)

#### Moderately Low Hazards:

Flood  
Dam Failure  
Severe Storm  
Oil Spill  
Fire  
Landslide  
Hazardous Material (In Transit)  
Transportation Accident  
Tornado  
Utility Failure  
Ice Jam

#### Low Hazards:

Structural Collapse  
Terrorism  
Drought  
Epidemic  
Air Contamination  
Water Supply Contamination  
Mine Collapse

#### High priority potential mitigation projects (first 5 years):

The two residences located in a special flood hazard area need to be evaluated to determine if elevation of structure/utilities is warranted. No major flooding problems have been reported to date with the structures.

**Lead:** Town, Schoharie County Planning

Work with Bear Gulch Lake Homeowners Association to develop a plan for inspecting and maintaining Bear Gulch Dam.

**Lead:** Schoharie County Emergency Management, Town of Summit, Town and Village of Richmondville, NYDEC, Bear Gulch Homeowners Association

#### Moderate priority potential mitigation projects (first 10 – 20 years):

Identify, create and maintain firebreaks near structures close to forested areas with steep slopes. Priority areas: Hamlet of Eminence in Summit.

**Lead:** Town, County Fire Coordinator

## Town of Wright

Total structure assessed value:	\$82,387,762.00
Number of structures in 100-year floodplain:	33
Assessed value:	\$ 2,800,000.00+

### Hazard Analysis (T. of Broome)

#### Moderately High Hazards:

Flood  
Winter Storm (Severe)  
Ice Storm

Fuel Shortage  
Explosion  
Hazardous Material (Fixed Site)  
Earthquake  
Food Shortage  
Extreme Temperatures  
Radiological (In Transit)  
Caving Accident

#### Moderately Low Hazards:

Dam Failure  
Severe Storm  
Oil Spill  
Fire  
Landslide  
Wildfire  
Hazardous Material (In Transit)  
Transportation Accident  
Tornado  
Utility Failure  
Ice Jam

#### Low Hazards:

Structural Collapse  
Terrorism  
Drought  
Epidemic  
Air Contamination  
Water Supply Contamination  
Mine Collapse

#### High priority potential mitigation projects (first 5 years):

The thirty-three structures located in a special flood hazard area need to be evaluated to determine if elevation of structure/utilities is warranted.

**Lead:** Town, Schoharie County Planning

#### Moderate priority potential mitigation projects (first 10 – 20 years):

Study, develop, and implement projects for stabilizing stream channels in locations where erosion threatens development or agricultural resources. Priority streams identified with ongoing problems include: Town of Wright – Fox Creek, Town of Wright – King Creek

**Lead:** Town, Schoharie County Planning

**Support Agency:** Soil and Water Conservation District

# PLAN MAINTENANCE

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## **Copies of the Plan**

Each town and village will be responsible for keeping a copy of the Schoharie County All Hazards Mitigation Plan and a copy will be provided to newly elected or appointed officials by the Schoharie County Planning and Development Agency. This will provide them with an awareness of the community's risks and the plan that has been prepared to address those risks. It is anticipated that this will increase the incorporation of hazard mitigation objectives into the decision making process for the municipality. Other official repositories for the plan will be the Schoharie County Planning and Development Agency, Schoharie County Emergency Management Office, Schoharie County Clerk's Office, and libraries.

## **Plan Review**

A complete review will be conducted every four years after adoption (first scheduled review: January 2010) or when conditions change or new information is available to warrant the need for review (after annual Hazard Information Meeting). The Schoharie County Hazard Mitigation Committee will be responsible for undertaking the review and each municipality will be contacted to have their designated representative participate in the review and/or appoint additional people to participate. In most cases the municipal representative is the code enforcement officer, supervisor or mayor. Other municipal individuals encouraged to participate will be the Highway Superintendents, Public Works Officials, Fire Chiefs, Police Chiefs, and Planning Board members.

The Hazard Mitigation Committee will solicit public input and comments each time this plan is revised. The media that will be used to encourage public involvement includes the County website, local newspaper articles, posting notices in municipal offices, and directly contacting potentially interested individuals. Citizens will be encouraged to participate in the plan revision process by attending meetings and/or notifying municipal officials of their concerns and recommendations.

The Schoharie County Planning Commission and municipal planning boards will be asked to review each revision of the plan prior to submission to the municipalities for adoption. This will ensure consistency with other planning objectives and will provide planning board members with an opportunity to periodically consider the hazards faced by the community and the opportunities for mitigating those hazards.

At each review, the Hazard Mitigation Committee will be responsible for evaluating whether goals and objectives address current and expected conditions, whether the nature or magnitude of risks has changed, current resources are appropriate for implementing the plan, outcomes have occurred as expected, and partners have participated as expected. This task will become easier with the implementation of a more complete countywide GIS and major changes to the plan are anticipated by 2010.

Once all recommended changes are considered and incorporated, the municipalities will formally adopt the revised plan (Appendix B indicates adopting municipalities).

The plan revisions will then be incorporated into all copies of this document and the date of revisions will be added to a "Revision Sheet" page at the front of each plan.